AMENDED

CITY COUNCIL REGULAR MEETING AGENDA

REGULAR COUNCIL MEETING
TUESDAY
MARCH 4, 2025

COUNCIL CHAMBERS
211 WEST ASPEN AVENUE
3:00 P.M.

All City Council Meetings are live streamed on the city's YouTube page (https://www.youtube.com/@FlagstaffCityGovernment)

PUBLIC COMMENT

Verbal public comments not related to items appearing on the posted agenda may be provided during the "Open Call to the Public" at the beginning and end of the meeting and may only be provided in person.

Verbal public comments related to items appearing on the posted agenda may be given in person or online and will be taken at the time the item is discussed.

To provide online verbal comment on an item that appears on the posted agenda, use the link below.

ONLINE VERBAL PUBLIC COMMENT

Written comments may be submitted to publiccomment@flagstaffaz.gov. All comments submitted via email will be considered written comments and will be documented in the record as such.

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1. CALL TO ORDER

NOTICE OF OPTION TO RECESS INTO EXECUTIVE SESSION

Pursuant to A.R.S. §38-431.02, notice is hereby given to the members of the City Council and to the general public that, at this regular meeting, the City Council may vote to go into executive session, which will not be open to the public, for discussion and consultation with the City's attorneys for legal advice on any item listed on the following agenda, pursuant to A.R.S. §38-431.03(A)(3).

2. Roll Call

NOTE: One or more Councilmembers may be in attendance through other technological means.

MAYOR DAGGETT
VICE MAYOR SWEET
COUNCILMEMBER ASLAN
COUNCILMEMBER GARCIA
COUNCILMEMBER HOUSE
COUNCILMEMBER MATTHEWS
COUNCILMEMBER SPENCE

3. PLEDGE OF ALLEGIANCE, MISSION STATEMENT, AND LAND ACKNOWLEDGEMENT

MISSION STATEMENT

The mission of the City of Flagstaff is to protect and enhance the quality of life for all.

LAND ACKNOWLEDGEMENT

The Flagstaff City Council humbly acknowledges the ancestral homelands of this area's Indigenous nations and original stewards. These lands, still inhabited by Native descendants, border mountains sacred to Indigenous peoples. We honor them, their legacies, their traditions, and their continued contributions. We celebrate their past, present, and future generations who will

forever know this place as home.

4. OPEN CALL TO THE PUBLIC

Open Call to the Public enables the public to address the Council about an item that is not on the prepared agenda. Comments relating to items that are on the agenda will be taken at the time that the item is discussed. Open Call to the Public appears on the agenda twice, at the beginning and at the end. The total time allotted for the first Open Call to the Public is 30 minutes; any additional comments will be held until the second Open Call to the Public.

If you wish to address the Council in person at today's meeting, please complete a comment card and submit it to the recording clerk as soon as possible. Your name will be called when it is your turn to speak. You may address the Council up to three times throughout the meeting, including comments made during Open Call to the Public and Public Comment. Please limit your remarks to three minutes per item to allow everyone an opportunity to speak. At the discretion of the Chair, ten or more persons present at the meeting and wishing to speak may appoint a representative who may have no more than fifteen minutes to speak.

5. PROCLAMATIONS AND RECOGNITIONS

A. **Recognition**: Girl Scout Awards

B. **Proclamation**: Girl Scout Week

C. **Proclamation:** Women's History Month

6. COUNCIL LIAISON REPORTS

7. APPOINTMENTS

Pursuant to A.R.S. §38-431.02, notice is hereby given to the members of the City Council and to the general public that the City Council may vote to go into executive session, which will not be open to the public, for the purpose of discussing or considering employment, assignment, appointment, promotion, demotion, dismissal, salaries, disciplining or resignation of a public officer, appointee, or employee of any public body...., pursuant to A.R.S. §38-431.03(A)(1).

A. **Consideration of Appointments:** Open Space Commission.

STAFF RECOMMENDED ACTION:

1. Make one appointment to a term expiring April 2027.
2. Make one appointment to a term expiring April 2028.

8. CONSENT AGENDA

All matters under Consent Agenda are considered by the City Council to be routine. Unless a member of City Council expresses a desire at the meeting to remove an item from the Consent Agenda for discussion, the Consent Agenda will be enacted by one motion approving the recommendations listed on the agenda. Unless otherwise indicated, expenditures approved by Council are budgeted items.

STAFF RECOMMENDED ACTION:

Approve the Consent Agenda as posted.

A. **Consideration and Approval of Contract:** Approval of Contract with Flowbird for Proprietary Parking Meter Payment Processing Software at $69,718 annually.

STAFF RECOMMENDED ACTION:

Approve the contract with Flowbird for the use of its proprietary software for parking meter payment processing, parking statistic data reporting, and financial reporting.

B. **Consideration and Approval of Settlement:** Settlement of the condemnation proceeding, *City of Flagstaff v. Hanson et al.* (S0300CV202200547) related to acquisition of property for the Lone Tree Overpass Project.

STAFF RECOMMENDED ACTION:

1. Approve settlement of the condemnation proceeding pursuant to the terms discussed in Executive Session; and
2. Authorize the City Manager, City Attorney, or its outside legal counsel to execute all documents and take other actions as are necessary to finalize the settlement.

C. **Consideration and Approval of Contract:** Cooperative Purchase Contract with J Banicki Construction for Stormwater Asset Repairs in the amount of $193,494.28.

STAFF RECOMMENDED ACTION:

1. Approve the Cooperative Purchase Contract with J Banicki Construction for Stormwater Asset Repairs for an amount of $193,494.28; and
2. Request that the City Manager to execute the necessary documents.

D. **Consideration and Approval of Contract:** Change Order 2 with Burgess & Niple, Inc. in the amount of $234,660.00 and add 150 calendar days to the Butler Fourth Improvement Professional Engineering Services Contract.

STAFF RECOMMENDED ACTION:

1. Approve Change Order 2 for Butler Fourth Improvement Project with Burgess & Niple, Inc. in the amount of $234,660.00;
2. Add 150 calendar days to the Professional Engineering Services Contract; and
3. Authorize the City Manager to execute the necessary documents.

9. ROUTINE ITEMS

A. **Consideration and Adoption of Resolution No. 2025-09 and Ordinance No. 2025-03:** An ordinance of the City Council of the City of Flagstaff, amending the Flagstaff City Code, Title 13-09-002-0012, Private Pressure Wastewater Mains and Services.

STAFF RECOMMENDED ACTION:

1. Adopt Resolution No. 2025-09
2. Read Ordinance No. 2025-03 by title only for the final time
3. City Clerk reads Ordinance No. 2025-03 by title only (if approved above)
4. Adopt Ordinance No. 2025-03

B. **Consideration and Approval of Contract:** Fourth Amendment to the Design-Build Contract with Hunter Contracting Co. in the amount of $688,880 adding GMP 5 for Construction and Repair Services for the Inner Basin Waterline Restoration Project.

STAFF RECOMMENDED ACTION:

1. Approve the Fourth Amendment to the Design-Build Contract with Hunter Contracting Co. in the amount of $688,800 adding GMP 5 for Construction and Repair Services for the Inner Basin Waterline Restoration Project with a contract duration of 75-calendar days; and
2. Authorize the City Manager to execute the necessary documents.

C. **Consideration and Approval and Ratification of Contract:** Approve the Concessionaire Services License Agreement with Hi-Line Snack and Vending, Inc. to add two micro-markets and a coffee kiosk at the Flagstaff Pulliam Airport.

STAFF RECOMMENDED ACTION:

1. Approve the Concessionaire Services License Agreement with Hi-Line Snack and Vending, Inc. to add two micro-markets and a coffee-kiosk at the Flagstaff Pulliam Airport; and
2. Authorize the City Manager to execute the necessary documents.

10. PUBLIC HEARING ITEMS

1. Open the Public Hearing
2. Presentations (Staff and/or Applicant)
3. Council Questions
4. Public Comment
5. Close the Public Hearing
6. Council Deliberation and Action

A. **Consideration and Adoption of Resolution No. 2025-05:** A resolution of the Flagstaff City Council, authorizing the execution of the Second Amendment to the Mill Town Development Agreement between Vintage Partners, LLC and the City of Flagstaff related to the development of approximately 13 acres of real property generally located at 1801 S Milton Road.

STAFF RECOMMENDED ACTION:

1. Read Resolution No. 2025-05 by title only
2. City Clerk reads Resolution No. 2025-05 by title only (if approved above)
3. Adopt Resolution No. 2025-05

11. REGULAR AGENDA

A. **Consideration and Adoption of Resolution No. 2025-06:** A resolution of the Flagstaff City Council, approving an Intergovernmental Agreement with the Arizona Game and Fish Department for wildlife drinkers along the Inner Basin Pipeline.

STAFF RECOMMENDED ACTION:

1. Read Resolution No. 2025-06 by title only
2. City Clerk reads Resolution No. 2025-06 by title only (if approved above)
3. Adopt Resolution No. 2025-06

B. **Consideration and Adoption of Resolution No. 2025-07:** A resolution of the Flagstaff City Council, approving an Intergovernmental Agreement (IGA) between the State of Arizona through the Arizona Department of Transportation and City of Flagstaff for the Arizona State Match Advantage for Rural Transportation (AZ SMART) Match Reimbursement for the Butler Avenue Complete Streets Conversion project.

STAFF RECOMMENDED ACTION:

1. Read Resolution No. 2025-07 by title only
2. City Clerk reads Resolution No. 2025-07 by title only (if approved above)
3. Adopt Resolution No. 2025-07

C. **Consideration and Adoption of Resolution No. 2025-10 and Ordinance No. 2025-04:** An ordinance to revise the Stormwater Management Design Manual to comply with current standards, definitions, and engineering design by adopting the 2025 Stormwater Management Design Manual.

STAFF RECOMMENDED ACTION:

At the March 4, 2025 Meeting:

1. Read Resolution No. 2025-10 by title only
2. City Clerk reads Resolution No. 2025-10 by title only (if approved above)
3. Read Ordinance No. 2025-04 by title only for the first time
4. City Clerk reads Ordinance No. 2025-04 by title only (if approved above)

At the March 18, 2025 Meeting

5. Adopt Resolution No. 2025-10
6. Read Ordinance No. 2025-04 by title only for the final time
7. City Clerk reads Ordinance No. 2025-04 by title only (if approved above)
8. Adopt Ordinance No. 2025-04

D. **Consideration and Adoption of Resolution No. 2025-08:** A resolution of the Flagstaff City Council recognizing the housing emergency declared by Resolution No. 2020-66 is exacerbated by the proliferation of short-term rentals limiting housing stock available to Flagstaff residents; and urging the state legislature of the State of Arizona to address the impacts of short-term rentals on the supply of housing for Arizona residents.

STAFF RECOMMENDED ACTION:

1. Read Resolution No. 2025-08 by title only
2. City Clerk reads Resolution No. 2025-08 by title only (if approved above)
3. Adopt Resolution No. 2025-08

E. **Consideration and Possible Action:** Use of the Council Initiative Fund

STAFF RECOMMENDED ACTION:

Authorize the use of the Council Initiative Fund:

1. Sponsorship of the Habitat for Humanity Blitz Home Build Volunteer Event
2. Other identified initiatives

12. FUTURE AGENDA ITEM REQUESTS

After discussion and upon agreement by three members of the Council, an item will be moved to a regularly-scheduled Council meeting.

A. **Future Agenda Item Request (F.A.I.R.):** A request by Councilmember Spence to place on a future agenda a discussion regarding immigration deportation issues in Flagstaff in light of the current federal deportation initiative

STAFF RECOMMENDED ACTION:

Council Direction

13. OPEN CALL TO THE PUBLIC

14. INFORMATIONAL ITEMS TO/FROM MAYOR, COUNCIL, AND STAFF, AND FUTURE AGENDA ITEM REQUESTS

15. ADJOURNMENT

CERTIFICATE OF POSTING OF NOTICE

The undersigned hereby certifies that a copy of the foregoing notice was duly posted at Flagstaff City Hall on _____, at _____ a.m./p.m. in accordance with the statement filed by the City Council with the City Clerk.

Dated this _____ day of _____, 2025.

_____
Stacy Saltzburg, MMC, City Clerk

THE CITY OF FLAGSTAFF ENDEAVORS TO MAKE ALL PUBLIC MEETINGS ACCESSIBLE TO PERSONS WITH DISABILITIES. With 48-hour advance notice, reasonable accommodations will be made upon request for persons with disabilities or non-English speaking residents. Please call the City Clerk (928) 213-2076 or email at stacy.saltzburg@flagstaffaz.gov to request an accommodation to participate in this public meeting.

NOTICE TO PARENTS AND LEGAL GUARDIANS: Parents and legal guardians have the right to consent before the City of Flagstaff makes a video or voice recording of a minor child, pursuant to A.R.S. § 1-602(A)(9). The Flagstaff City Council meetings are live-streamed and recorded and may be viewed on the City of Flagstaff's website. If you permit your child to attend/participate in a televised Council meeting, a recording will be made. You may exercise your right not to consent by not allowing your child to attend/participate in the meeting.

CITY OF FLAGSTAFF

STAFF SUMMARY REPORT

To: The Honorable Mayor and Council

From: Georganna Staskey, Deputy City Clerk

Date: 02/26/2025

Meeting Date: 03/04/2025

TITLE:
Consideration of Appointments: Open Space Commission.

STAFF RECOMMENDED ACTION:

1. Make one appointment to a term expiring April 2027.
2. Make one appointment to a term expiring April 2028.

Executive Summary:
The Open Space Commission consists of six at-large members whom shall be appointed by the City Council and one designee from the Planning and Zoning Commission. The commission serves as an advisory body on the acquisition, management, use, restoration, enhancement, protection, and conservation of open space land.

The City of Flagstaff is committed to increasing diversity in every board and commission, please consider how the applicant stated they may contribute to this commitment.

There are seven (7) applications on file for consideration by the Council, they are as follows:

- Christopher Hogan (new applicant)
- Molly Lesandrini (new applicant)
- Adrian Franko (new applicant)
- Daniel Skelton (new applicant)
- Jessica Garnello (new applicant)
- Lina Wallen (current Commissioner)
- William Kluwin (new applicant)

To reduce exposure to personal information the applicant roster and applications will be submitted to the City Council separately.

COUNCIL APPOINTMENT ASSIGNMENT: Councilmember Spence and Councilmember Garcia.

Financial Impact:
These are voluntary positions and there is no budgetary impact to the City of Flagstaff.

Policy Impact:
None

Previous Council Decision or Community Discussion:
None

Options and Alternatives to Recommended Action:

1. Appoint two Commissioner: By appointing members at this time, the Open Space Commission will be filled, and this allows the group to meet and provide recommendations to the City Council.
2. Postpone the action to allow for further discussion or expand the list of candidates.

Connection to PBB Priorities and Objectives:
Inclusive and Engaged Community - Foster community pride and civic engagement; advance social equity and social justice in Flagstaff; facilitate and foster diversity and inclusivity; and enhance community outreach and engagement opportunities.

Connection to Regional Plan:
None

Connection to Carbon Neutrality Plan:
None

Connection to 10-Year Housing Plan:
None

Attachments: Open Space Authority Papers

CHAPTER 2-20
OPEN SPACES COMMISSION

SECTIONS:

2-20-001-0001 CREATION OF THE COMMISSION
2-20-001-0002 TERMS OF OFFICE
2-20-001-0003 DUTIES
2-20-001-0004 OPEN SPACES LONG RANGE MANAGEMENT PLAN COMPONENTS
2-20-001-0005 MEETINGS; ATTENDANCE

2-20-001-0001 CREATION OF THE COMMISSION

There is hereby created an advisory body to be called the "Open Spaces Commission" ("Commission") consisting of the following seven (7) regular members all of whom shall be appointed by the City Council, except for the designee from the Planning and Zoning Commission: one (1) member from the Planning and Zoning Commission; and six (6) public at-large members. All Commission members shall be voting members. A Chairperson shall be selected by a majority vote of those members at a meeting called for that purpose. (Ord. No. 2007-08, Amended, 02/06/2007; Ord. 2014-28, Amended, 11/18/2014; Ord. 2015-22, Amended, 01/05/2016; Ord. 2024-16, Amended, 06/18/2024 (Res. 2024-22))

2-20-001-0002 TERMS OF OFFICE

Appointments from the Planning and Zoning Commission to the Open Spaces Commission shall be for no longer than the remaining term of the designee. Terms of all other appointees shall be for three (3) years. (Ord. 2024-16, Amended, 06/18/2024 (Res. 2024-22))

2-20-001-0003 DUTIES

A. It shall be the Commission’s duty to advise the City Council on acquisition, preservation, and alternatives for open space land management.

B. The duties of the Commission shall also include, but not be limited to: Reviewing and advising the City Council on the development of an open spaces long range management plan and policies to provide broad, long-term direction for planning and decision-making for open space lands.

C. Advising and assisting the Mayor and City Council on ways to educate and involve the community on the value, protection, and stewardship of open space lands.

D. Advising and assisting the Mayor and City Council on ways to work collaboratively with other governmental entities, organizations, and departments to advance and ensure the implementation of the Open Spaces Long Range Management Plan and the current Flagstaff Regional Plan.

E. Advising and assisting the Mayor and City Council regarding regional open space issues as well as to any

regional open spaces coalition that may be formed in the future relative to lands designated as open space in the Greater Flagstaff Area Open Spaces and Greenways Plan.

F. Obtaining public input and participation in various programs such as environmental education and interpretation on the use, operation, and management of open space and providing information concerning the goals, projects, and operations of the Open Space Section.

G. With respect to the parks and recreation portion of the Bed, Board and Booze Tax allocated under Chapter 3-06, Hospitality Industry Tax Revenues, the Commission shall make joint recommendations, along with the Parks and Recreation Commission, to the Council concerning the annual budgetary allocation of the parks and recreation portion of this tax, to include but not be limited to:

1. Developing parks and recreation facilities, open space, and programs as needed to benefit the community and its visitors.

2. Funding for the Flagstaff Urban Trails System development and maintenance.

3. Developing, acquiring, and distributing material to promote parks and recreation.

4. Retaining of appropriate staff to implement approved programs. (Ord. 2024-16, Amended, 06/18/2024 (Res. 2024-22))

2-20-001-0004 OPEN SPACES LONG RANGE MANAGEMENT PLAN COMPONENTS

A. The components of the Open Spaces Long Range Management Plan shall include, but not be limited to:

1. Program goals, management decision-making processes, and implementation techniques for resource preservation.

2. Policies to provide the framework for more issue- or site-specific planning and implementation.

3. Criteria for the acquisition of lands that are consistent with open space goals and policies set forth in the Open Spaces Long Range Management Plan.

4. Plans for the management of the open spaces to achieve the goals of the Open Spaces Long Range Management Plan using such studies and data as property inventories, the nature and significance of the natural and cultural resources, plant and animal species ecosystems, existing uses and conditions, and interactions and connections between natural areas and between developed and undeveloped areas.

5. Developing, identifying, and recommending the use of various methods, such as intergovernmental agreements, rights-of-way for access, and grants, to assure protection of critical open space lands.

6. Policies to monitor, maintain, enhance, and restore, where necessary, natural and cultural resources, uses, accesses, trails, and facilities.

7. Public participation, education, and interpretive programs. (Ord. 2024-16, Amended, 06/18/2024 (Res. 2024-22))

2-20-001-0005 MEETINGS; ATTENDANCE

The Commission shall meet on a quarterly basis, at a minimum, at such times, dates, and locations as determined by the members, except that the Chairperson may call a special meeting with not less than twenty-four (24) hours' notice. All other rules or procedures shall be established by the members so long as the rules are consistent with State law, including the Open Meetings Law, the City Charter, and this chapter.

A quorum shall consist of four (4) voting members of the Commission.

A regular Commission member who is absent for three (3) consecutive regular meetings may be removed from the Commission by a vote of the City Council. (Ord. 2003-03, Enacted, 02/04/03; Ord. 2007-08, Amended 02/06/2007; Ord. 2016-30, Amended, 07/05/2016; Ord. 2024-16, Amended, 06/18/2024 (Res. 2024-22))

CITY OF FLAGSTAFF

STAFF SUMMARY REPORT

To: The Honorable Mayor and Council

From: Gail Brockman, Park Flag

Date: 02/26/2025

Meeting Date: 03/04/2025

TITLE:

Consideration and Approval of Contract: Approval of Contract with Flowbird for Proprietary Parking Meter Payment Processing Software at $69,718 annually.

STAFF RECOMMENDED ACTION:

Approve the contract with Flowbird for the use of its proprietary software for parking meter payment processing, parking statistic data reporting, and financial reporting.

Executive Summary:

City Council is being asked to consider approval of a contract with Flowbird, the sole provider of proprietary software integral to ParkFlag's parking meter operations.

The parking program has relied on Flowbird since its implementation in 2017, under our original contract Flowbird provided both the pay-stations (parking meters) and the operating software. City Council approved the original contract in 2017 through a national cooperative agreement between NCPA and Flowbird. While this agreement has since expired, Flowbird has been awarded a Cooperative Contract through Omnia, and has agreed to maintain the same rate established under the original contract not to exceed the maximums set forth in the new Cooperative Contract.

It is essential to continue with Flowbird as its proprietary software is crucial to the functionality of our parking meters (pay stations). Flowbird's system enables secure and efficient payment processing directly through our pay stations, provides real-time data reporting to handheld devices for enforcement, and delivers comprehensive financial reporting through a centralized back-office system. This back-office software is also vital for providing parking-related data used in monthly division reports, assisting partners, and in fulfilling requests from the City Manager's Office

We are currently in year 8 of a 10-year financing agreement for the pay stations, this contract will ensure the parking system continues to function.

Financial Impact:

Project Name:Contract renewal with Flowbird Group
Cost: Contract totaling $139,536 for two years (Annual cost $69,768 breakdown: 102 kiosks with a subscription cost of $57 monthly)
Account Number Budgeted: 061-07-231-0891-6-4343
FY Budgeted Amount: $81,000
Grant Funded: N/A
Funding Source: ParkFlag Revenues

Policy Impact:

This contract aligns with the City's commitment to providing accessible, efficient, and modernized parking

solutions within the Downtown Parking District. Securing Flowbird's software enhances ParkFlag's capacity for effective enforcement, accountability, and data transparency, reinforcing our city's parking management policies.

Previous Council Decision or Community Discussion:
The City Council previously approved a 10-year financing agreement to acquire Flowbird pay stations and their accompanying operating software for the Downtown Parking District. We are currently in year 8 of our 10 year financing agreement.

Options and Alternatives to Recommended Action:
Council may approve the agreement.
Council may request staff pursue amendments to the contract, although since it is a Cooperative Purchase Agreement that will be challenging as the terms come from external contracts.
Council may not approve the contract and request staff to do a Request for Proposals for new software. This would have have significantly detrimental impact on ParkFlag operations and is not advised until after the financing term for the pay stations.

Background and History:
The parking program has relied on Flowbird since its implementation in 2017, under our original contract Flowbird provided both the pay-stations (parking meters) and the operating software. City Council approved the original contract in 2017 through a national cooperative agreement between NCPA and Flowbird. While this agreement has since expired, Flowbird has been awarded another Cooperative Contract through OMNIA, and has agreed to agreed to maintain the same rate established under the original contract not to exceed the maximums set forth in the new Cooperative Contract.

It is essential to continue with Flowbird as its proprietary software is crucial to the functionality of our parking meters (pay stations). Flowbird's system enables secure and efficient payment processing directly through our pay stations, provides real-time data reporting to handheld devices for enforcement, and delivers comprehensive financial reporting through a centralized back-office system. This back-office software is also vital for providing parking-related data used in monthly division reports and in fulfilling requests from partners and the City Manager's Office

We are currently in year 8 of a 10-year financing agreement for the pay stations, this contract will ensure the parking system continues to function.

Connection to PBB Priorities and Objectives:
The approval of the Flowbird contract ensures the functionality of downtown's parking payment system. The parking program aligns with Flagstaff's PBB priorities by supporting sustainable infrastructure, promoting a safe and healthy community, boosting the local economy, fostering inclusivity, and encouraging environmental stewardship.

Connection to Regional Plan:
Provide sustainable and equitable public facilities, services and infrastructure systems in an efficient and effective manner to serve all population areas and demographics.

Connection to Carbon Neutrality Plan:
The Flowbird contract supports Flagstaff's goal of achieving carbon neutrality by making parking more efficient, reducing the time drivers spend searching for spaces, and lowering emissions. Additionally, it provides a user-friendly and accessible parking system that promotes sustainable transportation.

Connection to 10-Year Housing Plan:
Parking management supports higher-density, affordable housing and promotes multimodal transportation while enhancing pedestrian safety through well-planned on-street parking.

Connection to Division Specific Plan:
Approval of the Flowbird contract will enable us to continue effectively managing public parking in downtown Flagstaff and surrounding neighborhoods. This ensures the efficient use of our limited parking supply while supporting the city's long-term parking infrastructure needs. Additionally, this infrastructure will sustain revenue growth, paving the way for future parking expansion..

Attachments: Flowbird Contract

COOPERATIVE PURCHASE CONTRACT
Contract No. 2025-153

This Cooperative Purchase Contract is made and entered into this _____ day of _____, 20_____by and between the City of Flagstaff, Arizona, a political subdivision of the State of Arizona ("City") and **Parkeon, Inc. dba Flowbird, a New Jersey Corporation** (Contractor").

RECITALS:

A. Contractor is a fully authorized vendor of **Parking Meter Products and Services**

B. The **Region 14 Education Service Center** conducted a competitive and open procurement process through Request for Proposal **#24-S835** resulted in Contract No. **158971** with Contractor ("Agency Contract");

C. The City has authority to enter into a cooperative purchase contract with Contractor utilizing the Agency Contract.

AGREEMENT:

NOW THEREFORE, in consideration for the mutual promises contained herein, the Parties agree as follows:

1. Materials and or Services Purchased: Contractor shall provide to the City the materials and/or services, as specified in the Scope of Work attached as *Exhibit A*, and in accordance with the Agency Contract. A general description of materials and/or services being purchased is:

Parking Meter Products and Services

2. Specific Requirements of City: Contractor shall comply with all specific purchase and delivery requirements and/or options of City, as specified in the Scope of Work attached as *Exhibit A* and incorporated by reference.

3. Terms and Conditions of Agency Contract Apply: All provisions of the Agency Contract documents attached as *Exhibit B.2*, including any amendments, are incorporated in and shall apply to this Contract as though fully set forth herein. Contractor is responsible for promptly notifying City in writing of any changes to the Agency Contract, including, specifically changes in price for materials and/or services.

4. Payment:

   4.1 Payment to the Contractor for the services provided under this Cooperative Purchase Contract shall be made in accordance with the Cost Summary/Fee Schedule and terms set forth in the attached Cooperative Purchase Contract *Exhibit B.2.* In no event shall the total compensation under this Contract exceed $125,000 in any fiscal year.

   4.2 Any adjustment to the Payment amount must be approved by mutual written consent of the parties through a formal amendment. The City Manager or his/her designee may approve an amendment if the amendment price increase is less than $100,000; otherwise, City Council approval is required.

5. Certificates of Insurance: All insurance provisions of the Agency Contract shall apply, including any requirement to name the City as an additional insured. Prior to commencing performance under this Contract, Contractor shall furnish City with a copy of the current Certificate of Insurance required by the Agency Contract.

6. Term and Renewal: This Cooperative Purchase Contract shall commence upon execution by the Parties and shall continue for a period of one (1) year) with an option for automatic renewal, presuming that the underlying Agency Contract has not expired or been terminated.

7. Notice: Any formal notice required under the Contract shall be in writing and sent by certified mail and email as follows:

To the City:
Gail Brockman
City of Flagstaff
211 W. Aspen Ave.
Flagstaff, AZ 86001
Gail.brockman@flagstaffaz.gov

To Contractor:
David Guevara
Parkeon Inc.
40 Twosome Dr.
Moorestown, NJ 08057
David.guevara@flowbird.group
(214) 531-9513

With a copy to:
Teddy Callan
City of Flagstaff
211 W. Aspen Ave.
Flagstaff, AZ 86001
Teddy.callan@flagstaffaz.gov

(Remainder of Page Intentionally Blank)

9. Authority: Each Party warrants that it has authority to enter into the Contract and perform its obligations hereunder, and that it has taken all actions necessary to enter into the Contract.

PARKEON, INC:

By:_____

Title:_____

CITY OF FLAGSTAFF

By:_____

Title:_____

ATTEST:

_____
City Clerk

APPROVED AS TO FORM:

_____
City Attorney's Office

Notice to Proceed issued:_____, 20___

Last Updated January 6, 2025

FLOWBIRD SCOPE OF WORK
EXHIBIT A
SPECIFIC REQUIREMENTS

Specific requirements shall be in accordance with all schedule, performance and delivery-related information that will be outlined in the subsequent purchase order that is to be accepted as formal notification from the City as a Notice to Proceed with the requested order.

Flowbird will provide:

- Flowbird StradaPAL Multi-Space Parking Pay Stations with color displays.
- Open Platform to interface with 3rd party systems that include Passport LPR & Citations and Flowbird Mobile Parking Payment app.
- Integrated myParkfolio back-office reporting and analysis system.
- Remote flexibility for the City to make rate and message changes.
- Access to the Flowbird CLOUD system to add optional services such as City News, Merchant Coupons, Fine Payment, and more.

Flowbird will meet all requirements of the City. Flowbird's solution will be configured in Pay by Plate enforcement mode through the use of our StradaPAL Transfer pay stations. Flowbird will supply and provide training of the pay stations. The pay stations will:

- accept credit and debit cards, smart cards, cash;
- interface with Flowbird Mobile Parking Payment app;
- utilize solar power;
- utilize two-way wireless communications to process transactions and send real time transaction data and alarm information to City systems; and
- accept remote programming changes.

Flowbird will provide full training on the equipment, myParkfolio back office, operations and maintenance for the various profiles of users accessing the system.

City may purchase additional pay stations in the future, if needed, per these terms:

1. Services required for the City of Flagstaff, related to the system (shipping, training to 3rd party for installation, training to City).

    a. The cost per pay station for a StradaPAL Transfer is $5,700 and includes:
        - credit/debit card acceptance
        - 3G or better modem
        - 7-inch color display
        - solar or AC Mains power
        - shipping
        - training to City staff and 3rd party group for installation

- 1-year parts only warranty

b. The cost per pay station for a StradaPAL BNA accepting cash is $8,900 and includes all items for 1.a plus:
   - Coin acceptance
   - Bill acceptance
   - 1 coin canister
   - 1 bill canister

2. Pay Station Software System cost per station per month.

   a. The monthly back office system fee for myParkfolio is $57 per pay station per month and includes:
      - Reporting of all financial and maintenance information
      - Maintenance alarms alerts sent to cell phones
      - Credit card gateway
      - Wireless communication fees
      - Access to rate editor to modify/download rates
      - Help Desk Support
      - Optional Back Office Services:
        - $12 per meter per month for Validation Codes System, City News, and E- Permits

3. Pay Station extended warranty costs after the initial warranty expires. This would not be a year 1 cost.

   a. Extended hardware warranty cost after the standard one year warranty expires is $420 per pay station per year for the StradaPal Transfer (credit card only) and $480 per pay station per year for the StradaPal BNA (credit card, coin and bill). There is no deductible and there is no limit to how many times a part can be exchanged. See Hardware Warranty at the end of document.

4. All prices are excluding any applicable sales tax.

Flowbird mobile Phone application/technical solution:

The range of capabilities of the Flowbird service makes it a real lever for boosting parking and mobility available to communities and operators and providing greater user satisfaction.

Flowbird is available on mobiles phones, tablets, PCs, iPhone apps, Android apps, Internet/mobile, Internet SMS and Interactive Voice Response (IVR).

Flowbird is provided as a Service and includes the following main features:

- Registration of users
- Payment of parking fees by users using their cell phone or Internet
- Processing payments flow including VISA, MASTERCARD,AMEX and DISCOVER Users access their account and history of their operations
- 5 years of transactions history
- User support in the use and handling of complaints with a *2417* call center providing answers in both English and Spanish.
- Seamless integration with Flowbird's parking system

A major advantage of the Flowbird solution is that it is fully integrated into my Parkfolio, our back-office parking management system.

This integration allows:

- Common management {users, geographies)
- Same accounting process
- Same reports and statistics
- The ability to uniformly update rates (prices and regulations) for all devices from meters to cell phones

The Flowbird solution is based on the implementation of two different types of services:

1. Providing the community with services relating to:
   - Parking: fee management, creation, registration and issuance of electronic tickets
   - Access to electronic ticket data for enforcement
   - Payment management

2. Providing users parking access via cell phone:
   - Applications for Smartphones: iPhone, Android, Web Mobile
   - Internet/mobile Internet
   - Interactive Voice Response
   - SMS
   - Website information and account access
   - Call Center

The Flowbird solution will work throughout the City of Flagstaff and on all the meters.

Flowbird is storing all tickets in a single system whatever the mobile channel used to simplify controls.

Flowbird also allows checking paperless parking tickets from payments made by cell phone and without needing to use a printed ticket. Enforcement is performed by checking the Flowbird database to determine if the plate/vehicle has a session/ticket

active in the meter/block.

The overall system is completely designed as a service-oriented architecture and is completely stateless to provide unicity of transaction.

Service Fees

In addition to the parking fee charged by Flagstaff, the Flowbird User will pay a Service Fee of **$0.23** per transaction for the use of the Flowbird Service. The parking fee plus the Service Fee will be sent to Flagstaff's bank through their selected merchant bank processor. Flagstaff is responsible for any fees charged by their merchant bank processor. All standard Merchant Fees will apply.

Flowbird will invoice Flagstaff on a monthly basis a fee of **$0.23** per transaction. These fees shall be payable within twenty days of invoice date.

Flowbird reserves the right to suspend services and/or to terminate the agreement in the event of a payment delay in excess of 60 days.

The cooperative purchase agreement provides for a maximum of $0.35 per transaction, however it has been confirmed with National Cooperative Purchasing Alliance (“NCPA”) that the vendor may agree to a lesser rate, as provided herein.

Marketing and Communications

Flowbird will supply informational stickers for each meter and can supply signs as well at no cost. Flagstaff will provide the size that would work best and Flowbird will produce and ship them at no cost.

Hardware Warranty

This warranty will be valid from the date of the initial machine delivery and extend for a period of 1 year. When used in accordance with our manufacturer recommendations, every Flowbird Pay Station is warranted to be free from defects in workmanship and materials. Our liability in this respect is limited to your net purchase price, after any discounts, of any component proved defective, or, at our option, to the repair or replacement of such component upon its return to us, transportation charges pre-paid.

Replacement parts will be shipped upon receipt of the faulty part. Should time-in-service be a critical issue, we strongly suggest [the client] pre-purchase a replacement parts service contract. The defective part can be replaced from the client stock and Flowbird will replenish the client stock upon receipt of the defective part.

This warranty does not include "wear and usage items" such as paper, batteries, etc.

Labor is not covered under this hardware warranty. [The client] will perform the actual part removal and replacement at the Pay Station. Flowbird can perform on-site support under a separate service agreement , or on a case-by-case basis at our then published on-site service cost.

Any repair of damage resulting from acts of vandalism, accident (vehicle impact), failure in the electricity supply, operator error, (e.g., but not limited to: no ticket stock, no coin box fitted, wrong time/date) or the use of non-approved ticket stock on the Pay Station, or rust attack, is not covered under this agreement. Flowbird will provide estimates of this repair cost upon receipt of a written request by from [the client]. The terms "vandalism" or "vandalized" shall mean any willful damage caused to the Pay Station (break-ins, etc.) which affect the appearance or operation of the Pay Station or interferes with the normal use of the Pay Station.

Alterations made to the equipment by the client may result in this warranty being voided in its entirety. Flowbird makes the final determination of the extent of any warranty impact due to the modification of the equipment by the client.

Notices: All notices to City shall be sent to:

Buyer: Teddy Callan
Purchasing Division
211 W. Aspen Avenue
Flagstaff, Arizona 86001
(928) 213-2275

EXHIBIT B
AGENCY CONTRACT
(attached)

1. Exhibit B.1 -- Agency Proposal & Pricing – two (2) pages
2. Exhibit B.2 -- Agency Contract – four hundred forty four (444) pages

Proposal for: FLAGSTAFF CITY OF

By: David Guevara
david.guevara@flowbird.group

Quote valid to: February 7, 2025

Flowbird

Flowbird - Confidential Quotation

For: FLAGSTAFF CITY OF

Quote Issued: January 8, 2025

Quote Expires: February 7, 2025

Quote Name: Onstreet - FLAGSTAFF CITY OF - 1/2025 - 034542 - Flagstaff - BO Fees July 2024 - June 2026

Bill To:

FLAGSTAFF CITY OF

211 WEST ASPEN AVE
ATTN GAIL BROCKMAN
FLAGSTAFF, Arizona, 86001

Contact:

FLAGSTAFF CITY OF

Gail Brockman

gbrockman@flagstaffaz.gov

ON-GOING SERVICES

PRODUCT NAME	QUANTITY	SALES PRICE	YEAR ONE TOTAL
Smartfolio Base Annual subscription July 2024 through June 2025	102	$684.00	$69,768.00
Smartfolio Base Annual subscription July 2025 through June 2026	102	$684.00	$69,768.00
		Annual Total	$139,536.00

This quote is provided by Cale America Inc d/b/a Flowbird. Flowbird was created in 2018 as a result of the world-wide merger between the Cale Group and Parkeon Group. All prices stated are exclusive of taxes and shipping costs unless specifically itemized in this quotation. Customer is responsible for all taxes or providing proof of tax-exempt status. By accepting this order, Customer agrees to be bound by all applicable terms and conditions or terms of existing contract(s) between Customer and Flowbird for the same products and services, if any:

Accepted by: _____ Date: _____/_____/_____

Region 14 Education Service Center (ESC)

Contract # 158971

for

Parking Meters, Software, Systems and Related Products and Services

with

Flowbird America Inc.

Effective: November 15, 2024

The following documents comprise the executed contract between the Region 14 Education Service Center and Flowbird America Inc., effective November 15, 2024:

I. Master Agreement, Signature Form and Award Letter
II. Pricing
III. Supplier's Response to the RFP
IV. Request for Proposal 24-S835, as modified
V. Generic Services Agreement
VI. Generic Sales Agreement

VI. SIGNATURE FORM

A response to this solicitation is an offer to contract with Region 14 ESC based upon the terms, conditions, scope of work, and specifications contained in this request. A solicitation does not become a contract until it is accepted by Region 14 ESC. The prospective supplier must submit a signed Signature Form with the response thus, eliminating the need for a formal signing process. A contract award letter issued by Region 14 ESC is the counter-signature document establishing acceptance of the contract.

The undersigned hereby proposes and agrees to furnish goods and/or services in strict compliance with the terms, specifications and conditions at the prices proposed within response unless conspicuously noted by the supplier following the requirements of Deviations and Exceptions section in the Instructions to Suppliers. The undersigned further certifies that he/she is an officer of the company and has authority to negotiate and bind the company named below and has not prepared this response in collusion with any other supplier and that the contents of this proposal as to prices, terms or conditions of this response have not been communicated by the undersigned nor by any employee or agent to any person engaged in this type of business prior to the official opening of this proposal.

Prices are guaranteed for **120 days**.

Flowbird America Inc.
Company Name

40 Twosome Drive
Address

Moorestown | NJ | 08057
City | State | Zip

856-234-8000
Telephone Number

N/A
Fax Number

ronald.kroes@flowbird.group
Email Address

Ronald Kroes
Printed Name

CFO
Position

7/18/2024
Authorized Signature

Our offer to contract is conditional on the negotiation of a mutually acceptable final agreement that addresses the Deviations and Exceptions described in Section 3.1.4 of our proposal.

Version April 10, 2024

This document may not be disclosed to third parties without authorization.

Docusign Envelope ID: 4F9A9DA2-52FE-47ED-BBC5-5B3F96D23D2B

Region XIV Education Service Center

1850 Highway 351
Abilene, TX 79601-4750
325-675-8600
FAX 325-675-8659

November 8, 2024

Ronald Kroes
CFO
Flowbird America Inc.
40 Twosome Drive
Moorestown, NJ 08057
Sent via email to: ronald.kroes@flowbird.group

Re: Award of Contract #158971, Parking Meters, Software, Systems and Related Products and Services

Dear Mr. Kroes:

Region 14 Education Service Center is happy to announce that Flowbird America Inc. has been awarded Contract #158971 based on the proposal submitted to Region 14 ESC in response to RFP #24-S835 Parking Meters, Software, Systems and Related Products and Services. As stated in the RFP, Article VI. Signature Form, this contract award letter is the countersignature to Flowbird America Inc.'s response and provides Region 14's acceptance of the response and establishes the contract.

The contract is effective November 15, 2024. The contract may be renewed in accordance with the contract terms and conditions.

We look forward to a long and successful partnership.

If you have any questions or concerns, feel free to contact me at (325) 675-8600.

Sincerely,

Signed by:
Emily Jeffrey
4FE64E70707547B...
Emily Jeffrey
Region 14, Chief Financial Officer

Single/Dual Space Meter Pricing

Option #1 - MAX Meter Single Space

	List price per unit	Percent Discount to OMNIA participating entities	Price per unit to OMNIA paticipating entities	Note
METER MODEL: MAX Meter Single Space **Includes:** Single Space Configuration 2.95" x 1.65" Monochrome Display Touch keypad technology Coin, Credit card acceptance Solar Power Cellular communications 1 Year Hardware Warranty Included Shipping	**$575**	**10.0%**	**$518**	

Option #2 - MAX Meter Dual Space

	List price per unit	Percent Discount to OMNIA participating entities	Price per unit to OMNIA paticipating entities	Note
METER MODEL: MAX Meter Single Space **Includes:** Dual Space Configuration 2.95" x 1.65" Monochrome Display	**$825**	**10.0%**	**$743**	

Touch keypad technology
Coin, Credit card acceptance
Solar Power
Cellular communications
1 Year Hardware Warranty Included
Shipping

Option #3 - MPC MAX Quad Space - Monthly Subscription Service

	List price per unit per month	Percent Discount to OMNIA participating entities	Price per unit to OMNIA paticipating entities	Note
METER MODEL: MPC MAX Meter Quad Space **Includes:** Quad Space Configuration - P&D 2 X 20 Characters Display (Black &White) Coin, Credit card acceptance Solar Power Cellular communications (4G - LTE) 1 Year Hardware Warranty Included Installation to prepared ground Shipping	**$185**	**10.0%**	**$167**	Subscription service for meter hardware, minimum subscription 18 month
Buyout option - 12 Month	**$4,800**	**10.0%**	**$4,320**	
Buyout option - 24 Month	**$4,500**	**10.0%**	**$4,050**	
Buyout option - 36 Month	**$4,200**	**10.0%**	**$3,780**	

Pricing as of July 18, 2024. Flowbird pricing is updated annually. The first update to the prices listed will be on January 1, 2026 and then annually thereafter. Price adjustments are based on changes to a variety of indices, including the Consumer Price Index.

CWT Multi-Space Meter Pricing

Option #1 - CWT Touch BNA

	List price per unit	Percent Discount to OMNIA participating entities	Price per unit to OMNIA paticipating entities	Note
METER MODEL: CWT Touch BNA	**$11,800**	**24.5%**	**$8,900**	
Includes:				
Custom Configuration (e.g. Pay & Display, Pay by Space, Pay by Plate)				
9.7" color touch screen				
Coin, Bill, and Credit Card Acceptance				
Solar Power or AC Mains				
4G Wireless Communications				
1 Coin Canister Per Machine				
1 Bill Canister Per Machine				
1 Ticket roll per machine				
1 Year Hardware Warranty Included				Extended Warranty is $480/meter/year
Shipping				

Option #2 - CWT Color BNA

	List price per unit	Percent Discount to OMNIA participating entities	Price per unit to OMNIA paticipating entities	Note
METER MODEL: CWT Color BNA	**$10,811**	**20.0%**	**$8,650**	
Includes:				

Custom Configuration (e.g. Pay & Display, Pay by Space, Pay by Plate)
7" Full Color Display
48 key piezo key pad
Coin, Bill, and Credit Card Acceptance
Solar Power or AC Mains
4G Wireless Communications
1 Coin Canister Per Machine
1 Bill Canister Per Machine
1 Ticket roll per machine

1 Year Hardware Warranty Included

Shipping

Extended Warranty is $480/meter/year

Option #3 - CWT Monochrome BNA

	List price per unit	Percent Discount to OMNIA participating entities	Price per unit to OMNIA paticipating entities	Note
METER MODEL: CWT Monochrome BNA	**$10,450**	**20.0%**	**$8,350**	
Includes:				
Custom Configuration (e.g. Pay & Display, Pay by Space, Pay by Plate)				
6.5" Monochrome Display				
48 key piezo key pad				
Coin, Bill, and Credit Card Acceptance				
Solar Power or AC Mains				
4G Wireless Communications				
1 Coin Canister Per Machine				
1 Bill Canister Per Machine				
1 Ticket roll per machine				

1 Year Hardware Warranty Included

Shipping

Extended Warranty is $480/meter/year

Option #4 - CWT Touch coin/card

	List price per unit	Percent Discount to OMNIA participating entities	Price per unit to OMNIA paticipating entities	Note
METER MODEL: CWT Touch coin/card acceptance	**$10,000**	**20.0%**	**$7,975**	

Includes:
Custom Configuration (e.g. Pay & Display, Pay by Space, Pay by Plate)
9.7" color touch screen
Coin, Credit Card Acceptance
Solar Power or AC Mains
4G Wireless Communications
1 Coin Canister Per Machine
1 Ticket roll per machine

1 Year Hardware Warranty Included

Shipping

Extended Warranty is $420/meter/year

Option #5 - CWT Color coin/card

	List price per unit	Percent Discount to OMNIA participating entities	Price per unit to OMNIA paticipating entities	Note

METER MODEL: CWT Color coin/card acceptance **Includes:** Custom Configuration (e.g. Pay & Display, Pay by Space, Pay by Plate) 7" Full Color Display 48 key piezo key pad Coin, Credit Card Acceptance Solar Power or AC Mains 4G Wireless Communications 1 Coin Canister Per Machine 1 Ticket roll per machine 1 Year Hardware Warranty Included Shipping	**$9,026**	**15.3%**	**$7,645**	Extended Warranty is $420/meter/year

Option #6 - CWT Monochrome coin/card

	List price per unit	Percent Discount to OMNIA participating entities	Price per unit to OMNIA paticipating entities	Note
METER MODEL: CWT Monochrome coin/card acceptance **Includes:** Custom Configuration (e.g. Pay & Display, Pay by Space, Pay by Plate) 6.5" Monochrome Display 48 key piezo key pad Coin, Credit Card Acceptance Solar Power or AC Mains 4G Wireless Communications 1 Coin Canister Per Machine	**$7,351**	**13.2%**	**$6,380**	

1 Ticket roll per machine

1 Year Hardware Warranty Included

Shipping

Extended Warranty is $420/meter/year

Option #7 - CWT Touch card only

	List price per unit	Percent Discount to OMNIA participating entities	Price per unit to OMNIA paticipating entities	Note
METER MODEL: CWT Touch screen (card only)	**$8,355**	**16.4%**	**$6,985**	
Includes:				
Custom Configuration (e.g. Pay & Display, Pay by Space, Pay by Plate)				
9.7" color touch screen				
Credit Card Acceptance				
Solar Power or AC Mains				
4G Wireless Communications				
1 Ticket roll per machine				
1 Year Hardware Warranty Included				Extended Warranty is $420/meter/year
Shipping				

Option #8 - CWT Color card only

	List price per unit	Percent Discount to OMNIA participating entities	Price per unit to OMNIA paticipating entities	Note

METER MODEL: CWT Color screen (card only) **Includes:** Custom Configuration (e.g. Pay & Display, Pay by Space, Pay by Plate) 7" Full Color Display 48 key piezo key pad Credit Card Acceptance Solar Power or AC Mains 4G Wireless Communications 1 Ticket roll per machine 1 Year Hardware Warranty Included Shipping	**$7,500**	**16.4%**	**$6,270**	Extended Warranty is $420/meter/year

Option #9 - CWT Monochrome card only

	List price per unit	Percent Discount to OMNIA participating entities	Price per unit to OMNIA paticipating entities	Note
METER MODEL: CWT Monochrome screen (card only) **Includes:** Custom Configuration (e.g. Pay & Display, Pay by Space, Pay by Plate) 6.5" Monochrome Display 48 key piezo key pad Credit Card Acceptance Solar Power or AC Mains 4G Wireless Communications 1 Ticket roll per machine 1 Year Hardware Warranty Included	**$6,908**	**16.4%**	**$5,775**	Extended Warranty is $420/meter/year

Shipping

Pricing as of July 18, 2024. Flowbird pricing is updated annually. The first update to the prices listed will be on January 1, 2026 and then annually thereafter. Price adjustments are based on changes to a variety of indices, including the Consumer Price Index.

Strada Multi-Space Meter Pricing

Option #1 - Strada BNA touch display

	List price per unit	Percent Discount to OMNIA participating entities	Price per unit to OMNIA paticipating entities	Note
METER MODEL: Strada Touch BNA (touch display)	**$14,916**	**40.0%**	**$8,900**	
Includes:				
Custom Configuration (e.g. Pay & Display, Pay by Space, Pay by Plate)				
9.7" Full Color Touch Display				
Coin, Bill, and Credit Card Acceptance				
Solar Power or AC Mains				
4G Wireless Communications				
1 Coin Canister Per Machine				
1 Bill Canister Per Machine				
1 Ticket roll per machine				
1 Year Hardware Warranty Included				Extended Warranty is $480/meter/year
Shipping				

Option #2 - Strada BNA color display

	List price per unit	Percent Discount to OMNIA participating entities	Price per unit to OMNIA paticipating entities	Note
METER MODEL: Strada BNA (color display) **Includes:** Custom Configuration (e.g. Pay & Display, Pay by Space, Pay by Plate) 7" Full Color Display Customizable Capacitive Keyboard Coin, Bill, and Credit Card Acceptance Solar Power or AC Mains 4G Wireless Communications 1 Coin Canister Per Machine 1 Bill Canister Per Machine 1 Ticket roll per machine 1 Year Hardware Warranty Included Shipping	**$14,716**	**41.1%**	**$8,650**	Extended Warranty is $480/meter/year

Option #3 - Strada BNA monochrome display

	List price per unit	Percent Discount to OMNIA participating entities	Price per unit to OMNIA paticipating entities	Note
METER MODEL: Strada BNA (monochrome display) **Includes:** Custom Configuration (e.g. Pay & Display, Pay by Space, Pay by Plate)	**$13,116**	**36.3%**	**$8,350**	

Monochrome Display
Customizable Capacitive Keyboard
Coin, Bill, and Credit Card Acceptance
Solar Power or AC Mains
4G Wireless Communications
1 Coin Canister Per Machine
1 Bill Canister Per Machine
1 Ticket roll per machine
1 Year Hardware Warranty Included

Extended Warranty is $480/meter/year

Shipping

Option #4 - Strada coin/card touch display

	List price per unit	Percent Discount to OMNIA participating entities	Price per unit to OMNIA paticipating entities	Note
METER MODEL: Strada (touch display, coin/card only)	**$11,900**	**36.0%**	**$7,975**	

Includes:
Custom Configuration (e.g. Pay & Display, Pay by Space, Pay by Plate)

9.7" Full Color Touch Display
Coin and Credit Card Acceptance
Solar Power or AC Mains
4G Wireless Communications
1 Coin Canister Per Machine
1 Ticket roll per machine
1 Year Hardware Warranty Included

Extended Warranty is $420/meter/year

Shipping

Option #5 - Strada coin/card color display

	List price per unit	Percent Discount to OMNIA participating entities	Price per unit to OMNIA paticipating entities	Note
METER MODEL: Strada (color display, coin/card only)	**$11,600**	**34.0%**	**$7,645**	
Includes: Custom Configuration (e.g. Pay & Display, Pay by Space, Pay by Plate) 7" Full Color Display Customizable Capacitive Keyboard Coin and Credit Card Acceptance Solar Power or AC Mains 4G Wireless Communications 1 Coin Canister Per Machine 1 Ticket roll per machine 1 Year Hardware Warranty Included Shipping				Extended Warranty is $420/meter/year

Option #6 - Strada coin/card monochrome display

	List price per unit	Percent Discount to OMNIA participating entities	Price per unit to OMNIA paticipating entities	Note
METER MODEL: Strada (monochrome display, coin/card only)	**$10,600**	**39.8%**	**$6,380**	

Includes:
Custom Configuration (e.g. Pay & Display, Pay by Space, Pay by Plate)

Monochrome Display
Customizable Capacitive Keyboard
Coin and Credit Card Acceptance
Solar Power or AC Mains
4G Wireless Communications
1 Coin Canister Per Machine
1 Ticket roll per machine
1 Year Hardware Warranty Included

Extended Warranty is $420/meter/year

Shipping

Option #7 - Strada card only touch display

	List price per unit	Percent Discount to OMNIA participating entities	Price per unit to OMNIA paticipating entities	Note
METER MODEL: Strada (touch display, card only)	**$11,070**	**43.3%**	**$6,270**	

Includes:
Custom Configuration (e.g. Pay & Display, Pay by Space, Pay by Plate)

9.7" Full Color Touch Display
Credit Card Acceptance
Solar Power or AC Mains

4G Wireless Communications
1 Ticket roll per machine
1 Year Hardware Warranty Included

Extended Warranty is $420/meter/year

Shipping

Option #8 - Strada card only color display

	List price per unit	Percent Discount to OMNIA participating entities	Price per unit to OMNIA paticipating entities	Note
METER MODEL: Strada (color display, card only)	**$11,070**	**43.3%**	**$6,270**	

Includes:
Custom Configuration (e.g. Pay & Display, Pay by Space, Pay by Plate)

7" Full Color Display
Customizable Capacitive Keyboard
Credit Card Acceptance
Solar Power or AC Mains
4G Wireless Communications
1 Ticket roll per machine
1 Year Hardware Warranty Included

Extended Warranty is $420/meter/year

Shipping

Option #9 - Strada card only monochrome display

	List price per unit	Percent Discount to OMNIA participating entities	Price per unit to OMNIA paticipating entities	Note
METER MODEL: Strada (monochrome screen, card only)	**$9,471**	**39.0%**	**$5,775**	
Includes:				
Custom Configuration (e.g. Pay & Display, Pay by Space, Pay by Plate)				
Monochrome Display				
Customizable Capacitive Keyboard				
Credit Card Acceptance				
Solar Power or AC Mains				
4G Wireless Communications				
1 Ticket roll per machine				
1 Year Hardware Warranty Included				Extended Warranty is $420/meter/year
Shipping				

Pricing as of July 18, 2024. Flowbird pricing is updated annually. The first update to the prices listed will be on January 1, 2026 and then annually thereafter. Price adjustments are based on changes to a variety of indices, including the Consumer Price Index.

EV Parking Meter Pricing

Option #1 - Wallbox One port charger

	List price per unit	Percent Discount to OMNIA participating entities	Price per unit to OMNIA paticipating entities	Note
Pulsar Plus 48A240V (Level 2) **Includes** Adjustable power up to 48Amp (11.5kW) Wi-Fi connectivity Works with all EVs Power Sharing-enabled Open Charge Point Protocol (OCPP) capable Energy Star Certified One Year Parts Warranty	$699	10%	$629	Installation to be quoted based on scope of work. Electrical Infracture must be upgraded or can hangle the electrical load of the meter. Optional pedestal for installation bellow
Wallbox Eiffel Single or Dual Pedestal Mount **Includes** Supports Wallbox Pulsar and Commander product line Dimensions: Height 55" - Width 7.9" - Depth 7.9" Aluminum body with stainless steel base Black finish Rain cover for outdoor applications	$499	10%	$449	

Option #2 - ChargeTronix multi port charger

	List price per unit	Percent Discount to OMNIA participating entities	Price per unit to OMNIA paticipating entities	Note
JUP160J-PMP Level 2 7.2 Dual AC Charger Pedestal Moun **Includes:**	**$3,600**	**10.0%**	**$3,273**	Installation to be quoted based on scope of work.

UP Series Pedestal Mount 30Amps Dual Port 208-240VAC Charging Station w/ two J1772 Connectors > Can power two EVs at up to 7.2kw each Includes Modem, Wifi, Ethernet Port, RFID Reader. 2 Year Parts Only Warranty. OCPP 1.6J Compliant Labor Warranty Not Included				Electrical Infracture must be upgraded or can hangle the electrical load of the meter.
Shipping	$288.00	10%	$261.82	Standard Ground Shipping
UP80J-PMP Level 2 7.2 Single AC Charger Pedestal Mount *Pedestal Mount* *UP Series Pedestal Mount 30Amps Single Port 208-240VAC Charging Station w/ one J1772 Connector* *> Can power one EV at up to 7.2kw* *Includes Modem, Wifi, Ethernet Port, RFID Reader. 2 Year Parts Only Warranty. OCPP 1.6J Compliant* Labor Warranty Not Included Extended Warranty is $780/meter/year	**$2,500**	**10%**	**$2,250**	Installation to be quoted based on scope of work. Electrical Infracture must be upgraded or can hangle the electrical load of the meter.
Shipping	**$200**	**10%**	**$190**	Standard Ground Shipping

Pricing as of July 18, 2024. Flowbird pricing is updated annually. The first update to the prices listed will be on January 1, 2026 and then annually thereafter. Price adjustments are based on changes to a variety of indices, including the Consumer Price Index.

Strada and CWT Upgrade Pricing

Option #1 - Color screen upgrade for coin/card multi-space meters				
	List price per unit	**Percent Discount to OMNIA participating entities**	**Price per unit to OMNIA paticipating entities**	**Note**
Color Screen Upgrade for coin/card MSMs **Includes:** New front door (if necessary) 7" full color display screen Custom Software New solar panel (Parkeon Strada only)	**$2,150**	**5%**	**$2,043**	**See Installation Services tab for price of installation**

Option #2 - Color screen upgrade for bill accepting multi-space meters				
	List price per unit	**Percent Discount to OMNIA participating entities**	**Price per unit to OMNIA paticipating entities**	**Note**
Color Screen Upgrade for bill accepting MSMs **Includes:** New front door (if necessary) 7" full color display screen Custom Software New solar panel (if necessary)	**$2,750**	**5%**	**$2,613**	**See Installation Services tab for price of installation**

Option #3 - Touch screen upgrade for CWT or Strada coin/card

	List price per unit	Percent Discount to OMNIA participating entities	Price per unit to OMNIA paticipating entities	Note
Touch Screen Upgrade for Cale CWT coin/card	**$3,450**	**5%**	**$3,278**	**See Installation Services tab for price of installation**

Includes:
New front door
9" Touch Display Screen
Custom Software
New solar panel (if necessary)

Option #4 - Touch screen upgrade for CWT or Strada Evol 2 bill accepting multi-space meter

	List price per unit	Percent Discount to OMNIA participating entities	Price per unit to OMNIA paticipating entities	Note
Touch Screen Upgrade for Cale CWT bill accepting MSMs	**$3,450**	**5%**	**$3,278**	**See Installation Services tab for price of installation**

Includes:
New front door
9" Touch Display Screen
Custom Software
New solar panel (if necessary)

Option #4 - Refurbished cabinet for CWT or Strada Meter

	List price per unit	Percent Discount to OMNIA participating entities	Price per unit to OMNIA paticipating entities	Note
Refurbished Cabinet **Includes:** Cabinet that have previously been used but that has been through Flowbird refurbish process. New solar panel (if necessary)	**$1,650**	**5%**	**$1,568**	**See Installation Services tab for price of installation**

Pricing as of July 18, 2024. Flowbird pricing is updated annually. The first update to the prices listed will be on January 1, 2026 and then annually thereafter. Price adjustments are based on changes to a variety of indices, including the Consumer Price Index.

FlowbirdGO Gateless and Gated Parking Facility Solution

FlowbirdGO Gateless and Gated Parking Facility Equipment				
	List price per unit	**Percent Discount to OMNIA participating entities**	**Price per unit to OMNIA paticipating entities**	**Note**
Entry lane device	**$14,500**	**10%**	**$13,050**	Installation to be quoted based on scope of work. The FlowbirdGo solution can utilize existing barrier gates, loops, and intercom system, however, we can quote new equipment upon request.
Includes: Custom Software 9.7" full color touch display Thermal printer QR code reader AC powered 4G wireless or Ethernet communications 1 Ticket roll per machine 1 Year Hardware Warranty Included Shipping				Extended Warranty is $780/meter/year

Exit lane device	**$14,500**	**10%**	**$13,050**	Installation to be quoted based on scope of work. The FlowbirdGo solution can utilize existing barrier gates, loops, and intercom system, however, we can quote new equipment upon request.
Includes: Custom Software 9.7" full color display Credit card acceptance Thermal printer QR code reader AC powered 4G wireless or Ethernet communications 1 Ticket roll per machine 1 Year Hardware Warranty Included Shipping				Extended Warranty is $780/meter/year
Pay on Foot Pay Station	**$12,000**	**10.0%**	**$10,800**	Installation to be quoted based on scope of work
Includes: Custom Software 9.7" color touch screen Coin, Bill, and Credit Card Acceptance Solar Power or AC Mains 4G Wireless or Ethernet Communications 1 Coin Canister Per Machine 1 Bill Canister Per Machine 1 Ticket roll per machine 1 Year Hardware Warranty Included Shipping				Extended Warranty is $780/meter/year

Pricing as of July 18, 2024. Flowbird pricing is updated annually. The first update to the prices listed will be on January 1, 2026 and then annually thereafter. Price adjustments are based on changes to a variety of indices, including the Consumer Price Index.

Mobile Parking Payment System

Mobile Parking Payment System	Cost to the Client	Percent Discount to OMNIA participating entities	Note
Flowbird mobile parking payment application **Includes:** iOS and Android applications, mobile web, and web payments Marketing campaign - stickers, social media Full reporting and enforcement integration with Flowbird back-office system	**$0**	**0%**	A $0.35 fee will be added to each parking transaction as a convenience fee so there will be no additional costs to the Client. The Client will be responsible for the merchant bank processing fee. Please contact for quote if interested in the Flowbird parking reservations platform.
Optional white label	**$10,000**	**0%**	per year to cover creation and maintenance of the white label App

Pay by Text Parking Payment System	Cost to the Client	Percent Discount to OMNIA participating entities	Note

Pay by Text parking payment application	**$0**	**0%**	A $0.35 fee will be added to each parking transaction as a convenience fee so there will be no additional costs to the Client. The Client will be responsible for the merchant bank processing fee.

Includes:
Marketing campaign - stickers, social media
Full reporting and enforcement integration with Flowbird back-office system

Pricing as of July 18, 2024. Flowbird pricing is updated annually. The first update to the prices listed will be on January 1, 2026 and then annually thereafter. Price adjustments are based on changes to a variety of indices, including the Consumer Price Index.

Flowbird Permit

Flowbird Digital Permit Solution

	One time setup fee	Percent Discount to OMNIA participating entities	One time setup fee to OMNIA paticipating entities	Note
Setup of Flowbird Permit Solution	**$8,000**	**25%**	**$6,000**	

	One time setup fee	Percent Discount to OMNIA participating entities	One time setup fee to OMNIA paticipating entities	Note
Monthly Hosting Fee	**$1,500**	**25%**	**$1,125**	

	List price per permit	Percent Discount to OMNIA participating entities	List price per permit to OMNIA paticipating entities	Note
Flowbird Permit	**$3**	**0%**	**$3**	**The Client will be responsible for the merchant bank processing fee.**

Includes:
Secure hosting by Flowbird
Web based interface for reporting and management
Online access for permit holders
Optional online permit payments

Pricing as of July 18, 2024. Flowbird pricing is updated annually. The first update to the prices listed will be on January 1, 2026 and then annually thereafter. Price adjustments are based on changes to a variety of indices, including the Consumer Price Index.

Back-Office Pricing - Multi-Space and Single Space Meters

Flowbird Back-Office System	Price (per meter per month)	Percent Discount to OMNIA participating entities	Note
Multi-Space meter monthly fee per meter	**$45**	**0%**	This is a per meter per month fee. Assumes Pay & Display configuration. Pay by Plate or Pay by Space is $57 per meter per month
Single space meter monthly fee per meter	**$8**	**0%**	
Dual space meter monthly fee per meter	**$14**	**0%**	
Quad space meter monthly fee per meter	**$49**	**0%**	
Includes:			
Financial and Maintenance Reports			
Maintenance and Collections Alarms			
Meter Mapping via Google Maps			
Wireless Communication Fees			
Credit Card Gateway Fees			
Rate Editor/Download Module			
Optional Services			
Validation Codes System	**$12**		
City News for multi-space meters	**$3**		

EV-Charging

Support Services per year		Percent Discount to OMNIA participating entities		Note
Flowbird Hub Central System Services software subscription	$16,985	15%		includes 5 Tableau Reporting application subscriptions
Flowbird Hub Data Warehouse Subscription	$4,217	15%		

Back-Office Fees For Entry/Exit Devices	Monthly list price per lane	Percent Discount to OMNIA participating entities	Monthly price per lane to OMNIA paticipating entities	Note
Per Charging Port	$25	10.00%	$23	
Per Charging Session by App, text or QR-code	$0.35	10	$0.32	Fee is charge to the end-user. **The Client will be responsible for the merchant bank processing fee.**

FlowbirdGO Gateless and Gated Parking

Back-Office Fees For Entry/Exit Devices	Monthly list price per lane	Percent Discount to OMNIA participating entities	Monthly price per lane to OMNIA paticipating entities	Note
Per Lane Monthly Fee	$125	0.0%	$125	

Back-Office Fees For Pay On Foot Machines	Monthly list price per lane	Percent Discount to OMNIA participating entities	Monthly price per lane to OMNIA paticipating entities	Note
Per Pay On Foot Fee	$75	0.0%	$75	

Back-Office Includes:
Cloud hosting
Management of user rights
Web based reporting
Email/text messages for maintenance alarms
Credit card gateway to client's preferred credit card processor
Parking validations solution

Pricing as of July 18, 2024. Flowbird pricing is updated annually. The first update to the prices listed will be on January 1, 2026 and then annually thereafter. Price adjustments are based on changes to a variety of indices, including the Consumer Price Index.

Meter and Kiosk Services

Multi-Space Meter Installation Services	List price per unit	Percent Discount to OMNIA participating entities	Price per unit to OMNIA paticipating entities	Note
Qty 1 to 5	$1,850	59.5%	$750	If Flowbird is to perform site preparation, please add $125 per site. If a site requires a concrete pad, please add $600 per site Based on a basic new concrete pad pour, without any sawcutting, demolition or cosmetic modifications to the site.
Qty 6 to 49	$1,100	40.9%	$650	
Qty 50 and above	$1,100	54.5%	$500	

Strada TVM Installation Services	List price per unit	Percent Discount to OMNIA participating entities	Price per unit to OMNIA paticipating entities	Note
Qty 1 to 5	$1,850	15.0%	$1,572	If Flowbird is to perform site preparation,

Qty 6 and above	**$1,750**	**15.0%**	**$1,488**	please add $125 per site. If a site requires a concrete pad, please add $600 per site Based on a basic new concrete pad pour, without any sawcutting, demolition or cosmetic modifications to the site.

Advanced Multi-Space Meter Installation and Removal Services	**List price per unit**	**Percent Discount to OMNIA participating entities**	**Price per unit to OMNIA paticipating entities**	**Note**
Concrete work for installation of new meter.	**$2,543**	**38.3%**	**$1,570**	1) Installation (excavation, sawcutting, new concrete pad with our without a base anchor embedded) 2) Removal (demolition of existing pad, debris removal and disposal and restoration of the ground or sidewalk for pedestrian safety) 3) Relocation (typically requires meter remove tasked + meter installation tasks, so both costs combined)
Concrete work to relocate installed Multispace meter	**$3,200**	**23.1%**	**$2,460**	
Conctete work for removal of Multispace meter	**$1,243**	**28.4%**	**$890**	If a localy certified partner is used rather than Flowbird staff add $250

Preventive Maintenance Service	**List price per unit**	**Percent Discount to OMNIA participating entities**	**Price per unit to OMNIA paticipating entities**	**Note**

Basic Service Plan	**$1,095**	**15.0%**	**$931**	The plan includes two scheduled on-site visits with preventive maintenance service.
Premium Service Plan	**$2,045**	**15.0%**	**$1,738**	The plan includes up to four scheduled on-site visits of preventive maintenance service or per agreement.

Other Maintenance Services	List price per unit	Percent Discount to OMNIA participating entities	Price per unit to OMNIA paticipating entities	Notes
Meter Maintenance	**$132**	**25.0%**	**$99**	Per meter, per month; Includes program management and local parts warehouse
Meter Hooding or Unhooding	**$200**	**25.0%**	**$150**	Each
Relocate Installed MSM meter	**$330**	**25.0%**	**$248**	Each
Meter Relocations concrete work	**$3,300**	**25.0%**	**$2,475**	Each
MSM Vault Cut-In or Lock Drill Out	**$600**	**25.0%**	**$450**	Each

Call Center Services				Notes
End-User Call Center Services and integrated Work Order Platform	**$3,800**	**25.0%**	**$2,850**	Up to 200 calls per month and up to 3 agents licences for technicians or supervisors
Call overage cost: 100 addition call package	**$2,000**	**25.0%**	**$1,500**	Per month
Additional agents licenses for technicians or supervisors can be added	**$250**	**25.0%**	**$188**	Per agent, per month
One-time setup and configuration fee	**$3,500**	**25.0%**	**$2,625**	

Call Center Services Include:

Dedicated local or toll-free inbound line and call queue for end-user support with call queue configuration and management

Custom greeting and IVR command menu, with external call routing to city departments or other vendors for enforcement, permits or other city services
24/7 availability for end-user support (meter + app customers)
Dedicated work-order platform with integration with WebOffice or Smartfolio where meter-generated alarms will automatically create and assign work orders.
Customized work order template and data fields
Real-time list view reports, analytic reports, priority levels, triggers, notifications and automations.
Robust Work Order application for Android or iOS mobile devices, plus browser-based Work Order management and dispatching

Multi-Space Meter Installation	List price per unit	Percent Discount to	Price per unit to OMNIA	Note
Qty 1 to 5	$1,850	59.5%	$750	If Flowbird is to perform site preparation, please add $125 per site.
Qty 6 to 49	$1,100	40.9%	$650	
Qty 50 and above	$1,100	54.5%	$500	If a site requires a concrete pad, please add $700 per site

Astreo TVM Installation Services	List price per unit	Percent Discount to OMNIA	Price per unit to OMNIA	Note
Qty 1 to 5	$4,433	45.0%	$1,995	If Flowbird is to perform site preparation, please add $200 per site.
Qty 6 to 49	$4,053	47.5%	$1,925	
Qty 50 and above	$3,750	50.0%	$1,875	If a site requires a concrete pad, please add $1500 per site

Axio Validators Installation Services	List price per unit	Percent Discount to OMNIA	Price per unit to OMNIA	Note
Qty 1 to 75	$2,250	45.0%	$1,238	If Flowbird is to perform site preparation, please add $125 per site.
Qty 76 to 499	$1,700	47.5%	$893	
Qty 500 and above	$1,600	50.0%	$800	

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Strada Multi Meter Pricing

Option #1 - Astreo Full configuration

	List price per unit	Percent Discount to OMNIA participating entities	Price per unit to OMNIA paticipating entities	Note
METER MODEL: Astreo Full options	**$67,945**	**15.0%**	**$57,753**	Min order qty of 10 (can be a combination of full configuration and card only machines), smaller quantities can be quoted separately

Includes:

Buy America compliant	
Full Color Touch Display	
Embeeded computer with solid state storage	
Smart cards dispensers (500 smartcards)	
Multi stock magnetic and Limited Used Media printer	
Receipt printer	
Coin payment with 5 recyclers and coin box	
Credit Card and contactless EMV payment kit incl Mobile wallet	Includes Apple Pay / Google Pay
Convex Miror	
ADA and Audio incl loud speaker, Jack and Text to Speech	2 languages included
Circuit breaker	
Shock sensors	
SCADA interface board	

Lighting fixture
Stainless Steel cabinet
QR Code reader
Auxiliary power
Heater and Fan
AC Main powered and Ethernet communication
Bill handing and recycling with bill vault
1 receipt paper roll and 1 Limited Used Media stacker
1 Year Hardware Warranty Included

Extended Warranty is $1800/device/year

Optional				
4G/5G Modems	**$750**	**0.0%**	**$750**	
Softkeys features	**$425**	**0.0%**	**$425**	
Surveillance camera	**$450**	**0.0%**	**$450**	
Cyber lock and keys	**$5,500**	**0.0%**	**$5,500**	
AC Unit	**$6,000**	**0.0%**	**$6,000**	
Coin reserve hopper	**$1,500**	**0.0%**	**$1,500**	

Option #2 - Astreo Credit Card only

	List price per unit	Percent Discount to OMNIA participating entities	Price per unit to OMNIA paticipating entities	Note
METER MODEL: Astreo Credit Card only	**$52,500**	**15.0%**	**$44,625**	Min order qty of 10 (can be a combination of full configuration and card only machines), smaller quantities can be quoted separately

Includes:
Buy America compliant
Full Color Touch Display
Embeeded computer with solid state storage

Smart cards dispensers (500 smartcards)				
Multi stock magnetic and Limited Used Media printer				
Receipt printer				
Credit Card and contactless EMV payment kit incl Mobile wallet				Includes Apple Pay / Google Pay
Convex Miror				
ADA and Audio incl loud speaker, Jack and Text to Speech				2 languages included
Circuit breaker				
Shock sensors				
SCADA interface board				
Lighting fixture				
Stainless Steel cabinet				
QR Code reader				
Auxiliary power				
Heater and Fan				
AC Main powered and Ethernet communication				
1 receipt paper roll and 1 Limited Used Media stacker				
1 Year Hardware Warranty Included				Extended Warranty is $1495/device/year
Optional				
4G/5G Modems	**$750**	**0.0%**	**$750**	
Softkeys features	**$425**	**0.0%**	**$425**	
Surveillance camera	**$450**	**0.0%**	**$450**	
Cyber lock and keys	**$5,500**	**0.0%**	**$5,500**	
AC Unit	**$6,000**	**0.0%**	**$6,000**	
Coin reserve hopper	**$1,500**	**0.0%**	**$1,500**	

Option #3 - Strada Touch TVM

	List price per unit	Percent Discount to OMNIA participating entities	Price per unit to OMNIA paticipating entities	Note

METER MODEL: Strada Touch TVM (touch display)	**$21,094**	**15.0%**	**$18,343**

Includes:

Buy America compliant
Full Color Touch Display, QR Code reader
Coin, Bill, and Credit Card Acceptance incl. Contactless
AC or solar power
Ethernet or cellular communications,
Thermal paper ticket printer or limited use smart card dispenser
Heater
Contactless reader for Open and/or Closed loop media
1 Coin Canister and 1 bill canister Per Machine
1 Ticket roll per machine
1 Year Hardware Warranty Included

Extended Warranty is $495/meter/year

Shipping

Pricing as of July 18, 2024. Flowbird pricing is updated annually. The first update to the prices listed will be on January 1, 2026 and then annually thereafter. Price adjustments are based on changes to a variety of indices, including the Consumer Price Index.

Strada Multi Meter Pricing

Option #1 - Axio Validators

	List price per unit	Percent Discount to OMNIA participating entities	Price per unit to OMNIA paticipating entities	Note
METER MODEL: Axio BV validator	**$2,146**	**15.0%**	**$1,866**	
Includes:				
Buy America compliant				
Full Color Touch Display				
Pole mounting kit				
9 - 48V DC powered				
EMV certified contactless reader (for open and closed loop)				
Ethernet				
QR reader				
1 Year Hardware Warranty Included				Extended Warranty is $57/device/year
Shipping				
Optional 4G Wireless modems	**$100**	**40.0%**	**$60**	
Optional Bluetooth BLE & Beacon	**$100**	**40.0%**	**$60**	
Optional Digital I/O and/or additional adaptor: J107 to RS232 or RS232/RS485 serial communication	**$250**	**25.0%**	**$200**	
Optional open Payment	**3% of transaction value**	**0.0%**	**3% of transaction value**	does not include MOR

Option #2 - Axio Platform Validators

	List price per unit	Percent Discount to OMNIA participating entities	Price per unit to OMNIA paticipating entities	Note
METER MODEL: Axio Platform validator	**$5,169**	**15.0%**	**$4,495**	
Includes:				
Buy America compliant				
Full Color Touch Display				
AC Main powered				
EMV certified contactless reader (for open and closed loop)				
Ethernet				
QR reader				
1 Year Hardware Warranty Included				Extended Warranty is $119/device/year
Shipping				
Optional 4G Wireless modems	**$100**	**40.0%**	**$60**	
Optional Bluetooth BLE & Beacon	**$100**	**40.0%**	**$60**	
Optional Digital I/O and/or additional adaptor: J107 to RS232 or RS232/RS485 serial communication	**$250**	**25.0%**	**$200**	
Optional open Payment	**3% of transaction value**	**0.0%**	**3% of transaction value**	does not include MOR. **The Client will be responsible for the merchant bank processing fee.**

Pricing as of July 18, 2024. Flowbird pricing is updated annually. The first update to the prices listed will be on January 1, 2026 and then annually thereafter. Price adjustments are based on changes to a variety of indices, including the Consumer Price Index.

Transit Digital Products

Mobile Transit Payment Applications	Cost to the Client	Percent Discount to OMNIA participating entities	Note
White label mobile transportation payment application	**$15,000**	**0%**	The $15K fee covers the white label App configuration and branding. The mobile application supports both visual validation and electronic validation using the Flowbird Axio validators. An additional $0.11 plus 3% transaction fee will be charged to the agency or customer (at agency's option) for each fare product(s) or add value transaction. The Client will be responsible for the merchant bank processing fee.

Includes:
iOS and Android applications abd customer web portal, configuration with customer branding

Open Payments	Cost to the Client	Percent Discount to OMNIA participating entities	Note
Open Payments Service	**$10,000**	**0%**	The $10K covers the set up and configuration of the Open Payment processing service. An additional $0.11 plus 3% transaction fee will be charged to the agency for each end of day settlement transaction. The Client will be responsible for the merchant bank processing fee.

Includes:
Set up and configuration of the service

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Flowbird Hub Central System Service Pricing

Flowbird Hub Central System Service	Price	Percent Discount to	Note
Strada Transportation TVM	**$65**	**0%**	This is a per meter per month fee.
Axio Validators	**$14**	**0%**	This is a per meter per month fee with agency supplied Ethernet
Astreo TVM	**$73**	**0%**	This is a per meter per month fee. with agency supplied data plan
FrontDesk Web software subscription, per retail partner	**$15**	**0%**	This is a per device per month fee with agency supplied connectivity
Flowbird Hub Central System Service	**NA**	**NA**	

Includes:
Financial and Maintenance Reports
Maintenance and Collections Alarms
Device Mapping
Wireless Communication Fees
Credit Card Gateway Fees
Rate Editor/Download Module

Transportation System System Implementation and Support Services

Implementation		Percent Discount to	Note
Project Management, including Acceptance Testing	**NA**	**NA**	Pricing dependent on project scope
Flowbird Hub Configuration	**$28,264**	**15%**	
Astreo TVM software configuration	**$46,250**	**15%**	
Open Payment Processing Configuration	**$9,142**	**15%**	

Mobile App and Customer Web Portal Configuration	**$25,021**	**15%**	
FrontDesk Web Retail Application Configuration	**$3,854**	**15%**	
Training	**NA**	**NA**	Pricing dependent on project scope
Installation Services	**NA**	**NA**	Pricing dependent on project scope

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Flowbird

OMNIA PARTNERS

Proposal for Parking Meters, Software, Systems and Related Products and Services (RFP 24-S835)

Date: 18th July 2024
Author: Flowbird
Version: 1.0





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Flowbird

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www.flowbird.group

July 17, 2024

Public Sector Contracting
OMNIA Partners, Public Sector, Inc.
5001 Aspen Grove
Franklin, TN 37067

Re. OMNIA RFP #: 24-S835, PARKING METERS, SOFTWARE, SYSTEMS AND RELATED PRODUCTS AND SERVICES

Dear Madam/Sir:

Flowbird America Inc., incorporated in the State of Delaware, is pleased to provide our proposal to OMNIA Partners for Parking Meters, Software, Systems and related products and services. We have thoroughly studied the RFP documentation, and are confident that we are the most qualified vendor to meet your current and long-term goals.

Company Background

Flowbird is the largest and most experienced supplier of parking systems on the planet. Our solutions can be found in over 70 countries around the globe. We aim to facilitate urban mobility by easing traffic congestion and helping cities promote various means of travel.

We started our journey over 50 years ago when we manufactured our first parking payment devices. Now, our systems are used more than 80 million times a week in over 5,000 cities worldwide. The combination of innovative design, precise manufacturing, flexible software, and open architecture has made our solutions the preferred choice for on-street parking management. Our close attention to client needs has made us partners to thousands of cities for decades.

No other company has the experience designing, building, deploying, and supporting parking payment solutions than Flowbird. We are the global leader in multi-space and single space parking meter technology, with over 320,000 multi-space meters deployed worldwide and over 45,000 multi-space meters in the US alone. Our client portfolio includes the most iconic US cities like Boston, Detroit, Los Angeles, Miami, New York, Pittsburgh, and Las Vegas and internationally renowned cities such as Amsterdam, Milan, and Paris.

Our offer includes our parking meter products, mobile parking app, central system services (back office), PARCSs solution, pay by text and our permit solution. In addition, we are offering our transit related products such as ticket vending machines and validators.

This document may not be disclosed to third parties without authorization.

Contractual Agreement

Flowbird has read carefully the OMNIA Partners terms and conditions of business. There are several areas which will require both parties to reach agreement on and which Flowbird cannot agree to in their current form. We therefore propose a negotiated contract be agreed between Flowbird and OMNIA Partners

Disclosures

Flowbird affirms that we have not given, offered to give, nor intend to give at any time hereafter any economic opportunity, future employment, gift, loan, gratuity, special discount, trip, favor or service to a public servant in connection with this contract.

Flowbird supplier affirms that, to the best of our knowledge, the offer has been arrived at independently, and is submitted without collusion with anyone to obtain information or gain any favoritism that would in any way limit competition or give an unfair advantage over other suppliers in the award of this contract

Your Flowbird Contact

Andreas Jansson will be your main contact throughout this procurement and during the contract period, should we be fortunate to be the preferred vendor. Andreas has been in the parking industry for many years and brings both operational and systems implementation experience to the project, working with many Flowbird accounts across North America. Andreas's contact information is as follows:

Andreas Jansson
Senior Vice President of Parking Sales
Phone: 727-777-2772
Email: andreas.jannson@flowbird.group

As an officer of the company, I am authorized to contract with OMNIA Partners should we be selected. Please feel free to contact us if you have any questions about our proposal.

Sincerely,

Ronald Kroes
Chief Financial Officer

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1 Section 1 - Signature Form

The Signature Form is presented on the following page. Note we are proposing to negotiate certain terms of the agreement,, as presented in Section 3.1.4 of this proposal.

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VI. SIGNATURE FORM

A response to this solicitation is an offer to contract with Region 14 ESC based upon the terms, conditions, scope of work, and specifications contained in this request. A solicitation does not become a contract until it is accepted by Region 14 ESC. The prospective supplier must submit a signed Signature Form with the response thus, eliminating the need for a formal signing process. A contract award letter issued by Region 14 ESC is the counter-signature document establishing acceptance of the contract.

The undersigned hereby proposes and agrees to furnish goods and/or services in strict compliance with the terms, specifications and conditions at the prices proposed within response unless conspicuously noted by the supplier following the requirements of Deviations and Exceptions section in the Instructions to Suppliers. The undersigned further certifies that he/she is an officer of the company and has authority to negotiate and bind the company named below and has not prepared this response in collusion with any other supplier and that the contents of this proposal as to prices, terms or conditions of this response have not been communicated by the undersigned nor by any employee or agent to any person engaged in this type of business prior to the official opening of this proposal.

Prices are guaranteed for **120 days**.

Flowbird America Inc.
Company Name

40 Twosome Drive
Address

Moorestown | NJ | 08057
City | State | Zip

856-234-8000
Telephone Number

N/A
Fax Number

ronald.kroes@flowbird.group
Email Address

Ronald Kroes
Printed Name

CFO
Position

7/18/2024
Authorized Signature

Our offer to contract is conditional on the negotiation of a mutually acceptable final agreement that addresses the Deviations and Exceptions described in Section 3.1.4 of our proposal.

Version April 10, 2024

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2 Section 2 - Pricing

2.1 Ensuring availability and timely fulfillment of Products and services

Flowbird manufactures its own equipment and maintains reasonable inventories of products and parts. For large orders, timelines are agreed to with the customers in advance of the order being issued and accepted.

Our software is provided as a service. The back office applications are hosted in a multi-tenant environment, so adding new clients is typically not a major task.

Our support services organization is sufficiently scaled for Flowbird's volume of business to be able to respond to customer requests in a timely manner.

2.2 Pricing Structure

Flowbird pricing for the products and services offered has been submitted as a separate Excel file. The price schedule indicates any available discounts, and how they are applied.

Flowbird accepts payment by bank transfer or check.

2.3 Frequency of Pricing Structure Update

Flowbird pricing is updated annually. For this agreement, the first update would be in January 2025, 12 months after the contract is executed. Price adjustments are based on changes to a variety of indices, including the Consumer Price Index.

2.4 Additional Accessories for Products

Accessories, product configuration, sizing, etc. are described in the price schedule.

2.5 Minimum Purchase Quantities

Minimum purchase quantities, where applicable, are described in the price schedule.

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2.6 Shipping Charges

Shipping charges are described in the price schedule. Note in many cases, shipping costs are included in the price of the product.

2.7 Delivery and Installation Services

The pricing for delivery and installation services are provided in the price schedule. The pricing is based on a per machine or job basis, as may be applicable. Some tasks (e.g. project management) will only be quoted once the scope of the implementation has been defined.

2.8 Use of Distributors/Dealers/Resellers/Subsidiaries and Partners

Flowbird does not intend to work through any distributors, dealers, resellers, subsidiaries or partners as part of this agreement with OMNIA Partners.

2.9 Special offers, promotions, additional discounts or rebates offered

Flowbird is not offering any special offers, promotions, additional discounts or rebates as part of this contract at the present time, except as indicated in the price schedule.

2.10 Customer Verification for Contract Pricing

Customers can easily verify any pricing provided by checking the details of the Master Agreement pricing schedule against the invoice amounts.

2.11 Invoicing Process

Clients shall compensate Flowbird in accordance with the Pricing Schedule attached within the Master Agreement, including all reimbursable expenses. Any other fees reflected in the Agreement shall be directly invoiced monthly by Flowbird to Client.

Flowbird invoices for products when they are shipped. Flowbird invoices for services monthly, in advance. Transaction fees (where not paid directly by end users) are invoices monthly, at the end of each month. Payment is due 30 days from invoice date.

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Invoices can be paid by bank transfer or check. Flowbird does not accept credit cards/p-cards as payment.

2.12 Future Product Pricing

Future product pricing is based on the cost of development, production and support, taking market demand and competitor pricing into account.

2.13 Additional Information

Flowbird's offer does not include any minimum contract sales under this agreement.

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3 Section 3 - Ability to Perform

3.1 Suppliers ability meet the requirements of a National Cooperative Contract

3.1.1 Appendix B Exhibit A - Response for National Cooperative Contract

Flowbird will negotiate a National Cooperative Contract with OMNIA Partners should our offer be acceptable in all other respects. There are aspects of your existing form of contract which are not acceptable to Flowbird in their current form. Please see Section 3.1.4 of our proposal for details.

As requested, the following is our detailed response to Appendix B, Exhibit A, OMNIA Partners Response for National Cooperative Contract.

3.1.1.1 Company

A. Brief history and description of Supplier to include experience providing similar products and services.

Flowbird is the largest provider of on-street parking solutions in the world. In January 2018, Parkeon (established in the early 1970s) and Cale (established in 1955) merged together to change the urban mobility landscape and reinforced its position of Global Worldwide Leader in Urban Intelligence and Mobility. Together we have more than 100 combined years of experience in the parking industry with systems in more than 70 countries. With more than 1,300 combined employees around the globe, the company has an annual revenue of over $350 million.

Technology is a dynamic and vibrant environment that changes continuously. Managing that change with our clients has always been our strength. We solve Smart City challenges. Our solutions go well beyond the concept of parking: we design and build complete ecosystems with strong Business to Business and Business to Consumer components. Our missions are diverse and cover a wide variety of services like:

- Managing technology convergence: On Street, Off Street Parking and Transportation

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- Simplifying mobility to citizens by helping drivers to find a space using real time occupancy analytics
- Collecting and sharing mobility data in real time through our Open Data Analytics platform
- Global and Digital approach in managing user rights and digital permits including data correlations for optimum dynamic pricing strategies
- Reinforced communication: Push local information to residents and visitors
- Invigorate downtown commerce through hyper-local advertising and couponing campaigns

Complex projects have kept us on the leading edge of the industry and as a result, we remain the forerunner in the delivery of highly advanced parking and transit control systems and a natural component of the City's Internet of Things. Most importantly, our systems are designed for the long run with strong local support in the U.S. and Canada to enable your team and operations to benefit the most of our technology and know-how.

B. Total number and location of salespersons employed by Supplier.

Flowbird's sales team consists of the following:

- New Jersey - 2
- North Carolina - 1
- Kentucky - 1
- Georgia - 1
- Florida - 3
- Texas - 1
- Colorado - 1
- California - 1

C. Number and location of support centers (if applicable) and location of corporate office.

- Corporate office - Moorestown NJ
- Support Center - Moorestown NJ and Clearwater FL

D. Annual sales for the three previous fiscal years

Flowbird's annual revenues for the past 3 years is as follows:

- 2021 Annual Revenue: $235 million
- 2022 Annual Revenue: $340 million
- 2023 Annual Revenue: $360 million

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a. Submit FEIN and Dunn & Bradstreet report.

Flowbird's FEIN is 010778174

Flowbird does not have a Dunn & Bradstreet report. Our number is 146588913.

E. Describe any green or environmental initiatives or policies.

A prime objective of Flowbird has always been to minimize the environmental impact of its technologies from the initial design stage right through their delivery, daily operation, dismantling and recycling. From a manufacturing standpoint our goals are:

- Environmental impact during production
- Energy consumption and environmental impact during use
- Environmental impact at the end of the product life cycle

Throughout the world, Flowbird implements the following practices in our local offices to reduce the environmental impacts of our operation:

LIGHTING
All Flowbird staff whilst at work either on Flowbird premises or on customer premises are to ensure that the lighting they are using to work by, poses no nuisance to local residents or vehicle drivers. The normal lighting in the workplace should be sufficient to provide for a safe place of work. In the event of this not being the case, Flowbird staff are to advise their immediate management and have adequate additional lighting provided (this will be particularly relevant for field service/project work).

In the event of additional lighting being required it must conform to the following:

- Hand held/Head band mounted.
- Battery powered.
- Stated in the Work Instruction/Method Statement.
- Stated in the Risk Assessment.

Flowbird work activities (even with the inclusion of additional lighting sources) are not expected to have any adverse impact on the local lighting levels. Therefore are considered as being unlikely to cause a nuisance to the environment.

NOISE IN THE WORKPLACE
It is accepted that the very nature of the work required to be carried out by Flowbird

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staff will generate noise. All Flowbird staff must ensure they do all possible to ensure the noise level is kept to a minimum.

- Any noise generated by Flowbird work must not pose a nuisance to:
- Other Flowbird staff in the vicinity.
- Customer members of staff on site.
- Local residents.
- The general public.

Flowbird is committed to ensuring that the noise level that all staff and others affected by Flowbird staff at work are subjected to falls within statutory limits, or Personal Protective Equipment (PPE) is issued (as required). Flowbird will ensure this by conducting noise monitoring audits.

When working on site, it is the responsibility of Flowbird staff to liaise with the local customer management representatives and to work only in the areas designated, taking into account the amount of noise expected to be created and the nuisance level this noise is likely to reach.

Noise generating work must be avoided (as best as is practicable) anywhere on a site that is within 10 yards of a residential property.

All work carried out by Flowbird staff has been reviewed and a Risk Assessment has been produced for these tasks. At this time it is deemed that the general level of noise expected to be generated by Flowbird work does not warrant the provision of any noise related PPE, other than specific power tools, where PPE is identified as being required in the relevant Risk Assessment.

AIR QUALITY

It is envisaged that the only impact on air quality that Flowbird local offices will have is by the generation of vehicle exhaust fumes.

All project specific health and safety plans clearly instruct all Flowbird to only use the vehicles for arriving to and departing from customer sites to carry out authorized work. No vehicles are to be left running when not in motion and shortest, quickest routes are to be adopted (where practicable).

The use of hazardous substances is restricted to minimal requirements and the bulk of the substances are solvent based cleaning materials. When such materials are being used they are in a well ventilated area where an excessive build-up of fumes is

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unlikely. The amount of these substances used at any one time is deemed so minor that no impact is anticipated in local air quality standards.

All Flowbird staff are reminded that the very nature of the business of company customers dictates that in many instances the air quality at the customers premises may be at a low level. While Flowbird staff have no direct control of this issue, they must ensure that they go outside at regular intervals for short periods to breathe fresh, cleaner air.

CONTROL OF HAZARDOUS SUBSTANCES

All hazardous substances used at work by Flowbird staff must be the subject of a safety risk review PRIOR to the substance being considered safe to use.

The substance must have a Risk Assessment carried out and must be detailed for use in the relevant work instruction/method statement or health and safety plan. If no risk assessment exists or the substance is not included in the relevant documentation, then it CAN NOT be used.

Of the hazardous substances that have received risk assessments and are included in the relevant health and safety plans, many have a requirement for the use of PPE to be adopted when using the substance. PPE is provided by the company free of charge and all local managers are to ensure that all staff have the required PPE and it is in a serviceable condition.

DISPOSAL OF WASTE

Flowbird has a legal responsibility to ensure that all waste material generated through company business is disposed of in a safe and practical manner.

All Flowbird staff are to be aware that waste can only be disposed of in a specific way, depending on the matter.

Where applicable and available, Flowbird premises carry out recycling schemes for other waste products such as printer/copier cartridges and mobile phones.

Special waste would include the following:

- Batteries.
- Scrap PCBs.
- Cleaning Fluids.
- Toner cartridges.

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This waste must only be disposed of through a specific licensed waste disposal operator and a certificate of disposal must be obtained once the operator has removed the waste material. Due to the nature of this waste material and the disposal methods, it is vital that “ordinary waste” is not mixed with this waste.

STORAGE

All material and equipment must be stored in a safe and sensible manner.

All hazardous substances must be kept with the tops/lids tightly secured and in a safe place so as not to be accessed by unauthorized users.

All fluids must be stored in satisfactory fireproof cabinets (as required).

All materials must be handled in such a way as to pose no threat to the environment or people in the vicinity.

All Flowbird staff will use the cardboard cartons as often as possible until they are deemed no longer safe to use. Once these cartons have been used to destruction, they will be disposed of in the normal manner.

ENERGY CONSUMPTION

Flowbird acknowledges that the company is not an excessive user of energy resources, but does take into consideration the wise use of energy in the following areas:

- Avoiding unnecessary lighting being left switched on, after safety and security measures have been taken into consideration.
- The sensible balance of the use of resources such as central heating and air conditioning in offices to avoid unnecessary wastage.

Where practical Flowbird will make use of public transport in preference of motor vehicles.

F. Describe any diversity programs or partners supplier does business with and how Participating Agencies may use diverse partners through the Master Agreement. Indicate how, if at all, pricing changes when using the diversity program. If there are any diversity programs, provide a list of diversity alliances and a copy of their certifications.

Flowbird makes regular use of DBE partner’s services and products in the course of its’ business. The most frequent service obtained from DBE partners is equipment installation, followed by the supply of components and manufactured goods.

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G. Indicate if supplier holds any of the below certifications in any classified areas and include proof of such certification in the response:

a. Minority Women Business Enterprise
☐ Yes ☒ No
If yes, list certifying agency: _____

b. Small Business Enterprise (SBE) or Disadvantaged Business Enterprise (DBE)
☐ Yes ☒ No
If yes, list certifying agency: _____

c. Historically Underutilized Business (HUB)
☐ Yes ☒ No
If yes, list certifying agency: _____

d. Historically Underutilized Business Zone Enterprise (HUBZone)
☐ Yes ☒ No
If yes, list certifying agency: _____

e. Other recognized diversity certificate holder
☐ Yes ☒ No
If yes, list certifying agency: _____

H. List any relationships with subcontractors or affiliates intended to be used when providing services and identify if subcontractors meet minority-owned standards. If any, list which certifications subcontractors hold and certifying agency.

The proposed products, applications and services are generally delivered directly by Flowbird.

I. Describe how supplier differentiates itself from its competitors.

Here are Flowbird's key differentiators:

- Flowbird is the true market leader in on-street parking systems, with systems in over 70 countries and 50 years experience.
- We have the capability to support clients of all sizes – from small parking operations to large cities such as New York, Los Angeles, and Chicago.
- Flexibility to offer new services to your customers and improve the economic health of the downtown or campus. Your parking meter can provide users a list of upcoming events in the City, information on area attractions, and coupons for local merchants.
- Friendlier pay station user interface with touch screen and full color display options that offer powerful graphical capabilities and animations to help the user move through their parking transaction quickly.

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- True proven solar autonomy. Flowbird designs and builds its components to consume very little power, allowing you to place our pay stations and parking meters in various climates and locations, even under trees or next to tall buildings.
- Integrated mobile payment solution, designed and maintained directly by Flowbird.
- Easy to use and flexible back-office parking management system allowing for dashboard reporting, powerful filtering, and ability to modify and download rates as needed.

J. Describe any present or past litigation, bankruptcy or reorganization involving supplier.

There are no pending, active or past indictments, litigations or lawsuits against Flowbird or current officers and directors that are relevant to the subject matter of this solicitation. There is history of a past litigation as described below:

(Liu Ping Li v. The City of New York, et al., Index No. 152900/2014) in the Supreme Court of the State of New York, New York County. This matter involves a pedestrian who allegedly tripped over a cone covering a Parkeon muni-meter base in a New York City sidewalk while it was being installed by the City of New York, who is also named as a defendant. As owner of the abutting Premises, 116 Mott Street Realty Corp. was also brought in as a Defendant, along with Sa Sa, the tenant of the Premises. It was alleged that Sa Sa displayed certain products from their store on the sidewalk which allegedly could have contributed to overcrowding of the sidewalk.

Parkeon's general liability insurer accepted the case (Liu Ping Li v. Parkeon, Inc. et al). The matter has been consolidated with a prior lawsuit filed against the City of New York regarding the same incident. Discovery indicated that the sidewalk was very crowded that day, which could be another contributing factor causing Plaintiff to fall, unrelated to Parkeon's actions. Plaintiff's main claim against Parkeon was that the City installed the meters based upon Parkeon's manual, and if the City did not follow those specifications then the muni-meter warranty would be voided. However, there was no evidence of this ever presented or that Parkeon acted negligently.

The parties have all executed a stipulation of discontinuance. Plaintiff's counsel provided the release and the settlement took place in January 2024.

K. Felony Conviction Notice: Indicate if the supplier
a. is a publicly held corporation and this reporting requirement is not applicable;
b. is not owned or operated by anyone who has been convicted of a felony; or

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c. is owned or operated by and individual(s) who has been convicted of a felony and provide the names and convictions.

Flowbird is not owned or operated by anyone who has been convicted of a felony.

L. Describe any debarment or suspension actions taken against supplier

Not applicable.

3.1.1.2 Distribution, Logistics

A. Each offeror awarded an item under this solicitation may offer their complete product and service offering/a balance of line. Describe the full line of products and services offered by supplier.

Please see Section 3.13 Suppliers Products, Software, Systems and Service Offering for details.

B. Describe how supplier proposes to distribute the products/service nationwide. Include any states where products and services will not be offered under the Master Agreement, including U.S. Territories and Outlying Areas.

Flowbird ships equipment and parts to all U.S. states and territories from its facilities in Moorestown, NJ and Clearwater, FL. Software support services are provided remotely. Flowbird also has a field services organization with personnel based through the continental U.S. who travel to customer sites as needed.

C. Describe how Participating Agencies are ensured they will receive the Master Agreement pricing; include all distribution channels such as direct ordering, retail or in-store locations, through distributors, etc. Describe how Participating Agencies verify and audit pricing to ensure its compliance with the Master Agreement.

This is not applicable. Flowbird is not proposing to tie the Master Agreement to its other sales activities.

D. Identify all other companies that will be involved in processing, handling or shipping the products/service to the end user.

Flowbird uses commercial freight companies to ship its products. For smaller packages, Flowbird uses UPS.

E. Provide the number, size and location of Supplier's distribution facilities, warehouses and retail network as applicable.

Flowbird has distribution and warehouse facilities in Moorestown, NJ (24,500 square feet) and Clearwater, FL (18,000 square feet).

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3.1.1.3 Marketing and Sales

A. Given the public nature of the solicitation and contract, OMNIA Partners makes solicitation and contract documentation, including pricing documents, available on its website so Participating Public Agencies may easily conduct their due diligence. Describe any portions of the response that should not be available on the website and why those portions should not be available.

There are no portions of our response that should not be available on the website.

B. Provide a detailed ninety-day plan beginning from award date of the Master Agreement describing the strategy to immediately implement the Master Agreement as supplier's primary go to market strategy for Public Agencies to supplier's teams nationwide, to include, but not limited to:

> *i. Executive leadership endorsement and sponsorship of the award as the public sector go-to-market strategy within first 10 days*
> *ii. Training and education of Supplier's national sales force with participation from the Supplier's executive leadership, along with the OMNIA Partners team within first 90 days*

Flowbird is not proposing to implement the Master Agreement as our primary go to market strategy for Public Agencies. Within 30 days of contract award, we will brief our sales team on the fact that our current NCPA contract has been replaced by a new OMNIA agreement, providing information about the differences between the two agreements, as well as the updated pricing. The sales team will be tasked with informing current and potential customers of the availability of using the OMNIA Agreement to purchase Flowbird products.

C. Provide a detailed ninety-day plan beginning from award date of the Master Agreement describing the strategy to market the Master Agreement to current Participating Public Agencies, existing Public Agency customers of Supplier, as well as to prospective Public Agencies nationwide immediately upon award, to include, but not limited to:

> *i. Creation and distribution of a co-branded press release to trade publications Announcement, Master Agreement details and contact information published on the Supplier's website within first 90 days*
> *iii. Design, publication and distribution of co-branded marketing materials within first 90 days*
> *iv. Commitment to attendance and participation with OMNIA Partners at national (i.e. NIGP Annual Forum, NPI Conference, etc.), regional (i.e. Regional NIGP Chapter Meetings, Regional Cooperative Summits, etc.) and supplier-specific trade shows, conferences and meetings throughout the term of the Master Agreement*
> *v. Commitment to attend, exhibit and participate at the NIGP Annual Forum in an area reserved by OMNIA Partners for partner suppliers. Booth space will be purchased and staffed by Supplier. In addition, Supplier commits to provide reasonable assistance to the overall promotion and marketing efforts for the NIGP Annual Forum, as directed by OMNIA Partners.*

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vi. Design and publication of national and regional advertising in trade publications throughout the term of the Master Agreement
vii. Ongoing marketing and promotion of the Master Agreement throughout its term (case studies, collateral pieces, presentations, promotions, etc.)
viii. Dedicated OMNIA Partners internet web-based homepage on Supplier's website with:
• OMNIA Partners standard logo;
• Copy of original Request for Proposal;
• Copy of Master Agreement and amendments between Principal Procurement Agency and Supplier;
• Summary of Products and pricing;
• Marketing Materials
• Electronic link to OMNIA Partners' website including the online registration page;
• A dedicated toll-free number and email address for OMNIA Partners

Within the first 30 days from the award date:

- Flowbird's marketing team will create and distribute a co-branded press release to trade publications as well as to Flowbird's marketing contact list, providing Master Agreement details.
- Flowbird's marketing team will also update the Flowbird web site, with both an announcement about the agreement, and a more permanent notice that Flowbird products and services can be procured via the Master Agreement.

Within the first 90 days from the award date:

- Flowbird's marketing team will design, publish and distribute applicable co-branded marketing materials.
- Set up a dedicated OMNIA partners page on the Flowbird North America website.

On an on-going basis, Flowbird will market the contract in various ways:

- Through periodic additional press releases and blast emails
- Include information about the Master Agreement in its advertising, as may be applicable and appropriate.
- Through the 30 parking and transit events that we participate in annually
- Through our 9 direct sales team members
- Through our distribution network of 24 distribution and service partners

Other than the above activities and actions, Flowbird is not proposing to attend and participate with OMNIA Partners at national (i.e. NIGP Annual Forum, NPI Conference, etc.), regional (i.e. Regional NIGP Chapter Meetings, Regional Cooperative Summits, etc.) and supplier-specific trade shows, conferences and meetings throughout the

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term of the Master Agreement. Neither do we plan to attend, exhibit and participate at the NIGP Annual Forum in an area reserved by OMNIA Partners for partner suppliers.

D. Describe how Supplier will transition any existing Public Agency customers' accounts to the Master Agreement available nationally through OMNIA Partners. Include a list of current cooperative contracts (regional and national) Supplier holds and describe how the Master Agreement will be positioned among the other cooperative agreements.

Flowbird is not proposing to do this.

E. Acknowledge Supplier agrees to provide its logo(s) to OMNIA Partners and agrees to provide permission for reproduction of such logo in marketing communications and promotions. Acknowledge that use of OMNIA Partners logo will require permission for reproduction, as well.

Flowbird agrees to provide its logo(s) to OMNIA Partners and agrees to provide permission for reproduction of such logo in marketing communications and promotions. We acknowledge that use of OMNIA Partners logo will require permission for reproduction, as well.

F. Confirm Supplier will be proactive in direct sales of Supplier's goods and services to Public Agencies nationwide and the timely follow up to leads established by OMNIA Partners. All sales materials are to use the OMNIA Partners logo. At a minimum, the Supplier's sales initiatives should communicate:

i. Master Agreement was competitively solicited and publicly awarded by a Principal Procurement Agency
ii. Best government pricing
iii. No cost to participate
iv. Non-exclusive

Flowbird will provide sales team training, and marketing initiates as described earlier. The OMNIA Partners logo will be added to applicable sales materials, as determined by Flowbird.

G. Confirm Supplier will train its national sales force on the Master Agreement. At a minimum, sales training should include:

i. Key features of Master Agreement
ii. Working knowledge of the solicitation process
iii. Awareness of the range of Public Agencies that can utilize the Master Agreement through OMNIA Partners
iv. Knowledge of benefits of the use of cooperative contracts

Flowbird will provide the appropriate training to its national salesforce.

H. Provide the name, title, email and phone number for the person(s), who will be responsible for:

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i. Executive Support
ii. Marketing
iii. Sales
iv. Sales Support
v. Financial Reporting
vi. Accounts Payable
vii. Contracts

Executive Support, Sales, Contracts
Andreas Jansson
Senior Vice President of Parking Sales
Email: andreas.jansson@flowbird.group
Phone: +1 (727) 777-2772

Marketing
Julianne Wilhelm
Vice President Marketing
Email: julianne.wilhelm@flowbird.group
Phone: +1 (727) 260-0648

Sales Support, Financial Reporting, Accounts Payable
Ron Kroes
Chief Financial Officer
Email: ronald.kroes@flowbird.group
Phone: +1 (856) 912-5676

I. Describe in detail how Supplier's national sales force is structured, including contact information for the highest-level executive in charge of the sales team.

The Flowbird sales team consists of 10 sales representatives led by a member of Flowbird's Executive Team, Andreas Jansson (contact information provided above).

The sales team is organized by territory and by market (on-street and off-street).

I. Explain in detail how the sales teams will work with the OMNIA Partners team to implement, grow and service the national program.

Andreas Jansson will be the primary contact with the OMNIA Partners team to implement the program. For Flowbird, this means ensuring that our existing and potential customers are aware that they can use the Master Agreement to purchase Flowbird products, in addition to the other usual channels that may be available to them (e.g. RFPs, direct orders to Flowbird, etc.). Andreas will coordinate all Flowbird activities related to the Master Agreement with the Flowbird sales, marketing, sales administration and delivery teams.

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Once a Participating Public Agency decides to purchase products and services through the Master Agreement, the Flowbird sales team member responsible for that account will work with the OMNIA partners team directly if needed to help the Participating Public Agency follow and apply the Master Agreement purchase processes.

J. Explain in detail how Supplier will manage the overall national program throughout the term of the Master Agreement, including ongoing coordination of marketing and sales efforts, timely new Participating Public Agency account set-up, timely contract administration, etc.

Please see item I. for details. Once an order is placed using the Master Agreement, the Flowbird Sales Administration team will process the order, and the delivery team will deliver the order. The Sales Administration Team, which is part of the Flowbird Finance Department, will be responsible for identifying the order as an OMNIA Master Agreement order so that the correct Administrative Fee is paid to OMNIA Partners.

K. State the amount of Supplier's Public Agency sales for the previous fiscal year.
Provide a list of Supplier's top 10 Public Agency customers, the total purchases for each for the previous fiscal year along with a key contact for each.
Describe Supplier's information systems capabilities and limitations regarding order management through receipt of payment, including description of multiple platforms that may be used for any of these functions.

Flowbird's sales as presented in Item D are primarily to Public Agencies. We have over 600 customers throughout the U.S. including New York City, Chicago, Minneapolis, Portland (OR) and Las Vegas. The detailed information request is company confidential. We have the information management systems to support our volume of business.

M. Provide the Contract Sales (as defined in Section 12 of the OMNIA Partners Administration Agreement) that Supplier will guarantee each year under the Master Agreement for the initial three years of the Master Agreement ("Guaranteed Contract Sales").

$_____.00 in year one
$_____.00 in year two
$_____.00 in year three

To the extent Supplier guarantees minimum Contract Sales, the Administrative Fee shall be calculated based on the greater of the actual Contract Sales and the Guaranteed Contract Sales.

Flowbird is not proposing any Guaranteed Contract Sales.

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N. Even though it is anticipated many Public Agencies will be able to utilize the Master Agreement without further formal solicitation, there may be circumstances where Public Agencies will issue their own solicitations. The following options are available when responding to a solicitation for Products covered under the Master Agreement.

> *i. Respond with Master Agreement pricing (Contract Sales reported to OMNIA Partners).*
> *ii. If competitive conditions require pricing lower than the standard Master Agreement not-to-exceed pricing, Supplier may respond with lower pricing through the Master Agreement. If Supplier is awarded the contract, the sales are reported as Contract Sales to OMNIA Partners under the Master Agreement.*
> *iii. Respond with pricing higher than Master Agreement only in the unlikely event that the Public Agency refuses to utilize Master Agreement (Contract Sales are not reported to OMNIA Partners).*
> *iv. If alternative or multiple proposals are permitted, respond with pricing higher than Master Agreement, and include Master Agreement as the alternate or additional proposal.*

Detail Supplier's strategies under these options when responding to a solicitation.

Flowbird is not proposing to use the Master Agreement in cases where Public Agencies decide to issue their own solicitations. We will respond directly to the Agency in accordance with the provisions of the solicitation.

3.1.2 OMNIA Partners Administration Agreement

Flowbird will negotiate a final form of Administration Agreement with OMNIA Partners should our offer be acceptable in all other respects. There are aspects of your existing form of agreement which are not acceptable to Flowbird in their current form. Please see Section 3.1.4 Exceptions and Deviations.

3.1.3 Exhibit F and Exhibit G Forms

Please refer to Section 6 Required Documents for the Flowbird response to requested forms.

3.1.4 Exceptions and Deviations

Flowbird currently has a cooperative purchasing agreement in place with NCPA, and are keen to continue the relationship with OMNIA Partners.

We have found that the OMNIA Partners agreement is substantially different from the NCPA agreement, especially in the form of the business relationship between the parties.

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OMNIA has added language that essentially allows the sponsor/OMNIA not to provide Flowbird information to a prospective customer even if Flowbird is added as a vendor as a result of this RFP. This is not an acceptable or fair approach.

OMNIA has also included various exculpatory clauses that severely limit its liability in case of mal-administration of the agreements, and excludes availability of consequential damages. This could potentially cut off much financial recourse to Flowbird if OMNIA is in breach, as lost profit or other damages to Flowbird might be considered consequential. This clause is one-way in OMNIA's favor, as are other new clauses regarding confidentiality and data breach. The responsibilities should at minimum be mutual.

Flowbird's pricing is based on the participating agency being the merchant of record. This allows us to not charge any transaction fees for bank card transactions at the parking meters. If a participating agency requires Flowbird to be the merchant of record, the fees for that service shall be negotiated since they are impacted by projected transaction volume and projected average transaction value.

We did not fill out the Certification of Compliance with Buy America Provision in Exhibit F because the response will differ depending on the products and services being procured. All Flowbird Transit products are Buy America Act compliant. Some of Flowbird's parking products are Buy America Act compliant, including all software and related services. We will execute a Certification of Compliance for each Participating Agency that wishes to order Flowbird products that are Buy America compliant.

The RFP contains drastically different language, as compared with the prior NCPA agreement, with respect to how this sales channel is to be used. Specifically, OMNIA is requiring that it become Flowbird's primary public sector sales channel. Flowbird has a significant direct sales channel organization which we will retain. As with the previous NCPA agreement, we intend to offer the OMNIA sales channel as an additional way for our customers to purchase Flowbird products and service, not as the only way.

With regards to Exhibit B, Administration Agreement (Example) and Exhibit C, Master Intergovernmental Cooperative Purchasing Agreement (Example), we wish to negotiate the following provisions:

- In case of delay in the delivery of products and services that is not attributable to Flowbird, the latter is entitled to extension of time accordingly and/or compensation.

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- Flowbird undertakes to comply with law, regulation and norms applicable to their product and services on the date of their offer has been issued.
- Any change or variation of Flowbird's scope of work under this Contract/Offer, either required by the customer or proposed by Flowbird shall be subject to a change proposal from Flowbird that the Customer commits to approve within maximum 10 days after it has been issued to the Customer.
- Invoices are payable within 30 days from the invoice date.
- In any case, Customer shall pay to Flowbird the activities and investments performed by Flowbird and has no right to cash retention or to withhold payment.
- Title of the goods sold by Flowbird shall be assigned to the customer upon payment in full on the due date.
- The customer acknowledges that all intellectual or industrial property rights with respect to the products and/or services provided by Flowbird, including any modification and/or evolution performed during the course of the contract/offer, shall remain Flowbird's sole property.
- For the sole purpose of the contract/offer execution, Flowbird hereby expressly grants the customer a non-exclusive, revocable, and non-transferable license to have access to the SaaS solution and or software object of this contract/offer for the term of the Contract and for the world. In any case, the customer has no right to modify nor improve Flowbird’s software or SaaS solution.
- Each Party undertakes to keep strictly confidential and not to disclose to any third party, and to use only for the purposes of the contract all information from any kind disclosed by the other party during the course of the contract/offer execution.
- Flowbird's aggregate global liability arising out of or in connection with the contract shall be limited to the contract price, excluding taxes. After delivery and final acceptance, the total liability related to services shall be 50% of the annual service fees.
- It is expressly agreed between the parties that Flowbird cannot be held responsible for indirect, special, consequential or incidental damages such as, and without limitation, loss of earnings, operating or revenue losses or loss of profits, clientele, income.
- Flowbird shall not be liable to the other party for (i) any indirect, incidental, special, reliance, punitive or consequential damages, if any, even if advised of the possibility of such damages; (ii) loss of profits; (iii) loss of business; (iv) loss of revenue (except that the Customer shall be liable for any fees or other amounts owed to Flowbird under the Agreement)"

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- The Customer shall review the deliverables within maximum 10 days (hereafter the “Acceptance Period”). Each phase shall be considered as approved during the Acceptance Period if there is no remaining Blocking Defect.
    - Defect: shall mean a non-conformity attributable to Flowbird of the products and or services delivered by Flowbird to their specifications in their last validated version
    - Blocking Defect: shall mean a defect due to Flowbird preventing, without any workaround, to carry a Critical Feature [option: sales, validation, maintenance]
    - Major Defect: shall mean a defect due to Flowbird preventing, without any workaround, to carry Critical Feature out on at least 50% the equipments
    - Minor Defect: shall mean a defect which is neither Blocking nor Major."
- Exclusive Flowbird's undertakings under the warranty are described hereafter:
    - Flowbird would fix Defects occurring on the products and services delivered to the customer under this contract/order for a period of 12 (twelve) months following delivery date of the Products subject to this contract/offer.
    - In case of Defect, Flowbird undertakes to promptly correct any Defect reported to Flowbird in writing at the latest XX days from their appearance.
    - Flowbird, at its option, may repair or replace/re-perform nonconforming goods and/or services. The return of such goods shall be at Customer’s risk and expense. Any repaired or replaced good, or part thereof, or re-performed services shall carry warranties on the same terms as set forth above, with the warranty period being the original unexpired warranty.
- Either party may terminate the contract if the other party commits a material breach of the contract that remains uncured thirty (30) days after written notice is delivered to such breaching party.
- In any case, and whatever is the reason for the termination, the Customer undertakes to pay Flowbird for all investments, activities, services and products performed by and or ordered to Flowbird until the termination effective date (e.g. raw materials, manpower, deliverables and capital costs).
- In addition, in case of termination without cause, the Customer shall pay to Flowbird a compensation fee for the termination without fault from Flowbird, corresponding to 10% of the contract value.
- Flowbird has the right to suspend its performance and terminate the contract in the event that the customer is in breach.
- Each Party agrees to indemnify and hold harmless, to the fullest extent allowed by law, the other Party and its principals, officers, and employees from and

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against all claims, demands, suits, actions, payments, liabilities, judgments and expenses (including court- ordered attorneys' fees), arising out of or resulting from the acts or omissions of their principals, officers, or employees in the performance of this Agreement. Liability includes any claims, damages, losses, and expenses arising out of or resulting from performance of this Agreement that results in any claim for damage whatsoever including but not limited to any bodily injury, civil rights liability, intellectual property rights.

In addition to the preceding items, as directed in the RFP, we have also included a sample copy of our services agreement in Section 6 Required Documents. Flowbird devices and applications require a connection to the Flowbird Back Office in order to operate. Our services fees include the applicable services described in the services agreement.

3.2 Supplier Contract Implementation/Transition Plan

Flowbird Contract Implementation will be managed by our experienced sales team. Flowbird has nominated Andreas Jannson (Vice President of Sales for North America) as the sales lead for the OMNIA Partners contract.

Andreas will lead the commercial negotiations with OMNIA Partners on behalf of Flowbird.

On successful completion of commercial negotiations a formal kick off meeting will be organized between Flowbird and OMNIA Partner representatives. The kick off meeting will agree on several key areas:

- A Stakeholder Management Plan which identifies key representatives on both sides
- A formal Communication Plan between the organizations
- A Transition Plan onto the new agreement
- A Training Plan to define requirements for OMNIA Partners representatives
- A Risk Management Plan to mitigate risks and define contingencies
- Performance Measurement Plan including Key performance Indicators (KPIs)
- Operational continuity
- Formal Timelines for completion of Transition activities
- Sales and Technical materials required by OMNIA Partners

The Transition Plan will be enacted after the kick off meeting. Transition will include:

- The Handover Process: How and when the current supplier will transfer knowledge, data, and any outstanding work.

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- The Onboarding Process: Steps for integrating the new supplier into your organization.
- Training and Support: Required training for both the supplier and your internal team.
- Any Initial Deliverables: List initial deliverables from the new supplier

On completion of Transition the OMNIA Partner lead and Andreas Jansson will sign off that all activities are finished to the satisfaction of both parties.

3.3 Available Ordering Methods

Following the deployment, the project manager stays engaged to ensure that client staff are satisfied with the performance of the system, including all integrations that were agreed upon. The project manager also ensures the comfort level of all staff members pertaining to system operations (both hardware, software, and back-office reporting/management).

Once it has been acknowledged that the operation is running smoothly, the account manager takes over as the main point of contact for the customer. Customer staff will contact the Flowbird Customer Support team for any technical questions and the Flowbird Sales Administration Department for all parts orders and warranty replacements.

Orders will normally be placed by E-Mail or Telephone to Flowbird in Moorestown, NJ directly. Alternatively orders can be placed via the Flowbird Sales Representative if there are cases requiring any special attention.

3.4 Website Ordering, Returns and Reporting

Flowbird does not operate a specific service website for ordering and returns.

Flowbird logs all sales orders, returns and shipments into our own internal reporting system. This information is made available to our Service Team in order to update customers should they require order, return or shipping status information.

The back office management software operates on a Software-as-a-service basis and is therefore available to the Flowbird service team to interrogate should issues occur which require investigation. This includes details such as:

- Hardware Equipment Status
- Alarm Reporting

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- Preventative Maintenance

3.5 Suppliers History of Meeting Shipping and Delivery Timelines

Flowbird has a well organized and proven record of delivering hardware, software and ongoing support services to our client base of over 600 customers across North America.

Many of Flowbird's customers have worked with us for many years which is evidence of our success in shipping and delivering on time. We have a number of testimonials from our customers to prove this. Examples are provided below.

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LAS VEGAS
CITY COUNCIL

CAROLYN G. GOODMAN
Mayor

MICHELE FIORE
Mayor Pro-Tem

STAVROS S. ANTHONY
CEDRIC CREAR
BRIAN KNUDSEN
VICTORIA SEAMAN
OLIVIA DIAZ

SCOTT D. ADAMS
City Manager

DEPARTMENT
NAME SURNAME
DIRECTOR

CITY HALL
495 S. MAIN ST.
LAS VEGAS, NV 89101
702.229.6011 | VOICE
711 | TTY

cityoflasvegas
lasvegasnevada.gov

August 13, 2020

To Whom It May Concern:

The City of Las Vegas has been a Flowbird client since 2013. At that time, we transitioned all single space meters to a Pay-by-Space multispace meter system to improve customer service and provide more ways to pay. Our initial implementation of over 200 solar powered Flowbird pay stations allowed us to modernize parking downtown, providing key operational and enforcement efficiencies.

In 2020, we started on a path to implement Pay-by-Plate parking in all metered locations. This initiative allowed us to take advantage of Flowbird's latest technologies. In July, we went live with the Flowbird mobile app which offers payments for on-street parking as well as payments and reservations for off-street facilities. Additionally, we upgraded our pay stations with a full color touch screen display, enhancing the user experience.

Throughout the course of our partnership, Flowbird has repeatedly added value to the city and its customers. For example, they partnered with us to create a food truck program which powered an app that showed the real time locations of various food trucks at meters throughout the city. Flowbird also recently assisted the City by agreeing to become the Merchant of Record for card payments which saved the city hundreds of thousands of dollars in PCI compliance measures and fees.

We have been very pleased with the overall performance of the Flowbird system. Their staff, including their senior management team, is very attentive to our needs and they provide us the support we need to run a successful parking operation.

Please reach out to me if you have any questions.

Sincerely,

Brandy Stanley

Brandy Stanley, MBA, CAPP
City of Las Vegas Parking Services

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City of Memphis
Tennessee

Jim Strickland
Mayor

ENGINEERING DIVISION
Traffic Engineering

To Whom It May Concern:

The City of Memphis has been a Flowbird client since 2013 when we implemented a smart parking system to increase parking opportunities and provide more ways to pay. We have implemented the Flowbird solution in the downtown as well as in our Medical District. In total, we have an inventory of approximately 135 Flowbird Pay Stations. They are battery powered, solar charged, wireless and accept coins and credit cards. Flowbird also provides us with an easy-to-use back-office system to help us manage parking data and maintain the equipment.

In addition to the pay stations, the Flowbird team along with IPS installed about 400 credit card accepting single space parking meters for locations requiring that type of device.

We have been very pleased with the overall performance of the Flowbird system. Their team is attentive to our needs and they provide us the support we need to run a successful parking operation.

Please reach out to me if you have any questions.

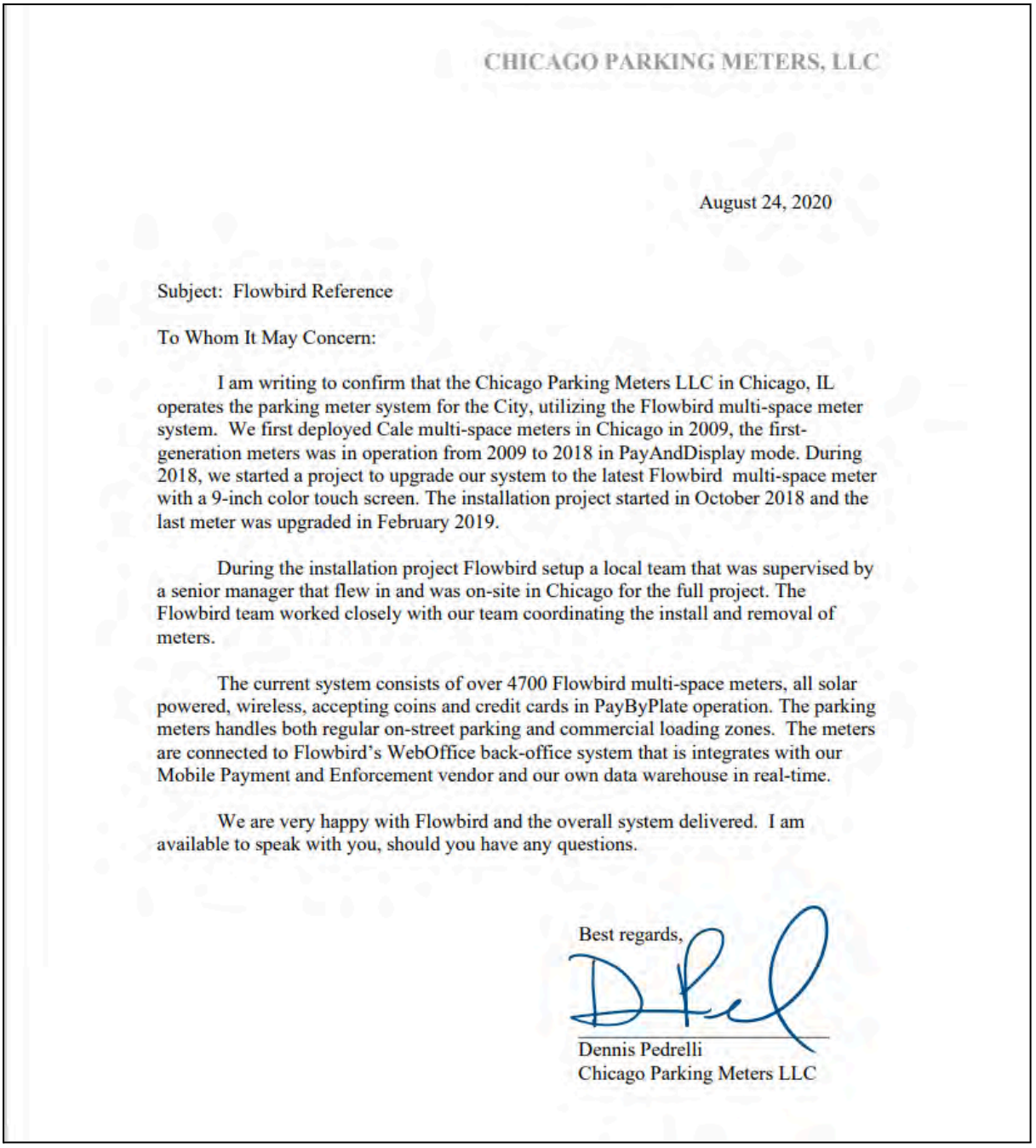
Sincerely,

Ken Johnson

Ken Johnson, PE
Senior Traffic Engineer
Traffic Engineering
125 N. Main St., Rm. 668
Memphis, TN 38103
901-636-6710

Room 668 ● 125 North Main Street ● Memphis, Tennessee 38103-2017 ● (901) 636-6710 ● FAX (901) 636-6960

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CHICAGO PARKING METERS, LLC

August 24, 2020

Subject: Flowbird Reference

To Whom It May Concern:

I am writing to confirm that the Chicago Parking Meters LLC in Chicago, IL operates the parking meter system for the City, utilizing the Flowbird multi-space meter system. We first deployed Cale multi-space meters in Chicago in 2009, the first-generation meters was in operation from 2009 to 2018 in PayAndDisplay mode. During 2018, we started a project to upgrade our system to the latest Flowbird multi-space meter with a 9-inch color touch screen. The installation project started in October 2018 and the last meter was upgraded in February 2019.

During the installation project Flowbird setup a local team that was supervised by a senior manager that flew in and was on-site in Chicago for the full project. The Flowbird team worked closely with our team coordinating the install and removal of meters.

The current system consists of over 4700 Flowbird multi-space meters, all solar powered, wireless, accepting coins and credit cards in PayByPlate operation. The parking meters handles both regular on-street parking and commercial loading zones. The meters are connected to Flowbird's WebOffice back-office system that is integrates with our Mobile Payment and Enforcement vendor and our own data warehouse in real-time.

We are very happy with Flowbird and the overall system delivered. I am available to speak with you, should you have any questions.

Best regards,

Dennis Pedrelli
Chicago Parking Meters LLC

3.6 Suppliers Return and Restocking Policy

Flowbird maintains a stock of spare components and assemblies at our Moorestown,NJ facility to service existing customers in North America. This stock is adjusted accordingly to service the deployed equipment in the field and proven reliability data. Customers will return defective or broken parts or subassemblies to Flowbird. The following is a summary of the Flowbird returns policy.

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1. For parts being returned for repair or replacement under the Extended Parts Warranty, a Return Material Authorization (RMA) is required PRIOR to the physical return of the product.
2. Flowbird will issue an RMA number and provide shipping instructions.
1. The Customer will ship the defective parts back to Flowbird and clearly mark the outside of the carton or the shipping label with the RMA number. Each assigned RMA is limited to 20 individual items.
2. Customer agrees to properly wrap each defective part and package them securely within a box to assure no further damage will occur to these parts.
3. Parts will be shipped by the Customer to:

   Flowbird
   Attn : Warranty Parts Dpt. RMA # xxxxx
   40 Twosome Drive, Unit 7
   Moorestown, NJ 08057

4. Once Flowbird has received the defective parts, replacement parts will be shipped within 72 hours via two (2) business-day delivery.
5. Flowbird will cross reference all parts against its warranty/contract database and determine if the part is covered. Customers will be notified if parts are not covered under warranty and will be advised of available options by the Sales Administration Dept.
6. Customer is responsible for testing of parts before returning. Flowbird will inspect and test parts to determine the reason for return. If any parts are determined to be functional with no problem found or found functional after a standard cleaning procedure, Customer will be charged $225.00 dollars per unit for Preventative Maintenance charge to clean and restock.
7. Customer is responsible for all replacement charges for parts out of warranty or not covered under contract.
8. Customer is responsible for all expedited shipping charges.
9. Customers should ship all defective parts to Flowbird and reorder on a regular basis in order to provide a smooth flow of replacement parts and eliminate the need for expedited requests. Bulk RMAs (> 20 items) or multiple RMAs per week will result in processing and handling delays.

3.7 Suppliers Ability to Meet Service and Warranty Needs

Flowbird's service team supports over 600 clients across the United States. Many of our clients have utilized Flowbird solutions for over a decade, demonstrating the reliability of our equipment, the flexibility of our system, and the dedication of our

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support team. Our help desk is available via phone and email. We strive to resolve problems over the phone quickly to keep your pay stations collecting revenue.

Flowbird has three escalation levels when it comes to preventive and remedial maintenance. They are defined as follows:



Level I – Day-to-day operations of the system, including:

- Monitoring the system for alarms/alerts through Flowbird's back-office suite
- Configuration changes (e.g., fare types and fee changes)
- Cash collections
- Limited Technical Services

Level II – Flowbird Helpdesk.

The Flowbird Helpdesk team has live remote access to equipment in the field, which helps us provide expert service. We provide the following services at no additional charge:

- Phone and email support by experienced Flowbird support staff
- Assistance with back-office management system questions such as report generation, system monitoring questions, configuration change questions, credit card reconciliation support
- Live troubleshooting of hardware issues. Our staff will walk you through recommended maintenance techniques and provide instructions on what functions to perform to get the equipment back up and running. Over 98% of the time, we can provide a solution to the client's problem without needing to escalate to Level 3.

The Flowbird Helpdesk will also connect your team with our Sales Administration department for parts orders (either new parts or parts under warranty) and our Software Configuration department if software changes need to be made.

Level III – On-site Flowbird Service.

If remote troubleshooting has not rectified a problem, Flowbird will deploy a trained technician on-site with the University's approval. This is typically billable.

3.7.1 Typical System Availability

The service support network operated by Flowbird ensures that customers achieve high levels of availability of up to 98% typically for an overall system.

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3.7.2 Severity Level and Typical Resolution

Flowbird Severity level definitions and typical resolution times are described in the Example Service Agreement included in Section 6 Required Documents

3.8 Extended Warranty Programs

Flowbird offers an extended parts warranty for equipment supplied to customers. These can be arranged to suit particular client needs.

The Extended Parts Warranty program provides the Customer an insurance program for the most frequently used and most costly parts. Subscribing to this program provides replacement to these parts at no additional cost, for the duration of the agreement. If a special circumstance requires a part listed below to be purchased, a written explanation will be provided to the customer for approval prior to the shipment of the part.

The Customer will replace defective part(s) as part of its normal Level I diagnosis and repair process. Following the Return Material Authorization (RMA), the Customer will ship any parts that require repairs back to Flowbird. During this process, a sales order will be generated for the replacement part(s) from this RMA.

Flowbird will replace parts with repaired or refurbished parts that are tested to insure that they meet the performance specifications of a new part. Replacement parts warranty is ninety (90) days or to the end of the support agreement period for the unit the part is installed in whichever comes first. This warranty does not include “wear and usage items” such as paper and batteries. Labor is not covered under this hardware part replacement agreement.

To maximize hardware uptime, Flowbird recommends to the Customer to order and maintain at any time a spare parts lot. Flowbird can provide guidance to the Customer regarding a suggested number of parts to be included in this spare parts lot and will also provide a pricing proposal.

3.9 Technical Advice and Sales Support

Flowbird will provide OMNIA Partners with a Key Account Manager. The Key Account Manager will be responsible for managing Sales Support to OMNIA Partners. The Key Account Manager will also coordinate technical advice through relevant Flowbird Subject Matter Experts.

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Flowbird's nominated Key Account Manager for OMNIA Partners will be:

Andreas Jansson - Senior Vice President US Sales
1-727-471-4768 (Work)
1-727-777-2772 (Mobile)
andreas.jansson@flowbird.group

3.10 Financial Condition of the Supplier

Flowbird is very financially stable, with revenue coming from hardware and software solutions provided to various markets, along with operations/maintenance agreements that provide added value and peace of mind to their clients.



Flowbird's diverse portfolio includes:

- Parking meters and pay stations for cities, universities, Parks & Rec (e.g., National and State Parks) and transit agencies
- Electronic validators for transit agencies used on and off board buses, streetcars, etc.
- Mobile payments for parking and transit
- Digital services (e.g., cloud-based reporting, digital permits, electronic validations)
- Cloud hosting of client financial and operational data
- Operational support services including day to day maintenance of parking and transit equipment, warranty and preventive maintenance services, as well as city and end user support via phone, email, and chat

Flowbird has systems in over 80 countries worldwide and is always entering new territories to expand their reach. Flowbird clients include some of the largest agencies

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in the world and they provide valuable services to millions of users each day. This proven track record and stability makes Flowbird a very strong partner for cities across the globe.

3.11 Suppliers Safety Record

Flowbird takes the matter of occupational health and safety very seriously. Extensive processes and procedures have been put in place to ensure the chances of accident and injury are minimized. We have, together with our partners, worked on many parking and transit fare collection systems and understand the likely risks and how to manage them. Flowbird has an excellent safety record working with our customers over many years.

Best practice requirements for Health and Safety Management will be applied through the design, development, supply and maintenance of Flowbird supplied systems. Flowbird will monitor and review safety information to ensure that a continual understanding is maintained of risks and how they may be mitigated.

Flowbird will identify, analyze, monitor and review risk factors that may affect our ability to satisfy our customers and stakeholders, as well as factors that may adversely affect the stability and integrity of supplied systems.

3.12 Technology Used to Support the Contract

Flowbird will use a range of technologies to support the contract. Flowbird has a national presence meaning that support can be provided to customers across the US. As such, Flowbird provides a range of services and technologies to support contracts:

- Flowbird has a sales team which can be readily contacted via E-Mail, Telephone and Mobile. The sales team provides a key point of contact within the Flowbird organization
- Flowbird provides extensive product and sales information in electronic form which can be readily transmitted to customers
- Flowbird provides extensive training services which can be delivered to OMNIA Partners or directly to customers. Training can be delivered in person or via Webinar sessions remotely
- Flowbird has an extensive service organization with a Telephone Help Desk which is available to customers with specific issues or questions once a system is live
- With tight security controls, the Flowbird Service Team has access to back office systems customers are using since this is provided on a

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Software-as-a-Service basis. These back office systems control and monitor live systems in the field making the job of analysis and update of systems remotely much easier

- The customer can, of course, purchase products from Flowbird through OMNIA Partners should this be a preferable option to them. All communication can then be limited to Flowbird and OMNIA Partners.

3.13 Suppliers Products, Software, Systems and Service Offering

3.13.1 Handheld Enforcement Computers

Flowbird is not proposing to supply OMNIA Partners with handheld Enforcement Computers. This is not a product Flowbird manufactures.

3.13.2 Parking Meters

The following sections describe the Parking Meters supplied by Flowbird. Details of each type of Meter are provided together with payment types accepted.

The Parking Meters are configured via the Flowbird Parking Back Office. A description of the Back Office is provided in Section 3.13.6 Parking and/or Meter Management Systems.

Meters can be configured remotely with different rate information for a variety of scenarios including the period of the year or week, special events, hour, location, min/max periods allowed, and progressive or regressive costs for a unit of parking time that increases or decreases.

3.13.2.1 MAX Meter

Flowbird's MAX meter is unique in the industry. One MAX meter covers two parking spaces. This allows for a large cost savings to parking organizations who have dual space meters today. Using one meter rather than two allows clients to:

- Reduce upfront purchase cost for meters
- Reduce operating and transactional expenses
- Achieve greater efficiency relative to short-term parking regulations and enforcement

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- Enhance customer accessibility as a result of multiple payment acceptance methods
- Update current parking meter technology with the greatest available
- Reduce service calls and customer complaints due to malfunctioning equipment
- Lower maintenance and repair costs

MAX features include:

- Larger Solar Panel: Capture more sun to boost uptime.
- Aluminum-Alloy Exterior: Protection from weather resistance
- LED Alerts: Front and rear colored LEDs indicate meter pay status and flash operational alerts
    - Digital Alerts: Email & texts ensure rapid response to alerts.
    - Remote Programming: Wireless software and configuration updates maximize uptime and revenue.
    - Coin Validator: Infrared coin jam detection alerts maximize uptime.
    - Power: Redundant battery and solar power systems maximize uptime and profit
    - Security: ID cards provide 3 levels of access for meter configurations, service, or collections
    - Communications: 3G/4g modem wireless connectivity



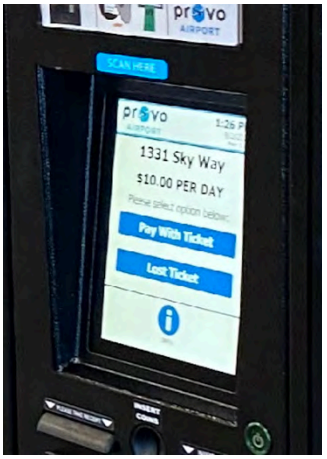
3.13.2.2 CWT Paystation

3.13.2.2.1 Physical Security and Lock

Flowbird CWT pay stations consist of an upper and lower compartment to create the cabinet. This construction provides additional security against cash theft. The upper compartment is where maintenance staff can perform maintenance tasks such as preventative activities and replacing empty paper spools. The lower compartment is where collection staff can perform cash collections. Like other pay stations where a collection door is reinforced, the collection door is made of 304 stainless steel, reinforcement is not required.

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CWTs have a 4-Point locking solution ensuring maintenance and collections teams have access to the appropriate cabinet section. The upper section, lower section, collection door and vault are keyed differently. The upper and lower compartment doors have 4 locking hooks that connect the door to the compartment. Manual and electronic locks are supported. Credit card reader is recessed, prohibiting skimming devices from being attached. Door hinges and seams are internal and tight to prevent the CWT from being pried open. Locks and bolts are out of public sight.



When the cabinet door is opened and/or the coin box is removed the meter will send a notification to all valid recipients via text message or email. The coin box can only be opened with a collection key and is closed to the collector.

Vibration and shock sensors are offered as an option. If the sensor is triggered, an SMS/email is generated notifying the sensor has been triggered.

3.13.2.2.2 External Shell Frame

The CWT pay station cabinet is made with 304 stainless steel. This particular stainless steel adds protection against corrosion to many chemical corrodents, industrial atmospheres and marine environments. A graffiti-resistant powder coating is applied to the inside and outside of the cabinet. This provides additional protection against the elements, including human (vandalism) and environmental (weather). The powder coating makes it easier to remove unwanted paint, marker tags and adhesive materials.

The CWT consists of an upper and lower compartment to create the cabinet. This construction provides additional security against cash theft. The upper compartment is where maintenance staff can perform maintenance tasks such as preventative activities and replacing empty paper spools. The lower compartment is where collection staff can perform cash collections. Like other pay stations where a collection door is reinforced, the CWT collection door is made of 304 stainless steel, reinforcement is not required.

3.13.2.2.3 Display Screen

Flowbird offers 3 display options for the CWT:

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- 9” Color Touch Screen. The color touch screen moves all controls on to the display allowing for very flexible interfaces maximizing the potential of the pay station to do things beyond parking.

- 7” Color Screen, the color screen provides all the benefits of the monochromatic screen but adds the ability to add visual cues (such as font customizations and images) and incorporate videos into the user interface. Videos can be used to display instructions on how to use the pay station, a welcome message or commercials.

- 6.5” Monochromatic Screen, the monochromatic screen was traditionally used for parking operations. The screen options provide a dynamic flow and the option to display all rates and information on the display to minimize printed information on the meter.

3.13.2.2.4 Solar Panel

For coin/card CWTs, the solar panel is flush with the top of the meter and invisible to anyone under six feet. This both maximizes its exposure to sunlight and minimizes any negative effect on the meter design as well as the possibility of vandalism or theft. Flowbird uses a commercially available 12V 75AH recyclable sealed lead acid battery that usually lasts between 3-5 years. The battery supplies the power to the meter, and is trickle charged through a solar panel.

3.13.2.2.5 Key Pad

The 6.5'' monochrome screen and 7” color display includes an external keypad. The key pad has six Piezo-type action buttons under the display. Up to 42 additional button locations support alpha-numeric on the front of the meter. All button functions are programmable at the meter. The top six action buttons are generally used for Enter, Cancel, Rate Selections, Credit, Debit, Language selection, and Help information. The 42-button alpha-numeric support is generally used for space number and license plate number input. The Piezo keyboard plays an audible sound when buttons are pushed.

The keypad is also tamper, weather, and corrosive resistant. CWTs proved exceptionally durable during rigorous testing. Our meters are able to withstand various climates. These include the arid deserts of Southern California; the humid coastal communities of Florida; the “four seasons” climates of the Midwest and Northeast, and the extreme winter conditions of Montreal and Quebec, Canada.

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The 9” color touch display does not offer a Piezo-type keypad. The key pad is incorporated into the display. The appropriate keys pad and buttons display depending on the information presented. Example: Home page may display information about rate structure and parking. A button will display informing the user to hit the button to continue. The next screen may ask for the license plate and will display the keyboard for the user to enter their license plate.

3.13.2.2.6 Openings on Pay Station such as CC/Coin/Cup

The Flowbird CWT pay stations meet current ADA requirements by placing the maximum high side reach at 47 1/4", which is lower than the 48" requirement. Flowbird also maintains ADA guidelines by being able to operate the pay station with one hand and does not require tight grasping, pinching or twisting of the wrist. The pay station may also provide for optional audio assistance, if used for a purpose other than parking. Audio comments may be relayed through an audio jack, or a speaker.

Coin acceptor includes an automatic shutter, which opens for coin insertion, but not for non-metal objects. The credit card (CC) reader is flush-mounted with no part of the reader protruding outside the cabinet, this design limits the insertion of a credit card skimmer.

3.13.2.2.7 Coin Slot and Acceptor

Coin acceptor includes an automatic shutter, which opens for coin insertion, but not for non-metal objects. Non-programmed coins or anything metallic that is inserted will be directed to the coin return bowl, and not be found in the vault. The CWT pay station uses a free fall coin acceptance system to minimize the possibility of jamming of the unit and to reduce necessary maintenance, overall, on the system.

The CWTs are able to accept up to 16-coin denominations through our coin shutter/validator, which accepts coins that have been programmed to be valid payment options.

3.13.2.2.8 Cash Vault Compartment

CWTs are equipped with a secure vault locking system. The vault system is located behind the outer door of the bottom cabinet which is secured with reinforced steel. The vault door is made of armored steel. The lock is an advanced, four-point locking point system. Flowbird offers an electronic lock option giving clients more control in the collection process. When the coin box is removed, the pay station will send a notification to all valid recipients via text message or email.

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The coin box can only be opened with a collection key and is closed to the collector. To eliminate the possibility of skimming, it can only be opened once. No maintenance or safety requirements are needed for the vault locking system.Coin canister can hold 3,000 coins or up to $650.

3.13.2.2.9 Printer, Paper and Payment Receipt

CWTs are equipped with a thermal printer using direct thermal printing to generate characters, symbols and graphics. Printed receipt design is configurable and supports both landscape and portrait layouts. Paper options include security features such as foil and unique numbering to defend against counterfeit and duplicate receipts.

The printer module consists of the printer and the paper supply roll. The printer module is positioned on a vertical main assembly plate that can easily be removed for repairs or if the printer is no longer required (electronic receipts). Electronic receipts such as email and SMS text are supported.

3.13.2.2.10 Battery

CWT pay stations use a commercially available 12V 75AH recyclable sealed lead acid battery that usually lasts between 3-5 years. The battery supplies the power to the meter, and is trickle charged through a solar panel. Battery is located in the lower cabinet and can easily be removed for battery replacement.

3.13.2.2.11 Temperature and Moisture Specifications

Flowbird pay stations have proven its ability to withstand extreme conditions in varying climates. Flowbird pay stations are installed in areas with harsh environmental factors (United States, Canada, Sweden, Norway etc.). The pay stations are not adversely affected by weather conditions despite the fact that they are often subjected to salt, air, humidity, frost, snow and ice. CWTs are rated to work in 99+ percent relative humidity and at temperatures up to 140º F and down to -22º F. CWTs protected LCD screen is tamper, weather and corrosion proof. The keypad is also tamper, weather, and corrosive resistant.

Components are dipped in conformal coating which protects the components from moisture. All Printed Circuit Boards (PCB) used in CWT pay stations are protected with a double solder mask lacquer (min 25 my) to shield certain areas, such as edge connectors from solder wetting. The PCB is then coated with an ultra-low viscosity, one-component silicone, which cures, at room temperature, to an elastomeric rubber upon exposure to humidity in the air. This product has a quick surface cure that is non-corrosive to metals, including sensitive metals such as copper, emits no harsh

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odors during curing and has good adhesion to a wide range of substrates. The cured material has superior anti-reversion properties, excellent resistance to various and extreme temperatures, electrical insulation properties, weather ability, water resistance and is ideally suited for general-purpose adhesive sealing, potting and coating of electrical and electronic parts. Coating used: TSE3991 CU.

3.13.2.2.12 Cellular Communications

CWT pay station modems utilize 3G/4G technology. Pay station supports up to two modems, supporting different carriers. Alternatively, Flowbird has access to multi-operator SIM cards.

CWT supported modems support multiple mobile internet speeds such as 4G LTE, 4G, 3G and 3rd party coverage.

CWT pay stations have the ability to process transactions when offline. When communication is restored, transactions are processed. Enforcement can access a pay station and print a list of transactions processed to assist with enforcement until communication is restored.

3.13.2.2.13 Payment Options and Payment Ability at the Pay Station

Payment methods supported include coin, bills, credit card, smart card (magnetic stripe and RFID), coupon codes, eValidations, tokens, and contactless payments. Additional hardware may be required depending on the payment products selected.

Flowbird has achieved certification as a PCI Level 1 Service Provider. Our EMV readers are level 1 and level 2 certified.

Coin acceptor supports multiple coin combinations. Standard US coin denominations include $0.05, $0.10, $0.25, $0.50, $1.00. Coin acceptor includes an automatic shutter, which opens for coin insertion, but not for non-metal objects.

The Card\Credit card reader supports the major credit card brands such as Visa, MasterCard, Discover, American Express, Diners Club. The reader is dual directional. Smart Cards are reloadable cards. This is a great alternative to a credit card.

Coupon codes can be created and provided to an individual or group for free or discounted parking. Codes can be created by date range, time and number of uses.

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E-validations can be used by merchants or third parties to provide free or discounted parking. The license plate is recorded on a tablet, smartphone or computer and a parking session is automatically started. There is no need to go to the pay station.

3.13.2.2.14 ADA Compliance

The CWT meets current ADA requirements by placing the maximum high side reach at 47 1/4", which is lower than the 48" requirement. Flowbird also maintains ADA guidelines by being able to operate the pay station with one hand and does not require tight grasping, pinching or twisting of the wrist. The pay station may also provide for optional audio assistance, if used for a purpose other than parking. Audio comments may be relayed through an audio jack, or a speaker. (Audio jack is not standard, this is a special order.)

3.13.2.2.15 General Pay Station Design and Features

CWT components are “plug and play”. As part of our on-site training, technicians will be providing detailed training on trouble-shooting and replacing components. The majority of our customers perform their own preventative maintenance including changing out components. Components can be changed out in a matter of minutes. No proprietary tools are required. A socket wrench and screwdriver are all that is required.

CWTs are able to self-diagnose and send alarms in real-time to the back office; alarms will also alert designated parties via text or email. Pay station components are flush mounted to the door and to the back of the meter.

3.13.2.3 Strada Pay Station



3.13.2.3.1 Physical Security and Lock

The Strada is manufactured using heavy grade steel, with the collection vault door constructed of additional steel plates. The Strada’s housing has internal hinges with anti-wrenching elements. There is no hinge attack point, or pins to cut or pry off the machine. Like other sophisticated devices where security and corrosion are a concern, our advanced use of a variety of materials reduces weight, enhances weather resistance, and reduces vandalism from strikes and graffiti, thus providing greater overall durability.

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All external painted surfaces feature an epoxy powder-coat paint that is coated in a liquid polyurethane varnish with anti-UV and anti-graffiti/poster glue properties. The coating process consists of Cataphoresis, Adhesive powder, powder paint and powder varnish. This process offers resistance to corrosion according to Norm NFX 41-002 (resistance to salt spray and saline fog) and is specified at 1,200 hours with REO. In addition, the unit conforms to Norm IEC 68-2-11 (saline fog). Testing to validate compliance has been carried out in a CESI approved laboratory. The seals on the unit meet an IP33 protection level, based on the European norm, EN 60529.

The 4-point locking system ensures that only the appropriate personnel have access to the maintenance area. The collection area is separate from the maintenance area and its own locking system.

Door alarms are integrated into the Strada so that an alert is triggered in the back-office when the maintenance or collection doors are open. The Strada also has an integrated shock detection sensor and an optional tilt alarm. Both communicate alerts to the back-office if an abnormal vibration event occurs (e.g. there is an attempt to pull the Strada from the ground).

3.13.2.3.2 Display Screen

The Strada offers two different display options –a 4” x 2.75” monochrome display and a 7” full color display screen. Both displays are graphical, allowing for the display of various messaging/fonts as well as logos. The 7” color display allows for the display of animations and GIFs to help the end user quickly make their transaction. There is enough space on either display to incorporate 6 lines of messaging (the 7” display can incorporate additional lines). The display walks the user though the transaction step by step minimizing or eliminating the need for instructional decals.

Rates are viewable on the display and they can be remotely updated, along with coinciding messages, from the back-office system. The displays are backlit and can be easily read under various daytime and nighttime lighting conditions.

The displays are recessed and protected by a polycarbonate window. The window is transparent and has near optical quality to ensure clear display and panel visibility without distortion or iridescence. The polycarbonate window is specified to stand up to UV radiation.

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3.13.2.3.3 Solar Panel

The Strada is powered by a 30 watt solar panel. The solar panel is integrated within the top of the device. The Strada runs with ambient light. Rain, snow, fog, and other adverse weather conditions do not pose a problem for its functionality. There is no need for multiple batteries in the machine for uninterrupted operation. The design of the solar panel allows for 4 way rotation to point the panel in the best direction towards the sunlight.



The solar panel re-charges a commercially available 12V 27AH battery. All major components have been designed by Flowbird to consume the least amount of power. AC mains power is also an option where it is available.

Changing the power source (battery) can be accomplished easily. The unit is also equipped with a back-up battery to sustain the clock, calendar and storage of all information concerning revenue, maintenance and unit transactions during a main back-up system failure or battery replacement.

The power consumption of the Strada is less than 3mA in standby mode. It has been our experience that the battery life exceeds three years without a “bench” recharge or replacement.

In the event that the threshold level on the buffer battery falls below a certain level a “green” warning indicator will flash on the face of the machine. The field technician can consult with the machine to determine the voltage reading on the battery. In addition, the machine will also automatically communicate the low battery condition to the server. Maintenance personnel are then able to access this information from Smartfolio and can also receive an email or text concerning this alert. The machine will continue to fully operate in this mode.

In the event that the maintenance personnel do not change out the battery, and the battery fails, the indicator on the face of the machine will change to a “red” flashing light indicating that the machine is out of order. The change in the battery status will also be posted on Smartfolio and sent to maintenance technicians as an email or text alert.

3.13.2.3.4 Key Pad

Strada is equipped with a customizable capacitive keypad featuring soft keys and audible indication. A key differentiator is that the overlay on the keypad can have any

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type of color or text to allow clients to provide the best user experience. The keypad allows for an easy switch between parking configurations without having to replace the actual hardware. The overlay and software are the only items that need to be changed if the client desires to change the button layout or the parking mode.

The keypad does not have any mechanical buttons and does not allow for rain, snow, dust, dirt, or sand to penetrate it.

3.13.2.3.5 Openings on Pay Station

The Strada features ergonomically designed aperture openings for the insertion of payment, coins or cards, coin return and receipt dispenser. All have high impact polycarbonate covers or direct access through the steel door. Each aperture is designed to render vandalism to an absolute minimum. The coin entry slot is protected by a metallic sensor shutter that opens only for coins that meet sufficient metallic content standards.

The card reader is protected by a specially designed bezel with protrusions that guard against skimming devices. The card reader is designed for insertion of the card, allowing the client to maintain control of the card at all times.

The coin return cup is protected by a moveable cover. This keeps foreign objects out, yet provides access to returned coins. The receipt cover is see-through to allow clients to visually see the receipt has been issued yet designed that the receipt drops internally from above eliminating any opportunity to jam the mechanism and protecting it from inclement weather conditions.

3.13.2.3.6 Coin Slot and Acceptor

The Strada can distinguish between up to 14 different coins and/or tokens, including nickels, dimes, quarters, Susan B. Anthony dollars, Sacagawea dollars, and the new presidential golden dollar coins.

The Strada pay station features a patented motorized coin selector and recognition system that controls the movement of inserted coins in the meter (speed, position etc.) and which is unaffected by changes in temperature and humidity. The Strada coin path is the shortest in the industry which is key to preventing internal coin theft since the selector fully controls and contains the movement of the coins from the point they are inserted in the unit. The coin speed function is carefully controlled instead of relying on gravity tests.

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The Strada selector utilizes a barrel that protects the inlet when the machine is at rest, opens the inlet to introduce a coin, directs valid coins to the coin escrow and channels foreign objects to the coin return.

The default position on the barrel is solid and therefore will not allow the introduction of a non-metallic object. This prevents the introduction of plastic, wood, cloth and other non-metallic objects from entering the coin selector. The motorized wheel also prevents the validation of coins that are attached to strings or other removable devices.

The coin validator unit utilizes both optical and magnetic detectors to determine if a coin is valid or not. The coin inlet detects when a coin is approaching. The detection of the coin signals the coin inlet to open and the sensor to awaken.

After the sensors have evaluated the representative measures of the coin's diameter, thickness, and material composition, they are compared to pre-programmed data. The main board then validates or invalidates the coin according to how well it matches this data.

If the coin is validated, the trap door opens to deflect the coin into the escrow, which can hold over 75 US Quarters. A set of optoelectronic sensors fitted under a prism checks that the coin has moved. If the coin is not valid, it is evacuated into the coin return.

3.13.2.3.7 Cash Vault Compartment

The Strada features separate, secure compartments for maintenance (upper) and collection compartments (lower). The unit is equipped with separate compartments and keys. Locks are high security type and are protected from weather, vandalism and drilling by a steel baffle plate. There is no access to the vault area for coins by maintenance personnel, and vice versa.

The collection compartment features a lock that can be uniquely keyed to each vault area. The Strada utilizes a Mobile Coin Box type system where a full coin canister is replaced with an empty one. This method of collection lets you anticipate the weight of the coin canister since the weight is initially supported by the vault door during lift. The Strada coin vault holds up to $800 in quarters.

At no time during the process does the collection personnel have access to the cash contents of the machine. A separate key is required to open the sealed coin vault. A coin vault cannot be removed and re-inserted without the internal locking mechanism being opened and reset via a high security specific lock and key. This precludes any

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ability for theft. The coin container is ergonomically equipped with a handle for easy handling.

The vault door of the Strada takes up very small sidewalk space and does not go all the way to the ground which is especially important when collecting during snowy conditions. When a collection is performed, a notification is sent to the back-office system providing all details of the collection including the amount and type of coins along with the corresponding dollar amount.

3.13.2.3.8 Bills

The Strada recognizes $1, $5, $10, $20 and $50 dollar bills or any combination thereof. The ability to determine what bills are accepted can be configured via a handheld program loader at the unit. The bill acceptor is programmable onsite to accept new bank notes issued by the U.S. Mint.

All bills are accepted 4-way and in any direction.

The Strada bill acceptor has an acceptance rate of 98% for street quality bills. Rejected notes are returned to the parker.

The bill acceptor is designed with an access door on the top of the unit for maintenance personnel to clear bill jams. No tools are required to open or close the access door. Jammed bill removal process typically takes less than 30 seconds unless the note is torn. The bill acceptor has a capacity for 1,000 bills.

3.13.2.3.9 Printer, Paper and Payment Receipt

The Strada pay station is equipped with a thermal graphic printer built to provide constant printing quality (legibility) and minimal maintenance (accomplished through limited moving parts and ease in clearing the paper path).

The printer does not require servicing and the thermal head is self-cleaning. The printer assembly and thermal head can be changed easily, without the use of tools. The printer blade is self-sharpening and needs no servicing.

The printer is run by a microprocessor linked to the main board and has the capacity to print a receipt within two and one-half seconds. The text to be printed is also controlled by the main board. Printed text and graphic/logos can be supplemented with pre-printed text and/or graphic designs. The printer is capable of printing variable-length and multi-part (perforated) receipts with various text messages. The

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font type and format is flexible as upper and lower case along with mixed fonts can be interspersed.

A continuous single roll of thermal printed-paper supplies the printer. A standard ticket roll stock has a capacity of 6,500 tickets. Pre-printed paper with black marking dots is utilized to allow the printer to adjust the thermal printing to the pre-printed text and/or graphics on the ticket stock. The markings on the ticket stock also provide the capability to print variable length messages. The printer can also print on "sticky-back" paper, which works great in a Pay & Display parking application. A "sticky-back" ticket roll has 3,000 tickets. Additional security features can be added to the paper such as foil or watermarks.

Paper is easily inserted into the printer by positioning the paper lead inside the plastic guide located on the front of the printer. The guide is directly accessible and visible to maintenance personnel.

3.13.2.3.10 Temperature and Moisture Specifications

The Strada sets the industry standard for high resistance to weather including water, snow, ice and dust penetration to the internal areas. All openings are either shuttered or angled to deflect penetrating moisture and dust. The design of the interlocking cabinetry acts as a channel to again capture and deflect moisture and dust maintaining the system integrity and reliability. The Strada maintains an operational temperature range of –22 F to 131 F and at 97% RH (Non-condensing humidity).

Strada models are by design weather resistant and have a graffiti resistant coating. The edges of the housing have a rolled finish so edges are not exposed to the elements but are located inside the housing to protect against corrosion. The unit is coated and painted to provide the best possible durability against the elements, potential graffiti and vandalism. The paint process has been refined and improved as a result of our years of experience, worldwide installations with every climatic condition and improvements in paint and coating technologies. Today, our products last an average of ten years without need for repainting services.

All main components are located inside the housing, allowing for maintenance activity during inclement weather.

3.13.2.3.11 Cellular Communication

Strada features a 4G cellular modem with the capability to communicate with major cellular providers such as AT&T, T-Mobile, and Verizon. A unique SIM card is provided with each Strada allowing the modem to wirelessly communicate everything that

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happens at the Strada (e.g. transactions, alerts, alarms) to the back-office parking management system.

The modem allows for two-way wireless communication in order to remotely send updates such as new rates, policies, messages to the Strada as needed.

3.13.2.3.12 Payment Options and Payment at a Pay Station

The Strada unit can be configured to accept coins, tokens, credit cards, and smart cards. Strada can be equipped with a contactless antenna to allow for NFC payments such as Apple Pay, Samsung Pay, etc. We can also provide a system for you to create validation codes that are accepted at the Strada.

Credit card data is encrypted at the pay station level. Credit card transactions are processed in real-time and the Flowbird system is PCI Level 1 v3.2 certified to ensure the highest level of security. The Strada card reader is PA-DSS certified and EMV certified.

3.13.2.3.13 ADA Compliance

The Strada model has been mechanically designed to be a world-class ADA/DDA compliant meter. Flowbid undertook a project to analyze the most stringent Disabled/Disability requirements from the major countries and has built those into the current production model.
For U.S. requirements, this means all controls and client interface points are located at 48” or below. The user controls are designed to eliminate tight grasping, pinching, or twisting of the wrist.

Per the ADA Federal Guidelines:

- 308.2 Forward Reach.
- 308.2.1 Unobstructed. Where a forward reach is unobstructed, the high forward reach shall be 48 inches (1220 mm) maximum and the low forward reach shall be 15 inches (380 mm) minimum above the finish floor or ground.

3.13.2.3.14 General Pay Station Design and Features

The sub-assemblies of the meter are of a modular design to allow easy servicing through plug-in replacement parts. All electronic connections are of high quality and feature gold-plated terminals. The main board and internal components are environmentally sealed, highly water-resistant and are able to operate in conditions that exceed 97 percent humidity.

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Every electronic component on the machine is coated to prevent operational failure and to ensure that the unit will stay fully operational within the specified temperature and relative humidity ranges.

Electrical connections between components/modules are accomplished with connectors. The machine has been designed so that the connectors for each component have a unique size and cable length preventing the deliberate or inadvertent connection of incompatible assemblies. Where feasible, wiring is held in position with clips.

The unit is designed around a 32 Bit Risc Processor. All memory is backed up with an exchangeable data module. There are a minimal number of sub-assemblies and therefore a reduced number of connectors, which is essential in improving reliability. Typically the equipment has the following main sub-assemblies:

- Main board with data pack
- Coin selector
- Card Reader
- Printer
- Modem
- Display

Access to the components can be tracked via the back-office system utilizing a maintenance card option or through integrated electronic locks.

Installation of the Stradas on-street or in surface lots is simple as it requires no electrical hookups. Typically the Stradas are anchored to existing concrete with 4 wedge anchors. The Stradas are installed and manufactured to be ADA compliant. The Strada has an integrated sensor to detect vibration and sends vibration alerts to the back-office system.

The Strada housing, components, and coin boxes can be equipped with barcodes/RFID tags to support inventory tracking.

3.13.3 Smart Parking Displays

Flowbird is not proposing to supply OMNIA Partners with smart parking displays. This is not equipment which Flowbird manufactures.

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3.13.4 Mobile Parking Application (app)



The Flowbird powered mobile app will be easy-to-use and will be downloaded from the App Store or the Google Play Store. It also includes a companion customer web portal. The solution provides many features, including:

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- Payment and account management through iPhone, Android, mobile web, or desktop web Password protected access but integrated with Face/Touch ID so users do not have to memorize their password to access the system on the mobile device.
- Unlimited number of plates can be entered into the system per user
- Multiple credit cards can be on file for each user
- GPS based, no need for the end user to type in a meter or zone code. They just select the location from the map provided in the app.
- Time expiration notification with ability for the end user to customize the alert time
- Extend from anywhere up to the maximum time limit
- Expiration alerts and time extension from the Apple Watch
- Bookmarks feature saves your favorite parking locations to make transactions quicker for users that always park in the same locations
- Find my car feature provides walking directions back to the location where the end user made his/her original transaction
- Validation codes option allows the county to distribute validation codes to app users, so they do not have to pay for parking
- Real-time parking availability display
- Off-street parking reservations (optional service)
- Fleet management system allows businesses to enter one credit card for the whole fleet of vehicles
- E-wallet allowing users to load up money on an account and save money on transaction fees







3.13.5 Enforcement and/or Parking Meter Software Systems

Flowbird is not proposing to supply OMNIA Partners with an Enforcement Application. This is not a product Flowbird manufactures.

The Flowbird system is designed to be open and uses APIs (Advanced Programing Interface interface with hardware and external systems such as Enforcement systems.

Flowbird is consuming third party APIs in order to interface with a variety of fare collection management systems.

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Flowbird uses our own APIs to communicate from devices back to the Flowbird Hub. The Central System service then communicates with third party centralized fare collection systems via consumption of their APIs.

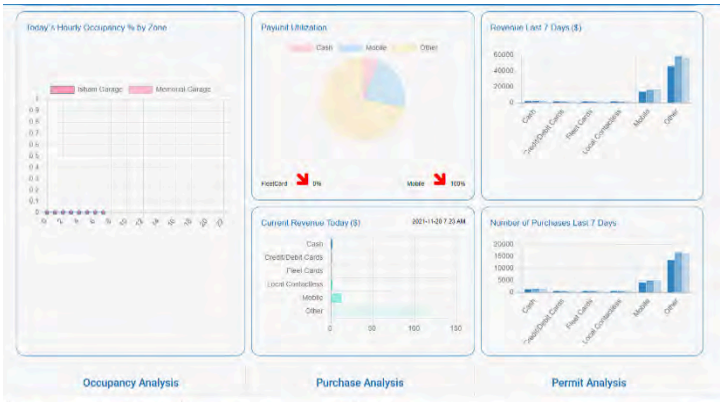
Flowbird has extensive experience integrating with third party vendors and agencies. We also are able to consume Third Party APIs. To that extent, our hardware and Flowbird Hub platform currently do or will integrate with APIs from several partners including:

- Risetek
- ParkLoyalty
- Duncan Solutions
- Tagmaster
- OmniQ
- Cardinal Tracking
- Complus
- CivicSmart
- Conduent
- Data Ticket
- EDC AIMS
- Genetec
- Gtechna
- Kelley & Ryan
- Schweers
- Passport
- T2 Systems
- Turbo Data
- United Public Safety
- Vigilant

Our previous experience integrating these back Office system APIs makes us confident in integrating with other systems in use.

3.13.6 Parking and/or Meter Management Systems

Flowbird meters/pay stations communicate via wireless two-way communication with Flowbird's powerful back-office parking management suite which provides data/financial management solutions. The system is a complete suite of services based on a unique IT platform developed and managed by Flowbird as a fully hosted service. The Flowbird back-office manages the information to and from the meters and redirects it to the customer via a password protected, web-based interface.



Everything that occurs at a pay station (status check, collection, maintenance operation, transaction, etc.) is recorded and regularly transmitted to the central server. This information is then processed and ready for you to review and analyze. Flowbird app transaction activity is also included

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in our back-office reporting suite. The back-office system allows for remote changes to pay station rates, messages, and ticket layouts.

Using the web interface, you can view all sales data in many different forms. For instance, you can view transactions by meter number, by group of meters, by type of transaction, or by type of user. The system allows for the integration of non-meter payments such as mobile payments so clients have a more complete view of their parking system. Additionally, payment data can be integrated with citation issuance and LPR systems for fast look ups of space and plate numbers.

You can monitor the status of your meters using Flowbird's web interface because all alarms and warnings are right there for you to view. Like your sales data, maintenance data can also be viewed in different forms, making it easy to put a maintenance schedule together. The system can also send specific alarms right to your cell phone to alert you of a problem immediately.

Flowbird's credit card processing solution has earned Level 1 PCI certification, which is the highest rank available from the major credit card providers (VISA, MasterCard, AMEX). Level 1 is only given to those third-party providers who handle thousands of credit card transactions monthly and who meet their stringent – and audited – credit card transaction security protocols to protect your customers' personal transaction data. Level 1 requires an external audit for approval, which is more rigorous than the self-audit that some vendors may do.

Our system provides for high security encryption protocols when the credit card is read at the card reader. The encrypted card information is then transmitted through our PCI compliant gateway to your transaction service provider/clearing house.

Flowbird WebOffice is a complete suite of services developed and managed as a fully hosted service. Flowbird WebOffice manages the information to and from meters, pay stations, mobile apps, third Party services and redirects it to our client's web-based interface.

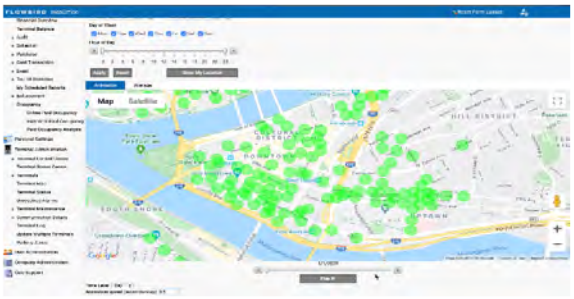
3.13.6.1 On Street Occupancy Management Tool

WebOffice supports on-street paid occupancy, by creating parking zones. This feature supports all transactions made in the city tied to that zone. This includes transactions made in the Flowbird Pay stations, Single Space meters and Mobile Payments (Flowbird or other providers, including multiple providers) or other transactions that are sent to WebOffice on the transaction live data import interface. The transaction is a live data import interface that allows the import of transactions to either show under

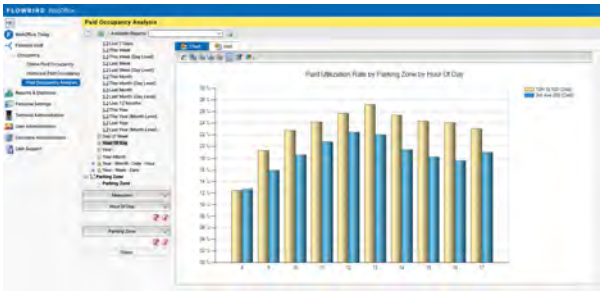
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a Flowbird physical pay station or single space meter as pay unit, ‘Mobile Payments' are under a separate virtual device / Asset.

The parking zone is configured with the number of parking spaces in the zone and then connected to the physical and virtual pay stations.
The data can be reviewed in the live occupancy module, historical occupancy module or used by external systems by using the live data export API.



Example of historical overview of paid parking occupancy



Example of paid parking occupancy analytics in WebOffice by parking zone and hour of day.

3.13.6.2 WebOffice Data Hub

The Data Hub collects and stores all the information of the FWO system. Data entry and exports are available through a micro services architecture amongst which we can name:

- **Occupancy Pull interface:** this interface allows 3rd Party users to access occupancy data. Those data are pulled by the third-party services
- **Citation interface:** This interface is used by citation / enforcement company to check transactional information, typically if a plate has paid and for which period of time. This interface is extensively used by most if not all the enforcement / citation company in the US including Passport
- **Citation importer:** This interface allows to collect the citation payment information to be able to offer a single repository and dashboard beyond the MPP and Kiosks payment transactions
- **Transaction importer:** This interface allows to collect all the payment information from third Party vendors including other MPP App, Kiosks or Single Space Meters (SSM). This interface is already widely used in the US to aggregate other MPP and Kiosks/SSM providers.

For all the importers above, transactions generated by other vendors or systems are imported live into the Flowbird systems. The live data import interfaces allow the import of transactions to either show under a Flowbird physical pay station, as pay unit 'Mobile Payments' or under a separate virtual device / Asset.

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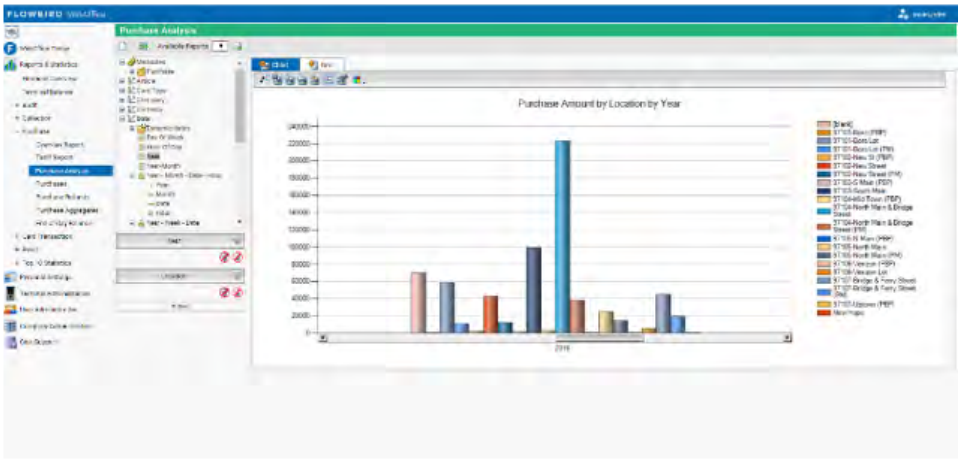
All transactions have the same attributes for data integrity and reporting, this includes when the purchase was created in a terminal or an app (several App imports are supported), what the purchase interval is, when it was created in WebOffice and the delivery delay to send the data to the external enforcement system.
This is created to allow the operator to have one view to monitor if there is any latency between the systems. The user in WebOffice can customize the view by using the wrench in the top right corner to add data attributes or sort the order of the column. The user also has the option to save views to be allowed to easily switch between views with different data columns in them. Saved views can be scheduled for email distribution.

3.13.6.2.1 Reporting

Flowbird WebOffice offers an enhanced reporting package that can be complemented by an external BI tool. Using the web interface, you can view all sales data in many different forms. For instance, you can view transactions by location number, by zones, by type of transaction, or by type of user. Payment data can be integrated with citation issuance and LPR systems for fast look ups of space and plate numbers

Custom reports can be created via the analysis function. The analysis function is a very powerful tool for refining statistical data and looking at the information from different perspectives. The technology used to process and present the information is OLAP (online analytical processing). The analysis function is available for collection, purchase and event data.

Some typical reporting views are represented below:



Transaction payment by locations

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Aggregated sales for a 7-day period. The time period is adjustable

The Dashboard functionality equips users with up to date, graphical widgets that enable quick and easy data analysis so parking operations can focus on driving performance, not measuring it.

FWO offers several reporting options. Each option allows for varying levels of flexibility in developing a report and the Flowbird implementation team will assist you in setting up the reports needed.

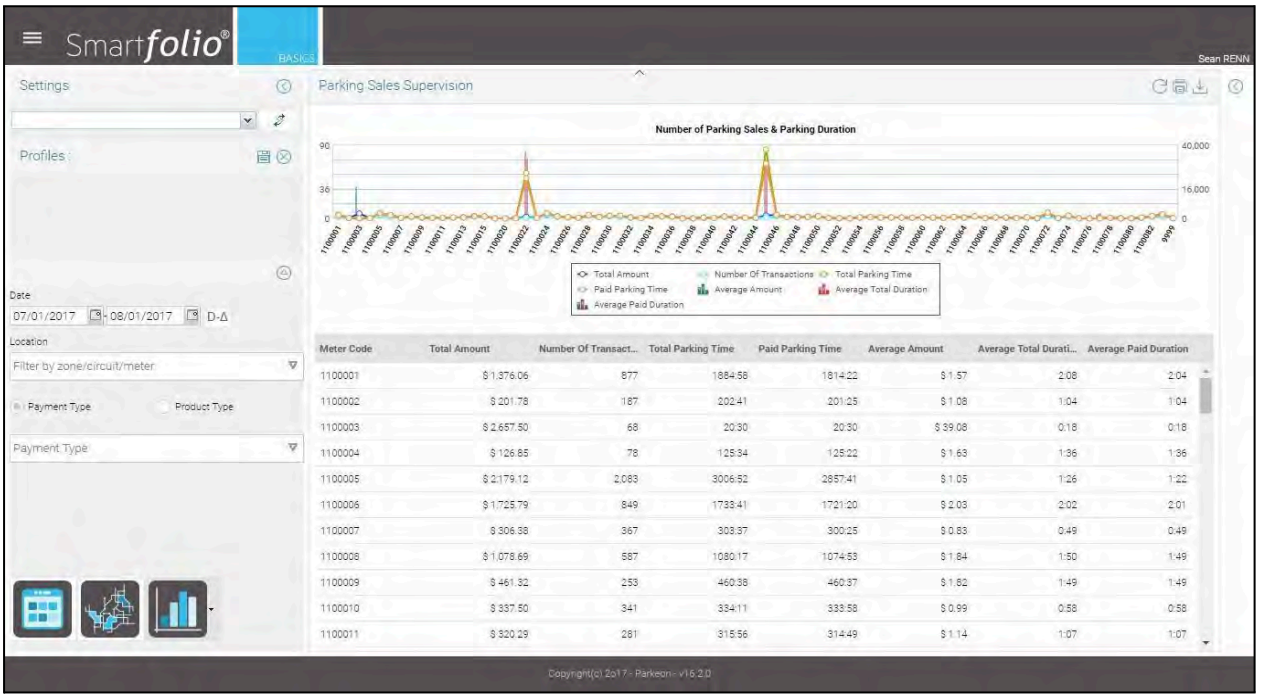
Standard Reports are predefined reports allowing the user to define parameters. Reports are broken down into categories such as Financial Overview, Terminal Balance, Collection, Purchase, Card Transaction, Event, Top 10 Statistics, and Scheduled Reports. Examples of standard included reports are Current Maintenance Action Required, Terminal Out-of-Order, Communications Problems, Maintenance Performed in the last seven days, Cash Collections for the last seven days, Cash-In-Terminals currently, Consumables Status (paper and batteries), Parking Activity (number sold and dollar amount), Ticket Sales Analysis, Transactions by Payment.

3.13.6.2.1.1 Dashboard Reports

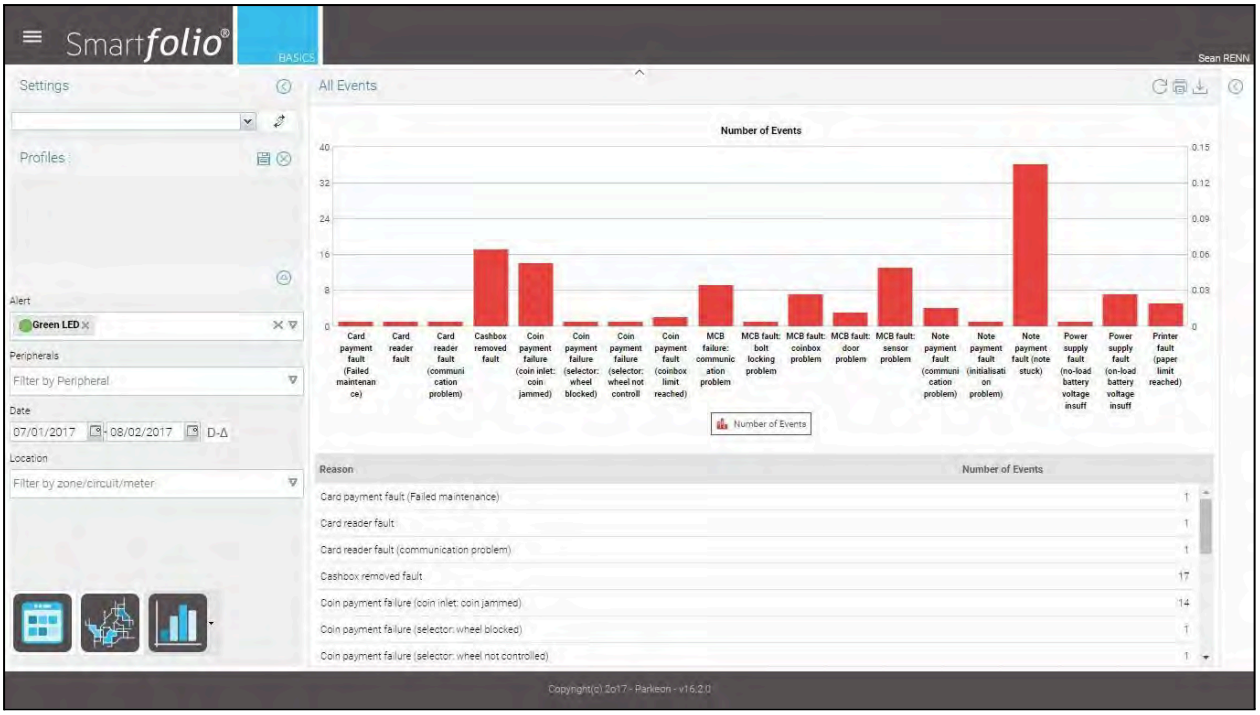
The Flowbird Back Office allows users to create custom dashboards to provide information specific to their needs. The following represent examples of typical dashboards which have been created.

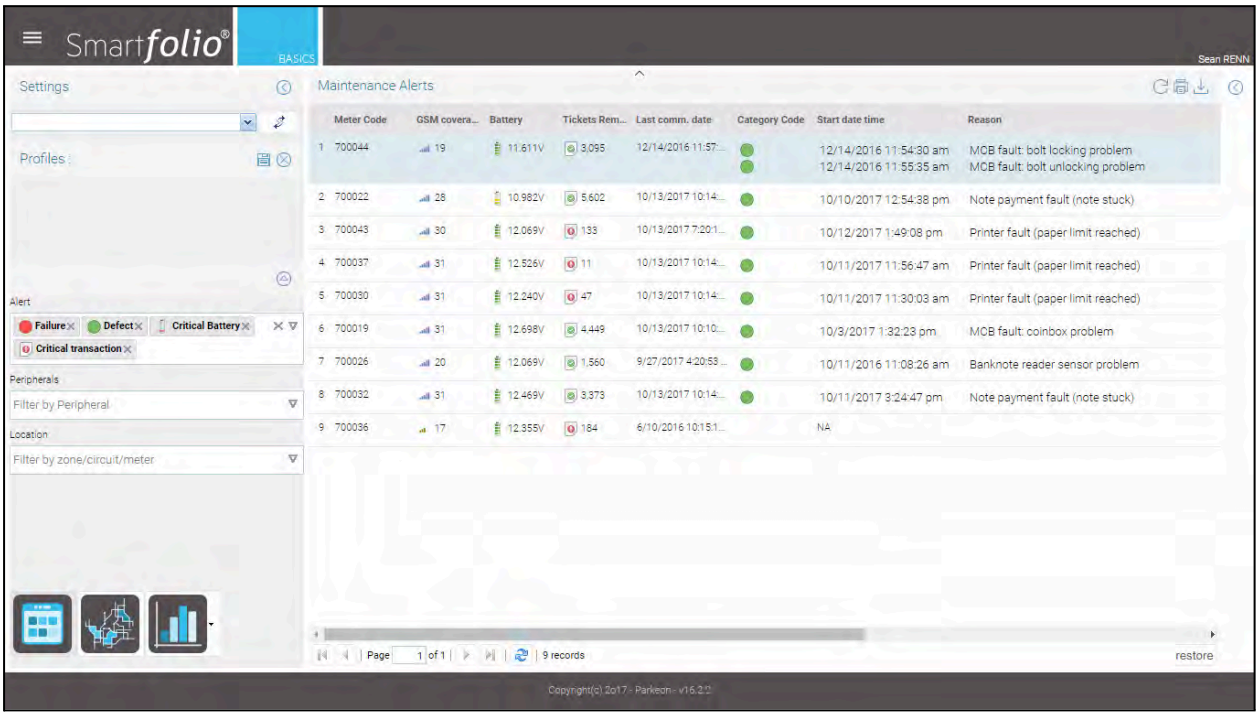
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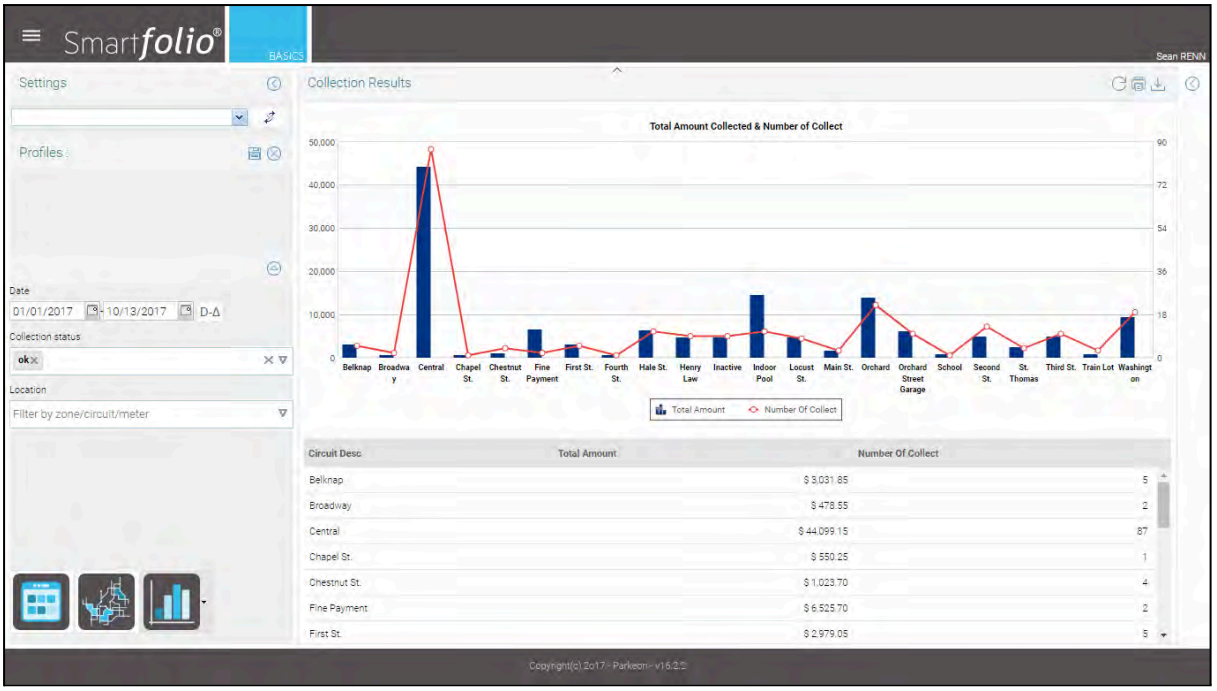


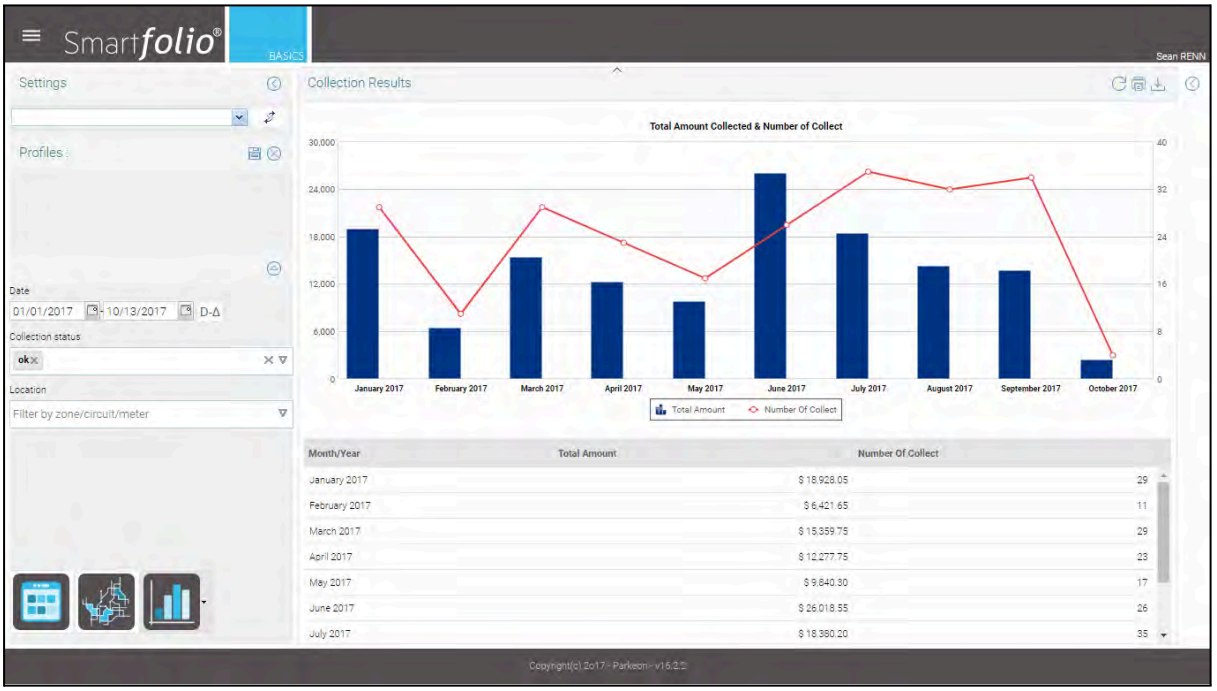
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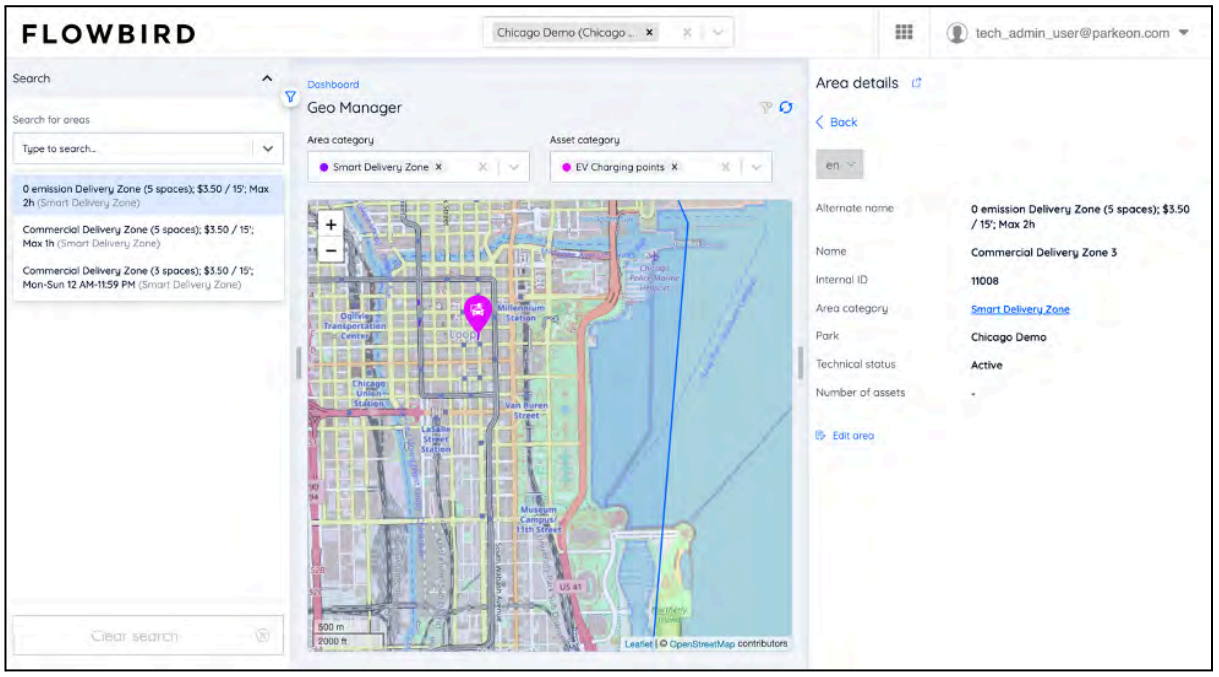
3.13.6.3 GeoManager

GeoManager is a tool to configure parks and visualize geographical objects. The goal is for the users to have an overview of their park with all geographical data and the ability to manage it easily using an operational map and simple creation/ edition forms.

Geo Manager offers a CDS interface to import Third Party information using the latest standards of the industry.

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Geo Manager leverages a Curb mapping solution using a multi-layer template architecture. An illustration of Geo Managers is provided below:



3.13.6.4 Data

Flowbird is PCI-DSS Level 1 and SAS70 certified. Flowbird follows the guidelines from the PCI-DSS standard and has regular penetration tests performed by external companies. These penetration tests are conducted both by systems and humans. Flowbird's back office management solution is reviewed by an external security audit every year and is under scheduled scans on a regular basis to detect any vulnerability.

To ensure security of the wireless information, Flowbird uses a RSA 2048-bit encryption on any sensitive customer data.

Flowbird WebOffice (FWO) is accessible to those with a valid username and password. FWO's user administration allows for user roles. User roles determine what FWO functions a user will have access to. Typical user roles include enforcement, finance, pay station maintenance and administrator. Once roles are defined, user accounts can be created.

Alarm(s) are created in FWO alerting particular staff of the alarm(s). Alarms can be text, email or silent. FWO supports over 80+ alarm events. Alarms notification is configurable by each user. A sampling of alarms include door open, coin fishing attempt, vibration detection, and pay station not responding.

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3.13.6.5 Rate Package Capabilities

FWO rate management functionality is displayed in the form of a standard week (Monday – Sunday) calendar. The calendar shows the standard rate structure for a given day and time. Exceptions to the standard rate schedule can be defined by date allowing for special rates such as event parking or free parking for holidays. The exceptions are automatically communicated to the CWT pay stations and rates are adjusted accordingly.

Rate management functionality can also be used to implement new rates on short notice. For short notice updates the back office uses the new remote management feature to communicate with the CWT pay station over cellular connection triggering the pay station to contact the back office and retrieve the new rate or command to execute.

3.13.6.6 Communications

Because of the properties of GPRS technology, communication is always initiated by a heartbeat pulse sent from a terminal. If, for instance, a schedule is set so that the coin collection balance should be retrieved each Monday at 12 pm, the file transmission will start at the first heartbeat after 12 o'clock.

Event information, such as warnings and alarms, are reported automatically by the terminal either immediately as they occur or after a certain delay set in the terminal. Pay station job history logs are obtained under Terminal Administration.

3.13.6.7 API to Outside Data Warehouse

Flowbird offers both live and batch data exports. Information exported includes purchase, event, collection and file repository (batch export only). Data is exported in XML format and is requested by calling web services. The exported XML files are compressed to a ZIP file that is downloaded via an URL. All web services are documented. Manuals can be obtained from Support.

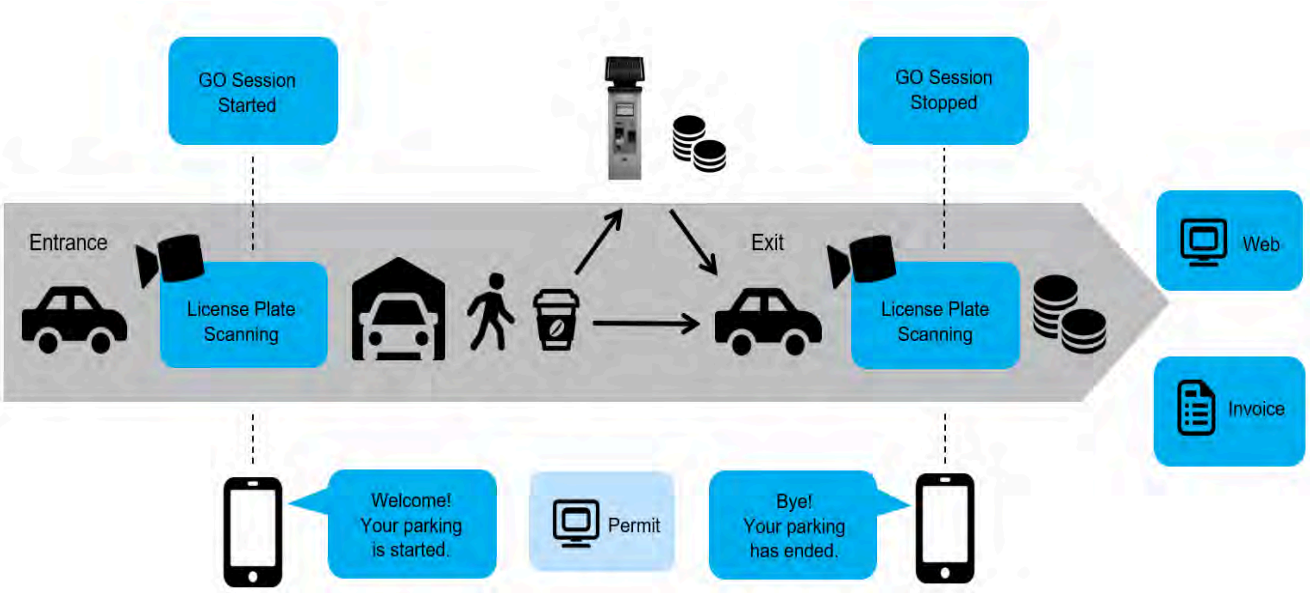
3.13.6.8 Credit Card Processing

Flowbird is PCI-DSS Level 1 and SAS70 certified. Flowbird follows the guidelines from the PCI-DSS standard and has regular penetration tests performed by external companies. These penetration tests are conducted both by systems and humans. Flowbird's back office management solution is reviewed by an external security audit every year and is under scheduled scans on a regular basis to detect any vulnerability.

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We are listed as a valid service provider for Visa Cardholder Information Security (CISP) and MasterCard Site Data Protection (SDP) programs. A detailed step-by-step process of Flowbird's CWT credit card acceptance procedure can be found below.

3.13.7 Parking Access Revenue Control Systems (PARCS)



Flowbird is very excited to offer Flowbird Go, a flexible and innovative system for access, user, and parking fee management designed for offstreet parking. Our solution's capability is endless: License Plate Recognition (LPR) via LPR technology and Flowbird's customer portal, payment, and administration. Also, it is easily integrated with external 3rd party solutions via API and, of course, as part of a command center.

Flowbird Go is centered around the Flowbird WebOffice central management platform and back office, and includes entry and exit terminals inspired by our CWT multi-space terminals. We also provide a magnetic gate that integrates into our system.

Flowbird Go+, our premier gateless solution, uses LPR technology to enforce pay-by-plate parking rates, and can include pay-on-foot stations. The Flowbird App and PaybyText provides offstreet customers choice in how they pay for parking. All data is aggregated in Flowbird WebOffice.

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FLOWBIRD GO! IS A CAMERA BASED GATELESS OFF-STREET PARKING SOLUTION.

Flowbird GO! is a ticketless and barrier-free parking solution that minimizes administration for the operator! We use ANPR technique (ANPR - Automatic Number Plate Recognition) that scans the registration number on entry and exit. The parking session is started automatically when the motorist arrives and stopped when they leave.

Flowbird GO! gives the motorist all needed information through a display in the entrance and exit.

Flowbird GO! is a reliable, accurate and cost effective solution with no need for parking enforcement officers.

Flowbird GO! integrates a short, medium or long range IR Camera, with or without overview camera setup.

Integration with Flowbird Permit is an option for a great parking solution to mix temporary parking with longer parking permits.

The motorist can pay at the parking terminal, automatically via the mobile app or just leave the garage /parking without paying. If they leave without paying they can pay on www.go.flowbird.io up to 48 hours after departure or wait until they receive an invoice.

Flowbird GO! Portal is a great tool to manage the parking sessions and create good relationship between the operator and the motorist.

The operator can handle and verify uncertain camera readings, monitor parking sessions, verify and send invoices.

PAYMENT OPTIONS
- Web payment within 48 hours
- Mobile payment APP
- Parking terminal
- Invoice

FLOWBIRD GO!
- Minimize the administration!
- Integrated with Flowbird Permit
- Easy, secure payment options
- Ticketless and barrier-free!
- No enforcement needed
- Accurate & Reliable
- Cost effective

FLOWBIRD GO! PORTAL
- Parking sessions and payment management
- Manage whitelist and handicap permits
- Invoice management
- Remote access



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HOW DOES FLOWBIRD GO! WORK?

Entrance

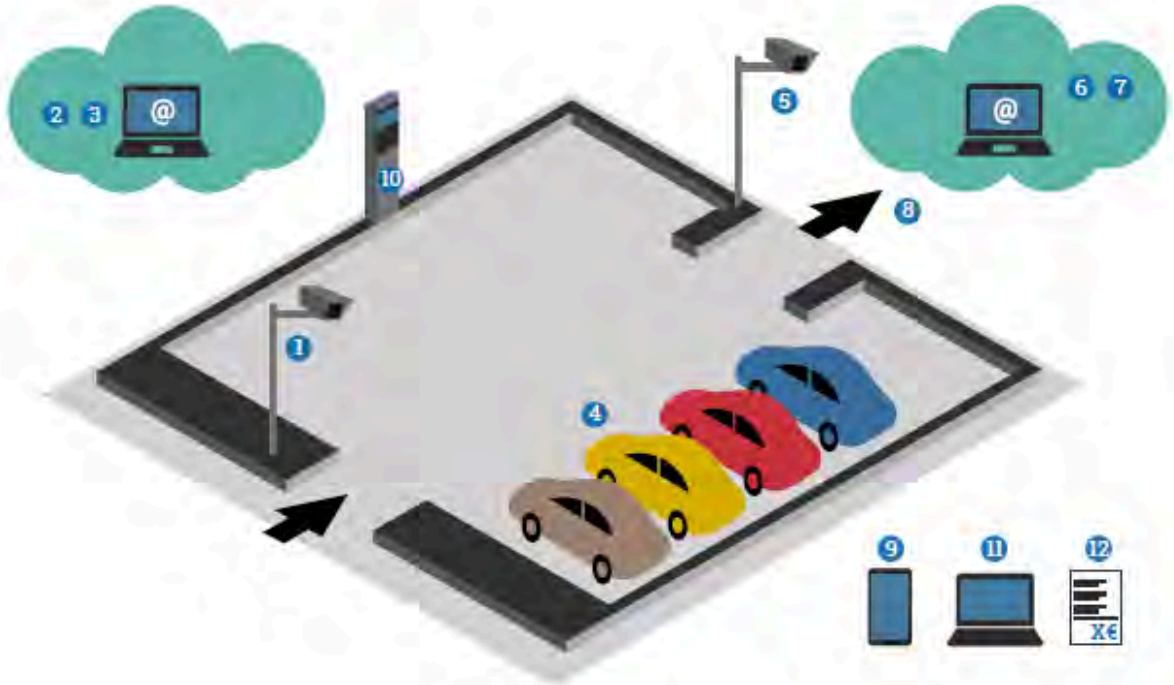
1. The ANPR camera records the registration number in the entry lane.
2. Sends the picture and provides the registration number into the database together with date & time.
3. The system checks if the registration number is connected to a valid payment option, white list or Flowbird Permit .
4. The parking session has been started.

Exit

5. The ANPR camera records the registration number in the exit lane.
6. Sends the picture and provides the registration number into the database together with date & time.
7. The system sends a confirmation against started parking sessions and if there is a valid payment option.
8. The parking session has been stopped.

Payment options:

9. The motorist can activate Flowbird GO! in the WayToPark APP for automatic payment and notifications.
10. The motorist can pay at the parking terminal.
11. The motorist can pay online at www.go.flowbird.io within 48 hours.
12. The motorist will receive an invoice if none of the alternatives above has been performed.



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3.13.7.1 Theory of Operations

3.13.7.1.1 Entry to Parking Area

At entry, the user will either obtain a ticket or scan their resident/monthly credentials to gain entry into the facility. An optional mag stripe card can also be provided to resident or monthly parkers. The gate will open for the vehicle. The motorist can park in an open spot (sections of the garage can be marked specifically for permit holders or other VIPs).



3.13.7.1.2 Pay On Foot

Before the parker goes back to their vehicle, they have the option of paying for their parking at a Pay On-Foot machine located in the parking area (e.g. near an elevator or stairwell).

The parker will scan the ticket that contains their QR code at the Pay-On-Foot machine. The parking fee is calculated. The Flowbird system can manage a variety of rate structures including hourly and flat rates. The user can then pay the parking fee with a credit card or cash. A receipt with a QR code is provided for scanning at the exit terminal to allow the vehicle to exit. The Pay-On-Foot machine(s) can also sell monthly passes if the City desires this option.

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3.13.7.1.3 Exiting the Parking Area

If a parker has obtained a validation code from a local merchant, whether they are a resident/monthly parker or a public parker that already paid at a Pay-On-Foot machine, they will present their QR code/credentials at the exit station and the gate will open to let them out.

If the public parker has not already paid at a Pay-On-Foot machine, they can pay the parking fee in lane by scanning their QR code and paying the parking fee with a credit card.

3.13.7.2 Flowbird GO Platform

Flowbird is including the Flowbird GO platform to the PARCS offering for OMNIA Partners, which provides a flexible and innovative system for access, user and parking fee management that is used in Flowbird's markets worldwide. Flowbird Go now makes it possible for clients to manage their on-street meters and off-street garages on one platform.

Our solution’s capability is endless; mobile payments, customer permit portal, payment, and administration. Also, it is easily integrated with external 3rd party solutions, and of course, also as part of a command center.

The easy-to-use interactive Flowbird Go Dashboard provides a total overview and can support multiple garages. Flowbird has adapted the user experience with, among other things, a clear acceptance process regarding condition, and registration of payment method(s). The Flowbird’s customer portal offers an equally good user experience on a computer as on a smartphone.

The Flowbird Go’s data automatically populates the management users in a command center environment. It easily integrated with the other 3rd party user systems to allow registered vehicles and see their history for printing receipts etc. Here, a flexible and clear user experience for registration, administration and follow-up is offered for the user with built-in case management that can handle items with customer service in mind.

Flowbirds offers a user-friendly customer portal that offers high accessibility regardless of whether the user uses a computer or smartphone. Flowbird also offers an easy process of scanning a QR code to facilitate the registration process. The Flowbird Go solution enables connection of 3rd Party payment solutions in the form of parking apps and payment machines for users who are not connected to automatic debiting.

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The entire system is included as part of the dashboard for the WebOffice with functionality for consolidating payments with a very high level of detail regarding presented data in list, report, and analysis form. The dashboard can also effortlessly integrate with 3rd party enforcement, reservations, and garage count monitoring systems for a fully functional real-time monitoring parking ecosystem.

A simple overview of the solution contains all central parts of the Flowbird's proposed system. The system is extremely scalable and can handle the demand of the largest clients. Each part of the system is adapted for its special purpose.

Drive S5 Entry Terminal

Key Features
- 9.7" interactive touch screen / 1024×768 Resolution
- Fully customizable – color, font, and advertising
- Touchless button for "Hands Free" entry
- Stainless steel
- Modem for redundancy or remote lanes
- Battery back-up for up to three (3) days built in
- Enter by plate or mobile number
- Pinhole camera
- Thermal QR-Code ticket issuance (Up to 5,000 per roll)
- QR-Code reader/reservations
- VoIP intercom
- HID Reader as add-on
- Lighted Device – Green for open/Red for closed
- Fully customizable wrap or decal package



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Drive S5 Exit Terminal

- Digitized and Frictionless
- 9.7“ interactive touch screen / 1024×768 resolution
- Fully customizable – color, font, and advertising
- Touchless button for “Hands Free” entry
- Stainless steel
- Modem for redundancy or remote lanes
- Battery back-up for up to three (3) days built in
- Pinhole Camera
- Thermal receipt paper
- QR-Code reader/reservations
- VoIP intercom Ready
- HID Reader as add-on
- QR-Code Validation/Google Pay/Apple Pay
- PCI Compliant and Fully P2PE Encrypted
- EMV NFC ”TapnGo”
- License Plate and Mobile acceptance for fee calculation
- Lighted Device – Green for open/Red for closed
- Fully customizable wrap or decal package



CWT Pay on Foot Kiosk (CC Only or Cash and Credit Card)

- 9.7“ interactive touch screen / 1024×768 Resolution
- Fully customizable – color, font, and advertising
- Touchless button for “Hands Free” entry
- Stainless steel
- Modem for redundancy or remote lanes
- Battery back-up for up to three (3) days
- Enter by plate or mobile number
- Thermal paper receipt
- QR-Code Validation/Google Pay/Apple Pay
- PCI Compliant and full P2PE Encrypted
- EMV NFC ”TapnGo”
- Lost Ticket Issuance from Software
- Coin acceptance
- BNA side car for cash acceptance
- Fully customizable wrap or decal package



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3.13.7.3 Magnetic Gates

Flowbird can supply Magnetic Gates for gated systems. The Magnetic Gates include:

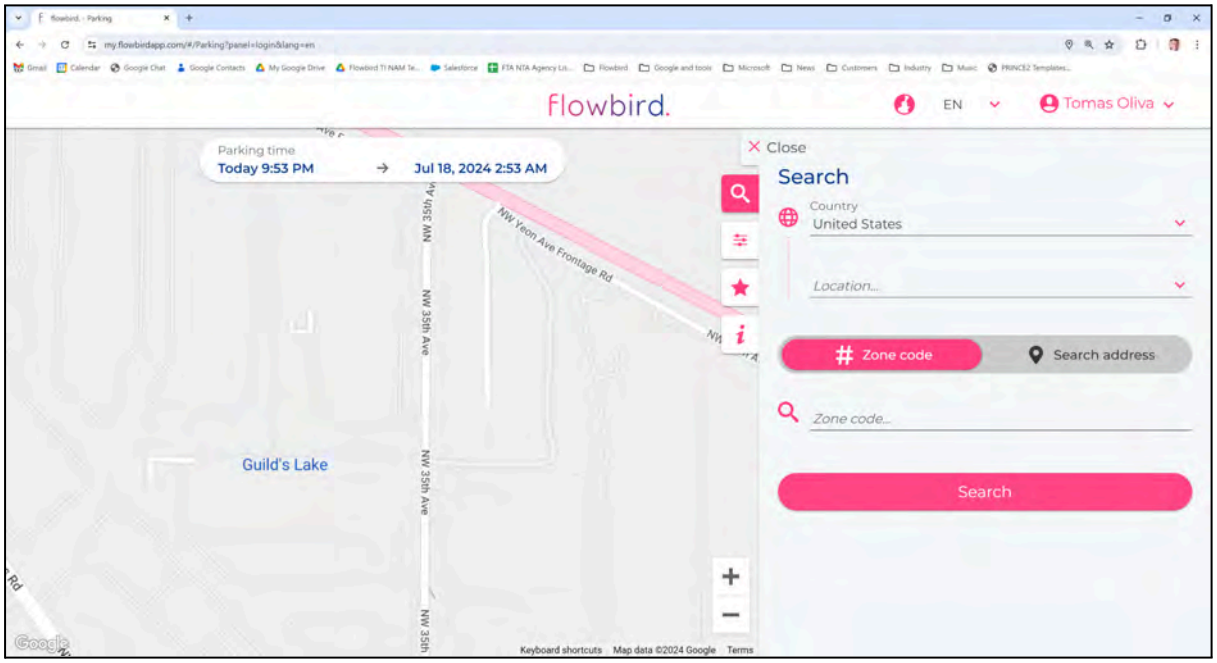
- Multifunction Controller
- 6 programmable relay outputs and 6 programmable
- with UL Safety input
- Directional logic
- Power Input 88-264VAC 47-63Hz
- Designed for 10 Million Cycles/ETL/CAN/CSA 325 Certified
- CE Certified
- Speed 1.3 sec up to 3.8 sec depending on the settings
- 3 loop detectors
- Adjustable “Gate Open” position for low ceilings or obstructions
- LED Light interface logic
- Easy installation and service (power outlet inside the barrier).
- Breakaway bolts
- Vandalism protection to prevent damage and reduce the cost of repair.
- Auto reverse feature in case an object has been hit
- Manual emergency release
- Efficient space available inside the housing for additional components
- Operating temperature range -22°F up to + 158°F
- Includes gate arm with a protective edge



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3.13.8 Mobile and/or Web-based Payment Systems

The Flowbird Mobile App has been previously described in Section 3.13.4 Mobile Parking Application (app). The Flowbird Mobile App service includes a companion customer web portal.



3.13.9 Parking and Mobility Consulting

Flowbird is not proposing to supply OMNIA Partners with parking and mobility consulting services. This is not a service Flowbird provides to customers.

3.13.10 Parking Management Services

Flowbird is not proposing to supply OMNIA Partners with parking management services. This is not a service Flowbird provides to customers.

3.13.11 Mobility and Transportation Services

Flowbird is not proposing to supply OMNIA Partners with mobility and transportation services. These are not services Flowbird provides to customers.

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3.13.12 Vehicle Sensing Solutions

Flowbird is not proposing to supply OMNIA Partners with Vehicle Sensing Solutions. This is not equipment which Flowbird manufactures.

3.13.13 Staffing Services

Flowbird is not proposing to supply OMNIA Partners with staffing services. This is not a service Flowbird provides to customers.

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4 Section 4 - References and Experience

Flowbird is the largest and most experienced global supplier of on-street parking systems. Our solutions can be found in over 80 countries around the globe. Our goal is to facilitate downtown mobility by easing traffic congestion, and helping agencies and cities promote various means of travel.

Flowbird in the US is based at:
40 Twosome Drive, Suite 7
Moorestown NJ 08057

We started our journey over 50 years ago when we manufactured our first parking payment devices. Now our systems are used more than 80 million times a week in over 5,000 cities around the world. It is the combination of innovative design, precise manufacturing, flexible software, and open architecture that has made our solutions the preferred choice for on-street parking management. Our close attention to client needs has made us partners to thousands of cities for decades.

We launched our US operations over 25 years ago, introducing the concept of on-street multi-space parking in cities such as New York, Aspen, and Portland. We proved to the market that multi-space parking meters were customer friendly – giving users additional ways to pay – and operationally more efficient – providing cities with powerful data to make critical decisions about parking rates and policies.

Flowbird employs over 1,500 team members around the world and we have an annual revenue of over $350 million. We launched our US operations over 25 years ago, introducing the concept of on-street multi-space parking in cities such as New York, Aspen, and Portland. We proved to the market that multi-space parking meters were customer friendly – giving users additional ways to pay – and operationally more efficient – providing cities with powerful data to make critical decisions about parking rates and policies. Since that time, we have expanded throughout the country, and now we have over 48,000 pay stations installed and wirelessly connected to our cloud hosted system. Over 1500 US clients trust Flowbird each day to help manage their parking and transit systems.

Flowbird currently employs over 100 staff in the USA.

While we continue to focus on producing easy to use, ultra-reliable devices, we also heavily invest in our data analytics and parking rights management platforms which

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allow cities to understand downtown parking occupancy and give them the tools to modify driver behaviors.

To complement our proven hardware solutions, Flowbird has invested heavily in digital payment services over the past eight years. Services such as e-permits, e-validations, Extend by Text, Text to Pay, and the Flowbird Mobile App have helped clients provide more ways for customers to stay in compliance with parking regulations, leading to better overall curb management.

There are over 300,000 Flowbird pay stations and single space meters installed worldwide, including more than 48,000 in the United States. No other vendor has implemented more large scale pay station projects than Flowbird.

4.1 Flowbird's Global Presence

Market Presence

There are over 300,000 Flowbird pay stations and single space meters installed worldwide, including more than 48,000 in the United States. Over 900 US clients trust Flowbird each day to help manage their parking and transit systems. No other vendor has implemented more large scale pay station projects than Flowbird.



New York, NY
14,000 Pay Stations



Chicago, IL
4,700 Pay Stations



Portland, OR
2,000 Pay Stations



Philadelphia, PA
1,800 Pay Stations



Washington, DC
1,000 Pay Stations



Austin, TX
900 Pay Stations

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OTHER RELEVANT IMPLEMENTATIONS



Minneapolis, MN
680 Pay Stations



Detroit, MI
640 Pay Stations



St. Louis, MO
600 Pay Stations

4.2 Financial Stability

Flowbird is very financially stable, with revenue coming from hardware and software solutions provided to various markets, along with operations/maintenance agreements that provide added value and peace of mind to their clients.



800M Transaction Processed



$3B Revenue Handled



99.9% Availability

4.3 Breadth of Products and Services

Flowbird manufactures a range of products which serve the parking and transit industries across the world. Flowbird's diverse portfolio includes:

- Parking meters and pay stations for cities, universities, parks (e.g., National and State Parks) and transit agencies
- Fare collection system for transit agencies including TVM, Point of Sales, Validators, Account based ticketing,...
- Mobile payments for parking and transit
- Digital services (e.g., cloud-based reporting, digital permits, electronic validations)
- Cloud hosting of client financial and operational data

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- Operational support services including day to day maintenance of parking and transit solutions, warranty and preventive maintenance services, as well as end user support via phone, email, and chat

4.4 Experience and Qualifications of Key Employees

Each member of our management team has been in the parking industry for more than a decade. Our team has gained extensive knowledge of our clients' operations and how our technology can enhance parking in downtowns across the country.

4.4.1 Benoit Reliquet - President



Benoit leads the North American region for Flowbird, ensuring that our operations in Parking and Transit are successful. Prior to becoming President of Flowbird in February 2015, Benoit was the Research and Development Manager responsible for equipment design and delivery including mechanical, electronic and software development as well as pre-sales support. Leading up to that role, Benoit held positions within the company focused on new product development and engineering, software development, and project management.

Benoit joined Parkeon/Flowbird in 1999 and has an educational background in Electrical Engineering and Computer Science.

4.4.2 Andreas Jansson - Senior Vice President of Sales



Andreas manages all activities related to Parking Sales at Flowbird. Prior to the merger of Cale with Parkeon, Andreas oversaw the US operations for Cale, including daily management of the finance, sales, marketing, production, and support teams, serving on the Cale Group Management Team since 2007.

During his ten years of experience in the parking industry, Andreas has focused on improving operational efficiency, system integrations, and the implementation of new technologies. Andreas has held several positions within the Flowbird/Cale Group, primarily focusing on IT, customer support,

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customer solutions, and product management. Prior to accepting the position as Managing Director of Cale America, Andreas served as Director of Product Management and Operations for the Cale Group, overseeing the product roadmap and product maintenance for the company's full product and services offering.

Andreas's expertise stretches across several fields including international relations, customer relations, product life cycle management, organizational skills, web-based systems, M2M-systems, business communications, and parking optimization.



4.4.3 Lionel Deperrois - Chief Operations Officer

Lionel oversees Customer Service, Project Delivery, R&D, Technical Support, and Parkfolio Support Departments for the Flowbird system in North America. His team supports an installed base of over 48,000 pay stations for over 900 client locations along with numerous mobile parking payment app deployments.

Lionel started at Parkeon/Flowbird 15 years ago in our Research & Development department and was on the team that developed contactless smart card for the SNCF rail project which includes 1,500 Ticket Vending Machines throughout France. Lionel then moved onto to manage large projects such as our deployment of 240 Ticket Vending Machines in Toronto. He has worked on various international projects in countries such as France, Morocco, Poland, Canada, and the United States.

4.5 Flowbird's Experience Working in the Government Sector

Most of the parking projects undertaken by Flowbird are with the Government or University sector. Flowbird has worked with over 600 customers across North America in the Parking and Transit sectors. Flowbird has worked with some of the largest municipalities in North America including:

- Austin, TX
- Detroit, MI
- Chicago, IL
- Indianapolis, IN
- Las Vegas, NV
- New York, NY

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- Philadelphia, PA

Similarly, Flowbird has worked with many Universities across the US including:

- Colorado State University
- Florida International University
- Harvard University
- State University of New York
- Texas Tech University
- University of California
- University of San Diego
- University of Texas

4.6 Flowbird Social Diversity Initiatives

Flowbird publishes an employee handbook which is issued to all staff on joining the company. Below are the principles outlined in our employee handbook:

4.6.1 Equal Employment Opportunity Policy

Flowbird is an equal opportunity employer. In order to provide equal employment and advancement opportunities to all individuals, Flowbird makes all of its employment decisions based upon merit, qualifications, abilities and an individual's conduct and performance.

Flowbird will not make any of its decisions, and will not discriminate against any employee, applicant, or any other covered person, on the basis of race (including individuals affiliated with the employee for personal or business reasons, such as friends, family or colleagues), color, religion, creed, national origin or ancestry, ethnicity, sex (including pregnancy), gender (including gender expression, gender identity, gender nonconformity and status as a transgender or transsexual individual), age (including discrimination against younger workers) physical or mental disability, citizenship, past, current or prospective service in the uniformed services, genetic information (including refusal to participate in genetic testing, and typical hereditary cellular or blood trait), marital status (including civil union status and domestic partnership status), sexual orientation or affectional orientation, or status as a smoker or nonsmoker or any other characteristic protected under federal, state or local law ("Protected Characteristic").

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This Policy applies to all terms and conditions of employment, including, but not limited to, hiring, training, job assignment, promotion, compensation, benefits, discipline and termination.

Any person who has experienced or observed unlawful discrimination must immediately report the discriminatory conduct in accordance with the Complaint Procedure set forth in this Handbook.

4.6.2 Anti-Discrimination and Anti-Harassment Policy

Flowbird strictly prohibits and will not tolerate any type of unlawful discrimination or unlawful harassment. This Policy, in addition to the Company's Equal Employment Opportunity Policy, is intended to assist you in complying with this requirement.

What is unlawful discrimination? Unlawful discrimination means taking adverse action against a person (such as, for example, failing to hire, failing to promote, withholding employment benefits or advantages, or termination) because of that person's Protected Characteristic (as defined above). Unlawful discrimination also includes unlawful harassment.

Any person who has experienced or observed unlawful discrimination must immediately report the discrimination in accordance with the Complaint Procedure set forth in the Handbook.

Employees who report discrimination or who assist in the investigation of a complaint of discrimination will not be subject to retaliation, intimidation or reprisals of any kind. Any violation of this non-retaliation Policy should be reported in accordance with the Company's Anti-Retaliation Policy.

What is unlawful harassment? Unlawful harassment is any conduct directed _at a person because of any Protected Characteristic (as defined above), which has the purpose and/or effect of unreasonably interfering with that person's work performance by creating an intimidating, hostile or offensive work environment.

Flowbird will not tolerate any form of unlawful harassment in the workplace or at any Company sponsored events. This includes, for instance, verbal harassment (such as derogatory statements, slurs, jokes or threats); physical harassment (such as assault or inappropriate physical contact); written harassment (such as emails, text messages, social media, or other communications); or any other form of harassment (including

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any unwelcome behavior that is offensive, abusive, threatening, intimidating, humiliating or degrading to another individual).

This Policy applies to Company's employees, applicants, contractors, visitors, customers and any other person associated with the Company.
Any person who has experienced or observed unlawful harassment must immediately report the harassment in accordance with the Complaint
Procedure set forth in the Handbook.

Employees who report harassment or who assist in the investigation of a complaint of harassment will not be subject to retaliation, intimidation or reprisals of any kind. Any violation of this non-retaliation Policy should be reported in accordance with the Company's Anti Retaliation Policy.

4.6.3 Diversity and Inclusiveness in Supply and Procurement

Flowbird makes strong attempts to help cities meet diversity goals by outsourcing installation services and other relevant services to Disadvantaged Business Enterprises such as WBE, MBE, SBE. Additionally, several of our distribution partners around the United States are DBEs. Typically approximately 5% of the total amount of a specific project goes to a DBE when their services are utilized.

4.7 Past Litigation, bankruptcy, reorganization, state investigations of entity or current officers and directors

There are no pending, active or past indictments, litigations or lawsuits against Flowbird or current officers and directors that are relevant to the subject matter of this solicitation.

There is history of a past litigation as described below:

(Liu Ping Li v. The City of New York, et al., Index No. 152900/2014) in the Supreme Court of the State of New York, New York County. This matter involves a pedestrian who allegedly tripped over a cone covering a Parkeon muni-meter base in a New York City sidewalk while it was being installed by the City of New York, who is also named as a defendant. As owner of the abutting Premises, 116 Mott Street Realty Corp. was also brought in as a Defendant, along with Sa Sa, the tenant of the Premises. It was

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alleged that Sa Sa displayed certain products from their store on the sidewalk which allegedly could have contributed to overcrowding of the sidewalk.

Parkeon's general liability insurer accepted the case (Liu Ping Li v. Parkeon, Inc. et al). The matter has been consolidated with a prior lawsuit filed against the City of New York regarding the same incident. Discovery indicated that the sidewalk was very crowded that day, which could be another contributing factor causing Plaintiff to fall, unrelated to Parkeon's actions. Plaintiff's main claim against Parkeon was that the City installed the meters based upon Parkeon's manual, and if the City did not follow those specifications then the muni-meter warranty would be voided. However, there was no evidence of this ever presented or that Parkeon acted negligently.

The parties have all executed a stipulation of discontinuance. Plaintiff's counsel provided the release and the settlement took place in January 2024.

4.8 Customer References

The following Flowbird references are similar in size and scope to the SEPTA project as requested.

4.8.1 Philadelphia Parking Authority

Contact – Rich Lazer
Executive Director
701 Market Street, Philadelphia, PA 19106
Tel: 888-591-3636
Email: RLAZER@PHILAPARK.ORG

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The Philadelphia Parking Authority has been a Flowbird client since 2007. In 2018, the Authority released an RFP to replace all existing multi-space meters and the majority of single space meters with new Pay by Plate parking kiosks. Flowbird was awarded the contract and started installation of the new kiosks in October 2019.

Today, over 1,600 Flowbird touch screen pay stations are installed throughout the downtown, the surrounding neighborhoods, and train station parking lots, providing users with a simple and fast parking payment experience along with flexible payment options. The pay stations accept credit/debit cards and coins, offer text receipts, and operate on solar power.

The pay stations communicate via 4G wireless communication to Flowbird's web based back-office system. All alerts, alarms, and transactions are communicated in real-time to help with quick decision making and efficient operations.

The Pay by Plate system is integrated with the City's citation issuance system.

Photos from PPA Installation

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4.8.2 City of Detroit

Keith Hutchings, Director of Parking
1600 W. Lafayette, Detroit, MI 48216
Phone: 313-221-2596
Email: Hutchingsk@detroitmi.gov



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Flowbird has been providing parking technology solutions to the City of Detroit since 2015. Flowbird's contract provides for mobile parking payments, over 700 parking pay stations, mobile license plate recognition, integrated reporting system, and marketing services.

Detroit is undergoing tremendous revitalization, and mobility is a key part of the transformation. In 2021, the city released an RFP for a new mobile payment application, one that not only offered standard on-street payments but encapsulated the City's vision for a mobility app. Flowbird was awarded the project and launched the new ParkDetroit app in December 2021, replacing the City's original app provider. The new ParkDetroit app gives users the tools to make educated travel decisions prior to leaving their homes. The prices of on and off-street parking locations are shown on the app, parking availability is provided to help people select where to park, and the app is integrated with guidance systems to navigate the user to their desired parking destination.

Taking things to another level, Flowbird's ParkDetroit app provides local events listings and venue information to encourage people to spend more time downtown. The next phases of the project will include transit payments for the City's People Mover as well as loading zone management.

Photos from Detroit Installation



4.8.3 City of Minneapolis, MN

Contact – Dillon Fried
33 North 9th St, Minneapolis 55403
Tel: 612-673-5862 (office); 612-203-2697 (cell)
Email: dillon.fried@minneapolismn.gov

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In 2010, Flowbird was awarded the on-street parking pay station contract for the City of Minneapolis following a competitive RFP process and head-to-head vendor trials. The city deployed a Pay by Space system covering the majority of the City's on-street parking spaces.

In 2019, the city released a new RFP to replace the original Flowbird pay stations and the City's existing single space parking meters with the latest available technology. Flowbird was awarded the project, and in 2020 implemented close to 700 new Flowbird pay stations featuring a 9.7" full color touch screen and contactless payments.

The pay stations are solar powered and accept coins and credit cards. The City has access to Flowbird WebOffice which provides real-time information on transactions, maintenance alarms, and collections alerts.
In 2023, the City selected Flowbird to provide their MPLS Mobile App parking solution. The current system App and Kiosk is integrated with the City's enforcement system provided to allow for real-time data exchange.

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Photos from Minneapolis implementation



4.8.4 Pittsburgh Parking Authority

Contact – David Onorato, Executive Director
232 Blvd. of the Allies
Pittsburgh, PA 15222
Tel: 412-560-2511
Email: donorato@pittsburghparking.com

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In 2005, Flowbird installed 54 MPC XL Pay and Display multi-space meters for the Pittsburgh Parking Authority. Those meters featured coin, bill, and credit card acceptance. The majority of those initial meters were solar charged.
In 2012, the City awarded Flowbird the largest multi-space meter contract of the year after a comprehensive RFP process. Flowbird provided the best total solution; pay stations and back-office software, mobile license plate recognition, citation solution, and communications/marketing. Five hundred CWT Pay by Plate meters were installed throughout the city, replacing the MPC meters and single space coin only meters. At that point, Pittsburgh became the first city in the US to commit fully to Pay by Plate parking. An additional 340 pay stations were added in 2013. Today, the Authority has over 1,000 pay stations, which are now being upgraded to touch screen technology. The system is integrated with the City's citation management system for Pay by Plate enforcement.

Flowbird also provides one of the Parking Payment App for the City
In 2015, the Authority was awarded IPI's Parking Organization of the Year for their incorporation of technology to improve efficiency, customer service and sustainability as models for others in the industry.

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Photos from Pittsburgh implementation



4.8.5 City of Chicago/Chicago Parking Meters, LLC

Contact – Dennis Pedrelli
Chicago Parking Meters, LLC,
205 North Michigan Ave. Suite 1910, Chicago, IL 60601
Tel: 312-262-6865
Email: dpedrelli@amigroupllc.com

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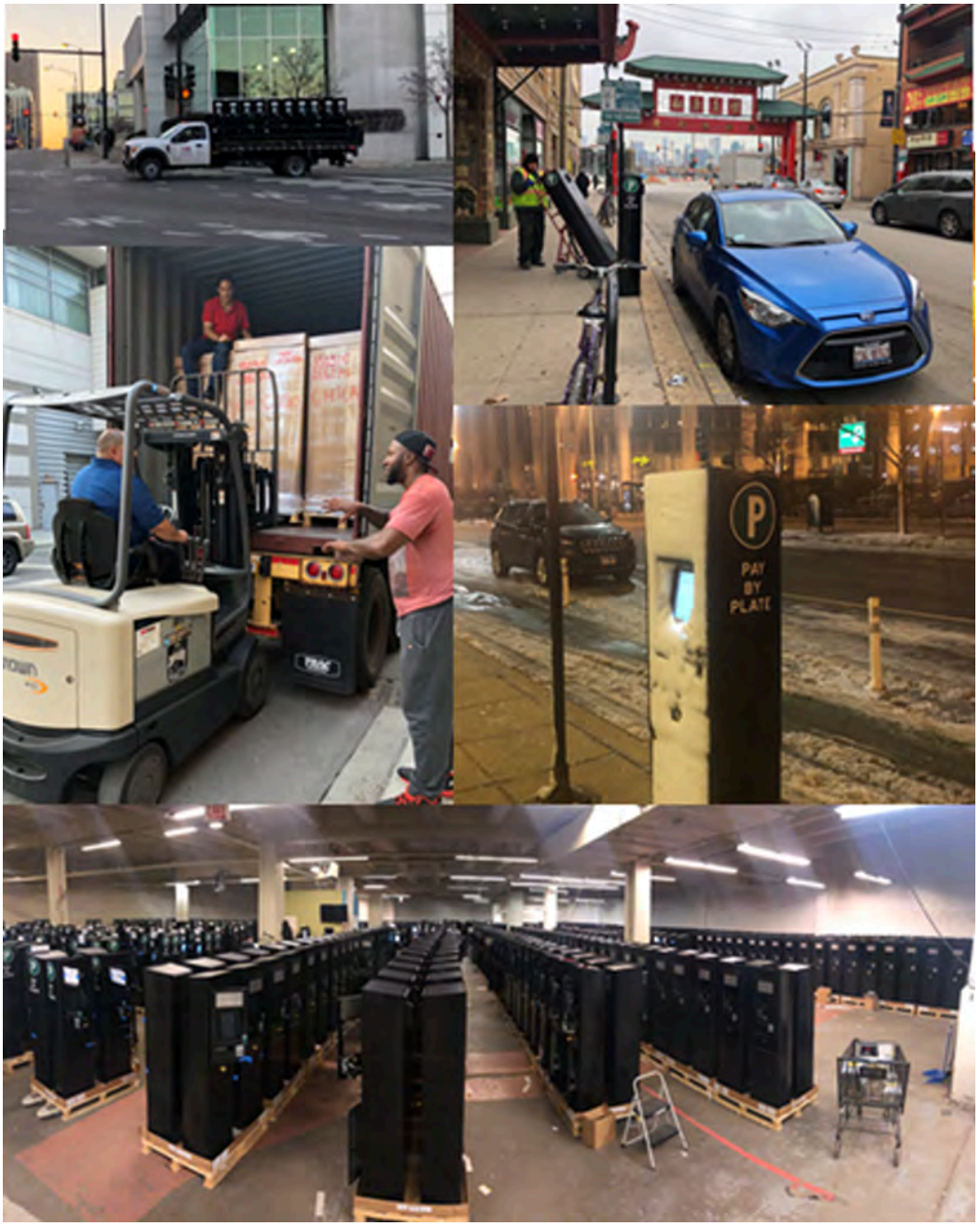
Chicago Parking Meters, LLC (CPM) operates all of the on-street parking in the City of Chicago. In 2009, Flowbird was selected by the company to implement Pay & Display parking throughout the City. Flowbird installed 3,750 pay stations in five months; a feat never before tried or accomplished.

In January 2018, CPM released an RFP to replace all of the Pay & Display pay stations with all new Pay by Plate pay stations. Flowbird was selected for the project which is the largest Pay by Plate system in the United States, covering 36,000 metered spaces, with new user-friendly parking kiosks (4,727 in total).

The new devices are solar powered and feature a full color touch screen and paperless receipts. After signature of the contract in August 2019, the installation of the new system started in October 2018 and was completed in February 2019. The system is designed to bring innovation and convenience to Chicago and its mobility structure. CPM has access to Flowbird's updated version of the FWO back-office parking management system featuring an enhanced big data analytics reporting environment. Transaction data from the kiosks is integrated with the mobile phone payment solution and citation management system provided by Passport.

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Photos from Chicago implementation



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5 Section 5 - Value Added Products and Services

5.1 Value Added Products

5.1.1 Flowbird e-Permit Permit Processing Management System



Flowbird is a qualified software developer for a Virtual Permit Parking (VPP) Management Systems.

The proposed VPP uses vehicle license plates as parking credentials. It will issue and track parking permits.

Flowbird eliminates the need for physical stickers and hang tags with our e-permits solution but also understands the need for certain RPP areas to decide if they still want a paper permit. The system is completely based on the license plate as the identifier for permit rights.

Key features include:

- e-Commerce Sale for Parking Permits
- Completely digital solution – eliminates need for stickers and hang tags
- Support of many permit types
- Daily, Monthly, Annual

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- Student, Resident, Visitors
- Permits can be instantly available or activated on a time schedule
- Customer Website that supports mobile operation
- Permit expiration notifications by email
- Geo-fencing for permits holders and permits
- Web based reporting for parking staff
- Integration with gTechna

Flowbird has been a Software as a Service (SaaS) provider for over a decade. Thousands of Flowbird clients, transit agencies, municipalities and universities, rely on our back-end reporting and management tools to effectively run their transit and parking systems.

Our solution starts with our secure data hosting infrastructure and processes. We own and manage several data centers around the globe. These data centers are redundant and monitored 24/7 to avoid any service interruptions. We have put many policies and procedures in place to ensure protection of customer data. These policies include:

- Information System Security Policy
- Data Protection Policy
- Security Roles Definition
- Security Areas Policy

Flowbird's processes follow the strict guidelines set via the General Data Protection Regulation (GDPR). Flowbird provides a variety of web-based and/or app based tools that are accessible either by local agencies (e.g. municipality, transit agency, university, system operators) or by the public. These tools require specific credentials (e.g. username and password) to gain access and many are account based, meaning that Flowbird is managing data for individual users.

5.1.1.1 E-Commerce Sale of Parking Permits

Flowbird will supply a PCI certified e-commerce platform to manage customer parking permit transactions and to provide operational information to the administrators.

5.1.1.2 Flowbird E-Permit Solution

Our comprehensive permit solution allows you to manage permit applications, permits and payments. Users can take advantage of both the web version and mobile application to manage their permits, and accounts on each version can seamlessly integrate with the other technologies.

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The types of permits listed below can be easily managed through Flowbird's E-Permit system:

Standard permits
Standard permits, otherwise known as residential permits, are commonly bought one at a time and are valid over a longer period. Depending on configurations, these permits can be renewed, temporarily replaced, moved to another address and canceled. They can also be approved automatically or by the operator with case management.

Bulk permits
Bulk permits, as the name suggests, are bought in bulk. This is commonly applied by businesses who utilize a fleet of vehicles. Once a permit is assigned to a vehicle, it can be set so that it can be changed or updated. All permits bought in one session have the same valid period, independent of usage.

Banked permits
Banked permits are also known as digital scratch permits. They are pre-paid permits that offer flexibility depending on usage. For example, a city resident may be charged based on whether they drive their personal vehicle into the city for work (and utilize on-street parking) or take transit on another day.

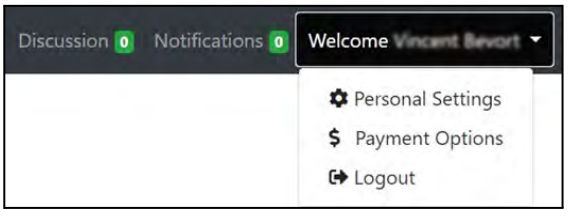
The end-user will buy a number of daily permits and then select some to be activated on a specific day. Flowbird's solution allows users to create sessions of parking so banked permits can be managed as needed.

5.1.1.3 Two Interfaces One Solution - Web and Mobile

It's simple to apply for a parking permit when needed, whether it's on the MLPS app or website. The customer Just completes the following steps:

5.1.1.3.1 Create Session

Once activated, the information can be viewed as an active session. When confirmation and checkout are set at designated time, the start page will reload after a few seconds.

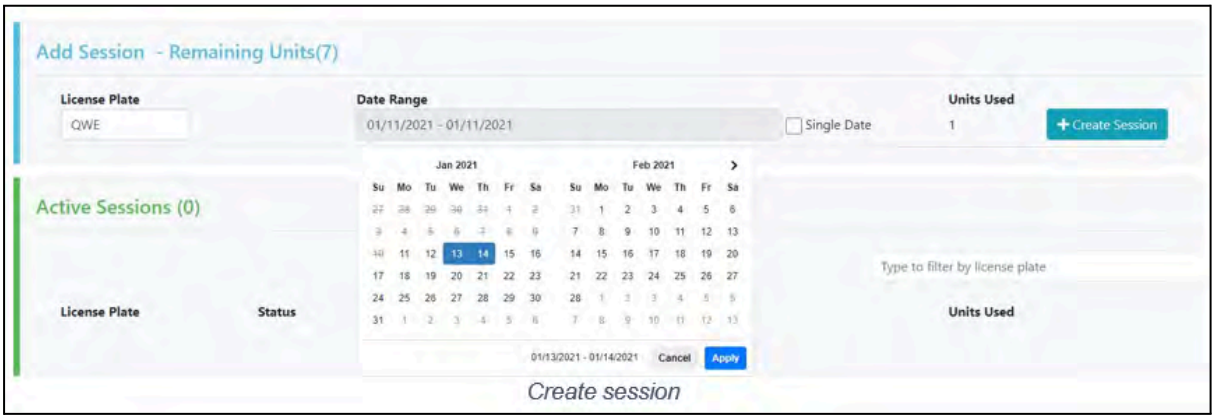


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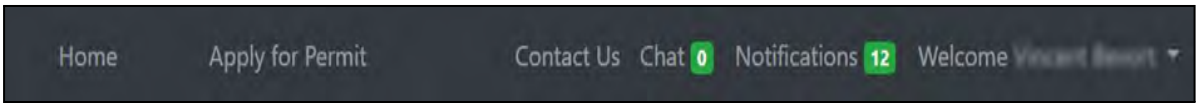
5.1.1.3.2 The Home Page

The top bar is always visible. The end-user can find the home page by pressing the home button or apply for a permit by clicking “Apply for Permit”



Create session

On the right side the user may find a “Contact Us” button where information can be shown. Next to this button, a chat option is available. The end-user can communicate with the operator using the ‘Chat’ button when case management is active.



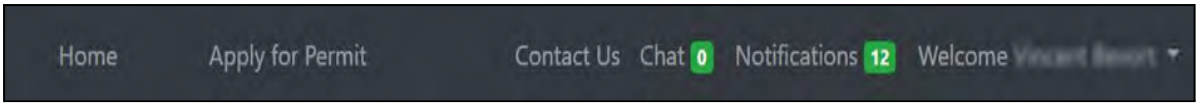


A drop-down menu allows users to manage personal settings and payment options .

5.1.1.3.3 Purchasing/Applying for a Permit



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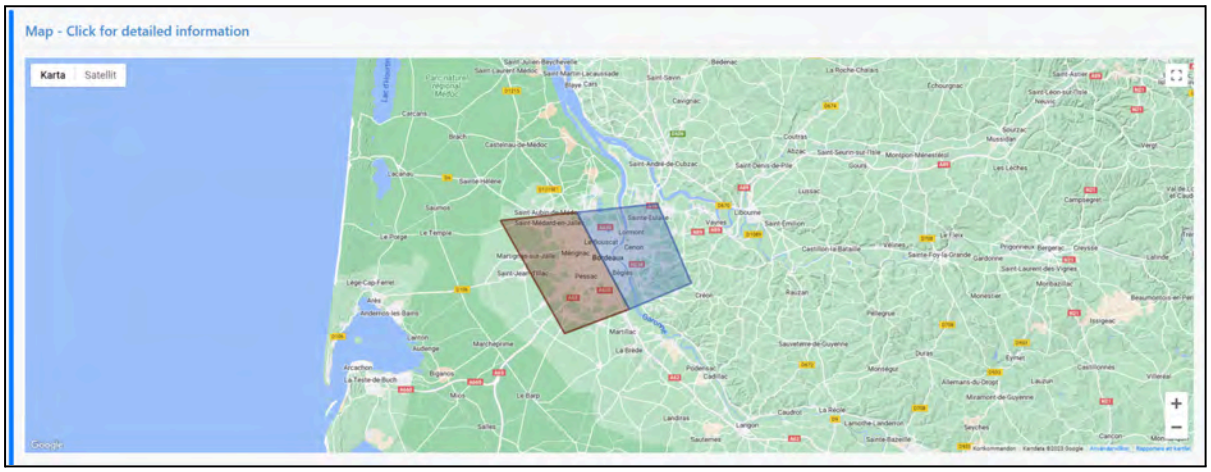
To purchase/apply for a permit, click the “Apply for Permit” button in the header bar or click the large green bar in the Home page.

5.1.1.3.4 Address Lookup

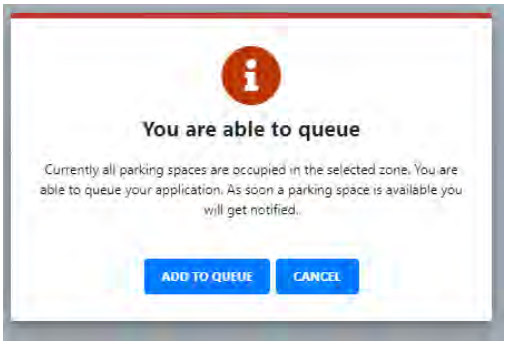
Zone selection can be set through the following means:

- Zone selection: Specific zone information, whether there’s a difference in pricing, can be easily navigated on both the web portal and mobile application.
- Zone selection (with address): The zones are configured to support a specific area. By entering an address, the system will assign the correct zone.
- Geo-fencing: Press ‘Validate Address’ to find the correct zone, and select the duration and vehicle.

To finalize the application, users must select the following data (if applicable):

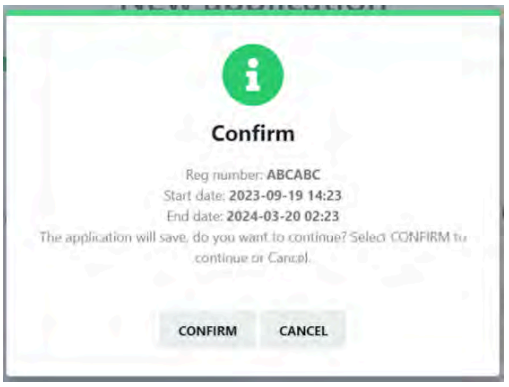


- Standard permit
- Bulk permits
- Banked permits
- Select the package to select the duration of the permit
- Select a start date, the system can be configured to select both start and end date or to select a fixed period.
- Enter your license plate number and click “Save and continue”



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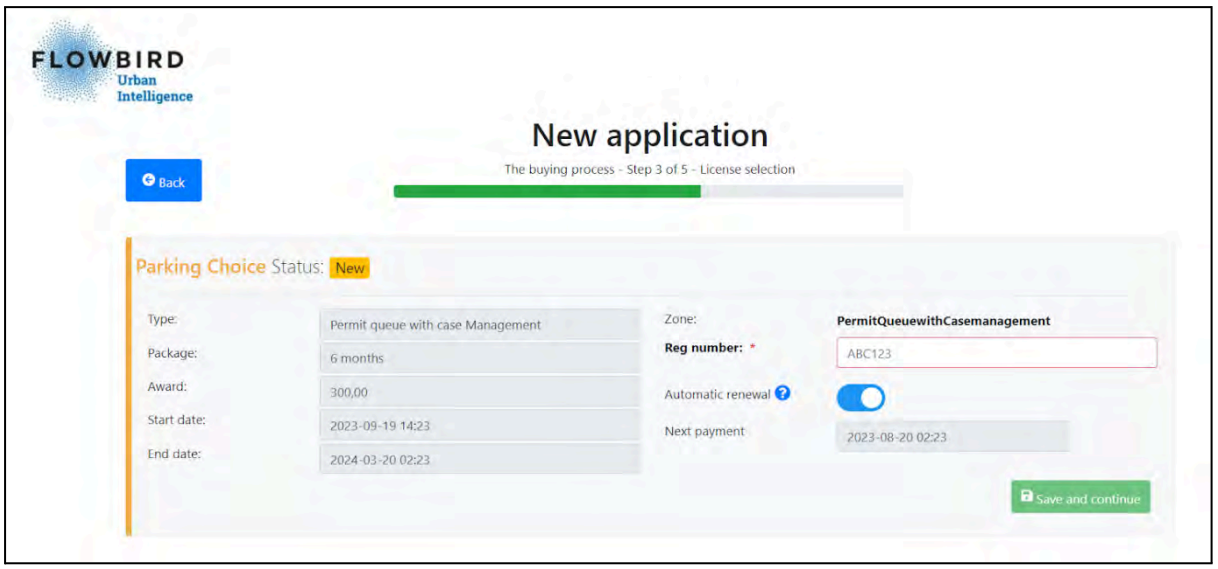
A pop-up will show the application details for the end-user to confirm. Start and stop dates can be configured to be hidden if not needed.



5.1.1.3.5 Queuing

Users will be notified if MLPS establishes a virtual queue to apply for permits.

A notification will be sent to users when their time to apply for a permit arrives.

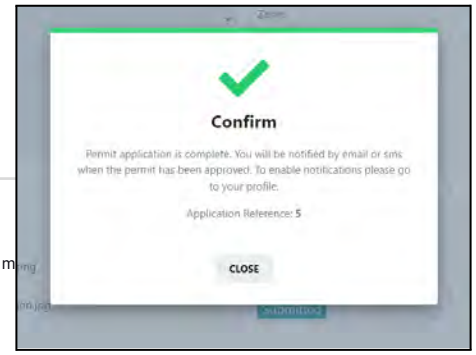


5.1.1.3.6 Queue - Permit Available

An applicant can take advantage of their turn in the queue or snooze the notification. By snoozing, you will not lose your rank in the queue, but will not be able to take a free spot for the snooze time, even if another one becomes available.

5.1.1.3.7 Select Payment Method

After confirming the application, the end-user will reach the payment page where they can review the permit details and select the payment method.



If a caseworker has to approve the application, the end-user can reach this part of the permit application from the home page.



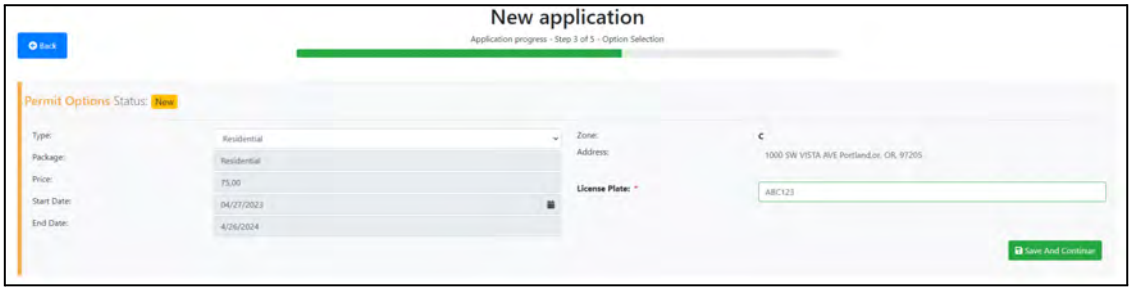
The permit is now valid. A notification will be sent to the end-user with a confirmation.

The user can always go back to the permit page by clicking the permit home page tab. They can then change the license plate or get the receipt. If temporary permit changes are activated, the end-user can temporarily change their license plate for a fixed time.

5.1.1.3.8 Required Documentation

After applying for a permit, some documents may be needed (depending on MLPS requirements). These required documents are requested after the submission of the application.

- To start the procedure, see Purchase/Apply for a Permit
- Select start date and enter the license plate.



Press ”Save and continue” and the end-user will be able to upload the needed documents.

After sending in all the required documents the end-user will get a reference number. A notification will be sent to the user once the documents are uploaded successfully.

The application is marked as ‘Application ready.’

The operator is logged in at the case management part of CAP 2.0 (The operator portal). Then, the operator can check the status of a correctly-applied permit.

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By clicking on the ‘attached’ button, SEPTA employees can select each of the attached documents and verify them. Clicking on the ‘chat’ symbol, the operator can communicate with the end user, who can answer questions via messenger. Unread messages will be displayed in yellow.

If everything looks good, the operator can approve it by clicking the ‘generate permit’ button.

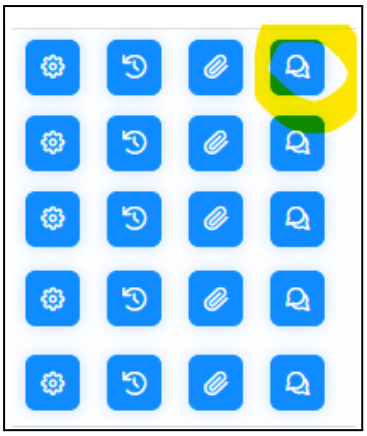
5.1.1.3.9 Using Notifications and Chat

If the document is incomplete, the caseworker informs the end-user by writing a message in the Dialog section. The end-user will receive an e-mail and can also see the message at their portal.

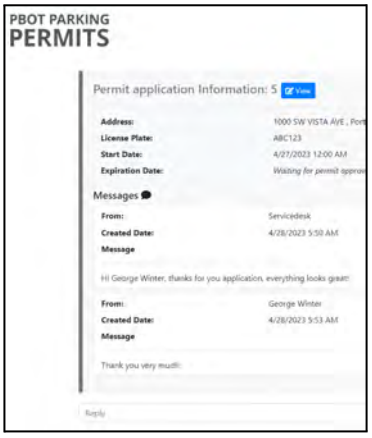
5.1.1.3.10 Approving an Application

By pressing the “Details” the operator can view the application's details and make changes if there is something wrong. By clicking the “Generate Linked Permit” the operator will approve the application. The application is approved and the user can now pay for their permit.

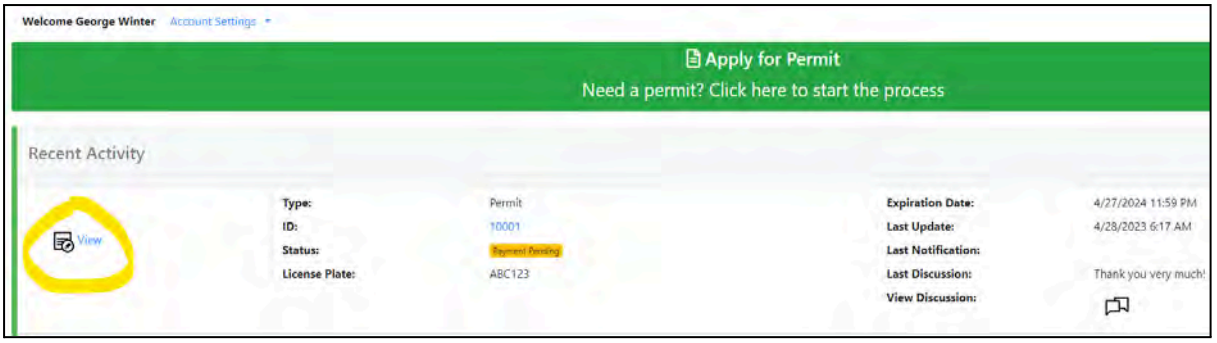




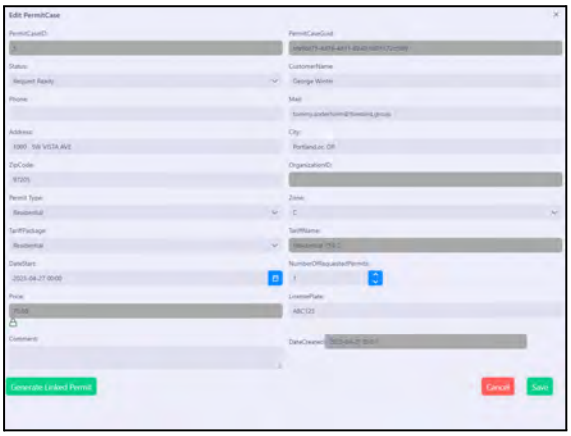




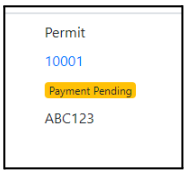
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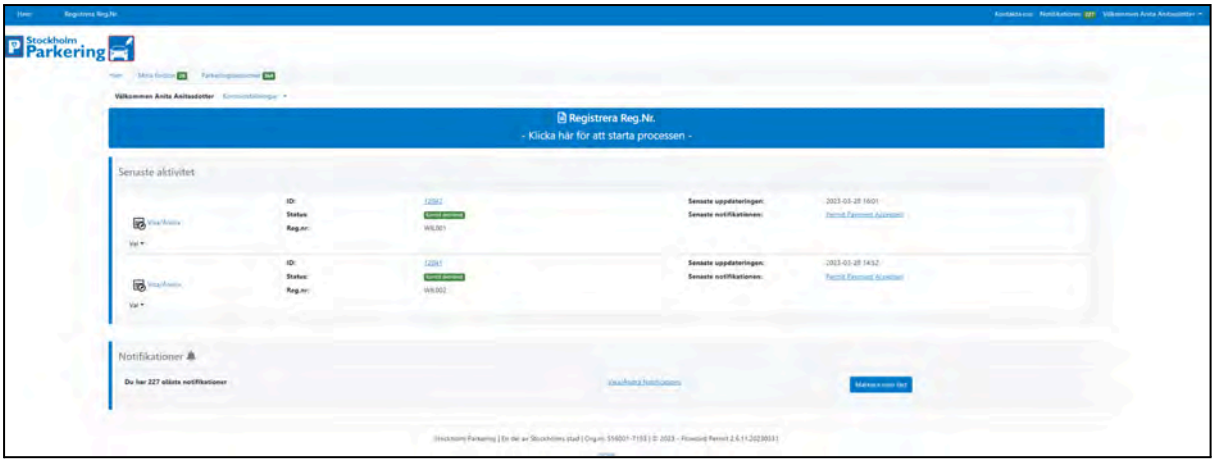








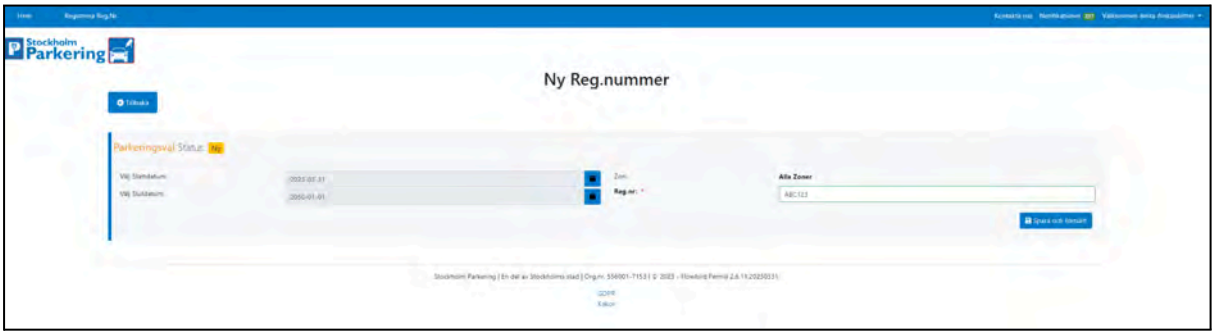
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5.1.1.3.11 User Experience from the Flowbird Parking App

Flowbird will add the permit flow into the Parking app being provided, This will allow users to apply for permits in the same place as they are making their transient parking session.

With Flowbird's E-Permit system, SEPTA can save costs and reduce friction for drivers in parking ramps and lots. Our technology diminishes the need for in-person enforcement and automatic gates. Permitted vehicles can easily enter a city lot/ramp and exit, charged at the set price without manual submission or bulky hardware.



When the user wants to move their vehicle and end the parking session, they can vacate the space and the camera will detect the exit time. The user will receive a notification in the e-mail and will be charged automatically on their saved credit/debit card. If the card was invalid, the operator has all information to send an invoice to the user.

5.1.1.3.12 Setting Up a Permit Account for Off-Street Use

To register a vehicle, the user clicks on the large blue button. Then, users can add their license plate information.

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When the license plate is added, the user can enter the site and the parking session is started automatically. When they leave the stored card will be charged and a receipt can be downloaded under parking sessions.

The system can be connected to Flowbird GO information screens where there can be a message at the entry and exit. Occupancy displays where the total number of free spaces are shown and/or total number of remaining spaces with reduced price if the system is used for started and stopped parking sessions with a reduced price compared to other guests that don't have an account.

5.1.1.4 Intelligent Data Platform

The Flowbird e-permit solution will be easily integrated into the WebOffice suite Flowbird is supplying to customers.

The system is designed to benefit the customer organization – from managers looking to analyze system performance to your operations team that maintains your equipment. Employees can gather reports, evaluate data, and track permits within the same system already in place to manage multi-space meters and the mobile application.

5.1.1.4.1 Performance Analysis

All data collected from Flowbird devices, including permit processes, is time-stamped and recorded in the back-office management suite for your analysis. Data can be filtered in various ways (date range, location, etc.) to help you make critical decisions.

The Flowbird back-office management suite integrates with other platforms to help customers build the system you want. Existing APIs allow us to quickly integrate with citation issuance systems, license plate recognition solutions, and 3rd party payments to make your team more efficient and provide consolidated reporting.

Flowbird has performed integration projects for hundreds of clients and our team is very experienced in the implementation and long term support of these sophisticated solutions

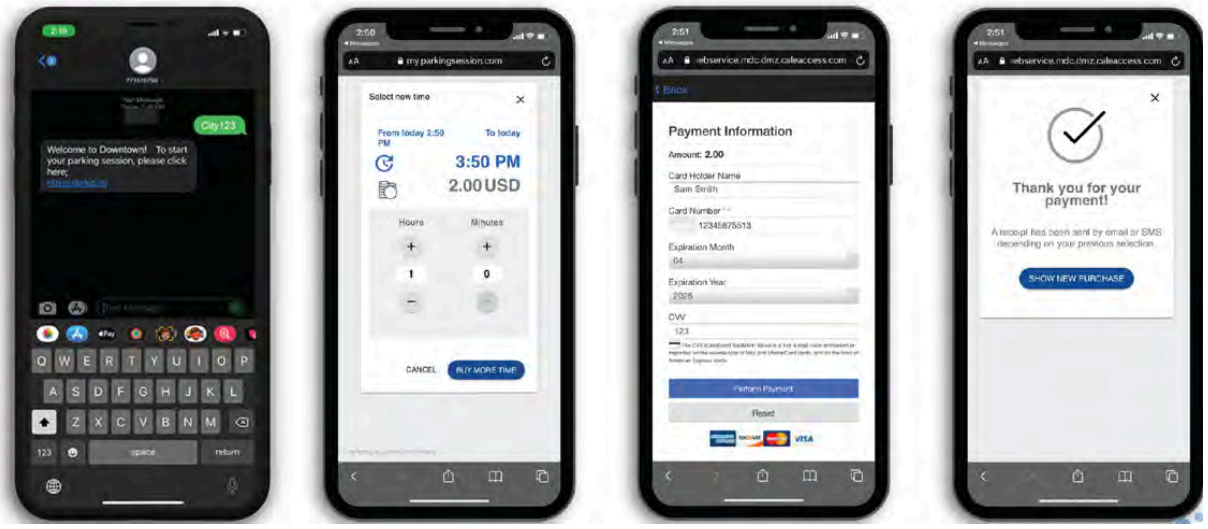
5.1.2 Pay By Text

The PayByText is built on Flowbird’s robust backend for text message receipts for the parking pay stations. The receipt feature allows the users to get a text message receipt from the pay station, if configured it will send the user a text message reminder and allow the user to extend the session from their phone without an app.

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The PayByText can be configured as a stand alone service that allows users to start a session by simply texting a location code / ID / key word to a local phone number or Flowbirds short code phone number. The system will then greet the user and guide the user through a couple of simple steps that allows the user to enter their plate, select time and use a credit card stored in their phone to start a session.

This is a convenient option that allows the user to start a session without app download, the system can also be accessed from the Parking Website and allow users a virtual parking meter experience.



5.1.3 Extend by Text

Extend-by-text is a convenient way for your customers to extend their parking time without having to walk back to a pay station. No app is required!

Benefits for Parking Operators:

- Integrates with the same reporting system as the pay stations
- Encourages higher rates of compliance
- Increases customer satisfaction
- Generates additional revenues
- Secure payment following PCI standards

Benefits for End Users:

- Convenient text reminder prior to time running out
- Easy to extend time without downloading an app or creating an
- account
- No need to walk back to a pay station
- Lowers chance of receiving a parking citation

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How does it Work?

- The customer starts by making a parking transaction at a pay station
- They enter their mobile phone number when prompted
- 15 minutes before the end of the parking session is about to end the user receives a text reminder that their time is about to expire
- The user click on the link provided to enter additional parking time and make their payment
- The parking session is then extended

5.1.4 Transit Solutions

5.1.4.1 Flowbird Hub Central System Service

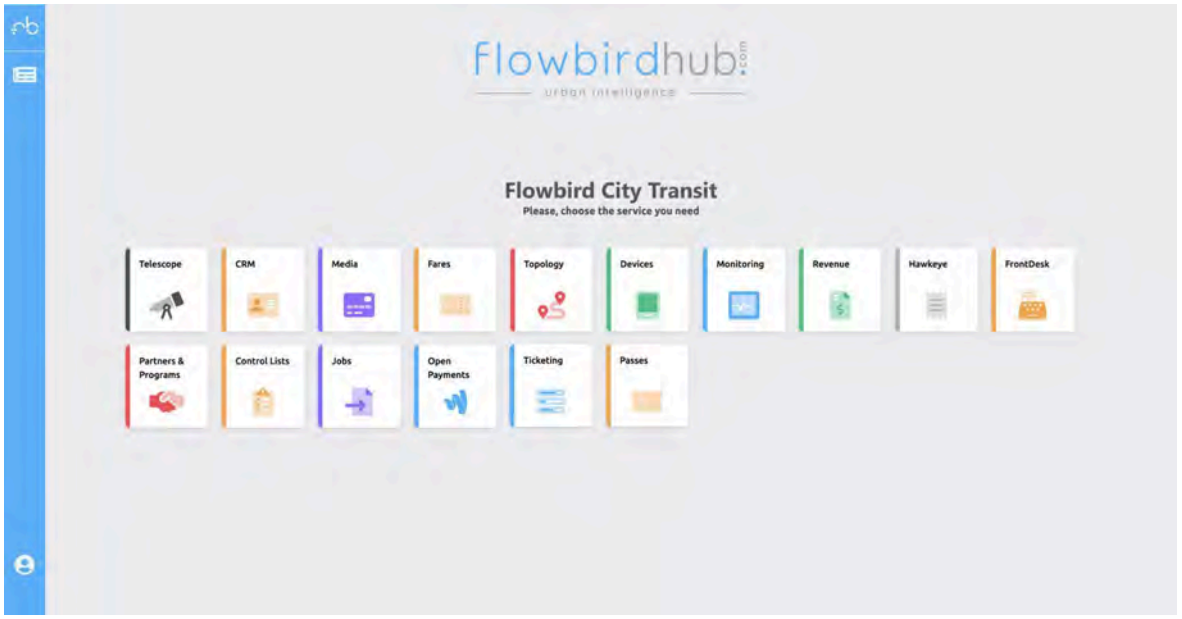
The backbone of Flowbird fare collection systems is Flowbird Hub, a highly capable and extensible modular central system service. It provides a comprehensive list of features implemented and refined over the years of experience that Flowbird has in the transit industry. It is managed with simple, easy-to-use tools and provides and supports all the required fare collection system functions and features. It is accessible to authorized agency personnel from any device that has a standard web browser, with many features also accessible via mobile devices.

Flowbird Hub is hosted by Amazon Web Services (AWS) and was designed to be used in a multi-tenant environment so that the cost of the service can be shared across many agencies. For larger agencies, due to the large number or required third party interfaces required, we will install a separate instance of Flowbird Hub, dedicated to the transit operator.

5.1.4.1.1 Flowbird Hub Elements

The Flowbird Hub is Flowbird's third-generation Software as a Service (Saas) back-office ticketing system. The Flowbird Hub is a comprehensive fare payment solution that supports both account-based fare payment and Open Payments. It is hosted by Amazon Web Services (AWS) in a multi-tenant environment, resulting in lower operating and solution maintenance costs. However, a separate Flowbird Hub instance will be installed for different transit operators. As part of the SaaS model, Flowbird provides all software maintenance and upkeep.

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Sample Flowbird Hub homepage

The Flowbird Hub is modular in nature. Different users get different levels of access to modules, and functions within the modules, based on their needs and authorization levels. There are more than 20 modules in Flowbird Hub, with more being added as the system evolves. Some of the most commonly used functions include:

- Users: for managing and controlling agency user-access rights to the Flowbird Solution.
- CRM: for use by agency personnel to manage customer accounts. View real-time information regarding user accounts, transaction history and ticket purchases. Make changes to accounts as necessary, including adding funds to stored value to resolve customer complaints.
- Media Manager: for managing and controlling the fare media (smart card) inventory.
- Fare Manager: for creating and configuring fare-capping rules for both closed-loop and Open payment.
- Topology: for defining the transit network, routes, stations, buses, etc.
- Devices: for managing the configuration of individual devices.
- Open Payments: for looking up details of Open Payment transactions.
- Vouchers: for tracking vouchers issued by the TVMs and for generating vouchers to be provided to customers.
- Monitoring: for monitoring and managing system alarms as well as fare validations.
- Revenue: for viewing real-time revenue data across the system and all components. Includes revenue reporting by sales channels, with a variety of available filters.
- Hawkeye: for supporting the Flowbird Hawkeye fare enforcement solution.

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- Ticketing: for creating and configuring fare products and concessions available for sale across the system and for scheduling the activation of fare sets (the group of fare products available for sale on the system at any given time).
- FrontDesk: for supporting the Flowbird FrontDesk POS solution.
- Partners and Programs Manager: for administering institutional accounts, including a bulk operations feature. Also for activating or deactivating many cards quickly.
- Passes: for listing all the passes/tickets issued by the system.
- Control Lists: for handling various lists used to support faster transaction processing and offline or slow connection operations.
- Jobs: for scheduling tasks that would take too long in real time, such as a bulk update of media by a partner.

Flowbird Hub supports the configuration and use of traditional pass products (single ride, monthly pass, etc.) as well as fare capping. Concessionary pricing (discount fares) as well as transfer policies can be applied to both product and fare-capping rules.

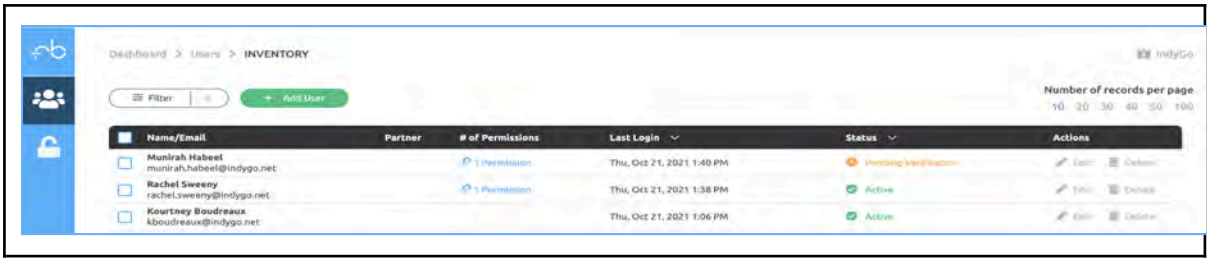
Flowbird Hub is accessed using any commonly available web browser and is the primary access point to the Flowbird Platform for most agency personnel. It has user friendly and dynamic interfaces that allow users of any skill level to easily navigate the system. They are organized as a bundle of modules, which are accessed via buttons/icons on the Flowbird Hub home page. Clicking on a button launches the service.

5.1.4.1.1.1 User Management

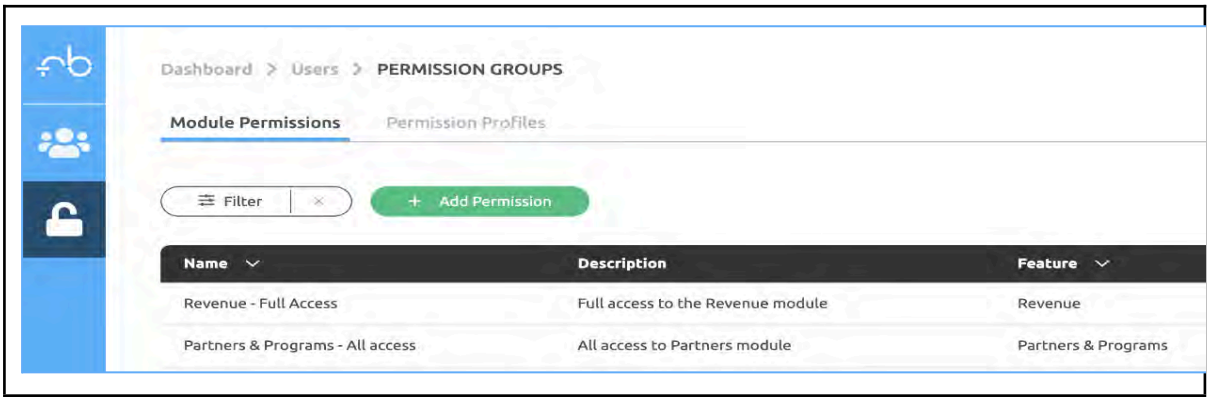
Access to each module is managed by the limited number of users with system administrator permission. The key principle of Flowbird Hub operations is to provide each user access only to the services relevant to their work responsibilities and level of authority. That level of control also applies within each service. For example, all customer service personnel may get access to the CRM service. However, only customer service managers may be authorized to disable an account.

The creation of a user requires the full name and the email address. Upon creation, an email will be sent to the user for verification of the email address. Once the user verifies the address a reset password email will be sent at the same address. This will allow the user to set their own password.

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To help with the maintainability of the system, user permissions are organized/grouped within permissions profiles. The profiles are shared between users.



5.1.4.1.1.2 Transaction Processing

The Flowbird system processes transactions in near real time as riders travel around the network.

This section describes how transactions are processed through fare collection systems and how this information may be viewed in the Hub.

5.1.4.1.1.3 Open Payment

One of the standard elements of Flowbird fare collection systems is Open Payment, a service fully certified to Visa's Mobility and Transport Transaction(MTT) and MasterCard's Global Transit specifications for contactless EMV (cEMV) fare payment transactions. Support for American Express (already on our product roadmap) and Discover will soon be added to the system. Enabling Open Payments gives customers the option to use a credit card stored on their mobile wallet or a contactless credit card to pay their fare at the validator, rather than first purchasing a fare and then using a smart card, mobile application or QR coded ticket to ride.

Open Payment by Flowbird is a near real time solution using the Axio validator to process transactions, with offline capability as back up.

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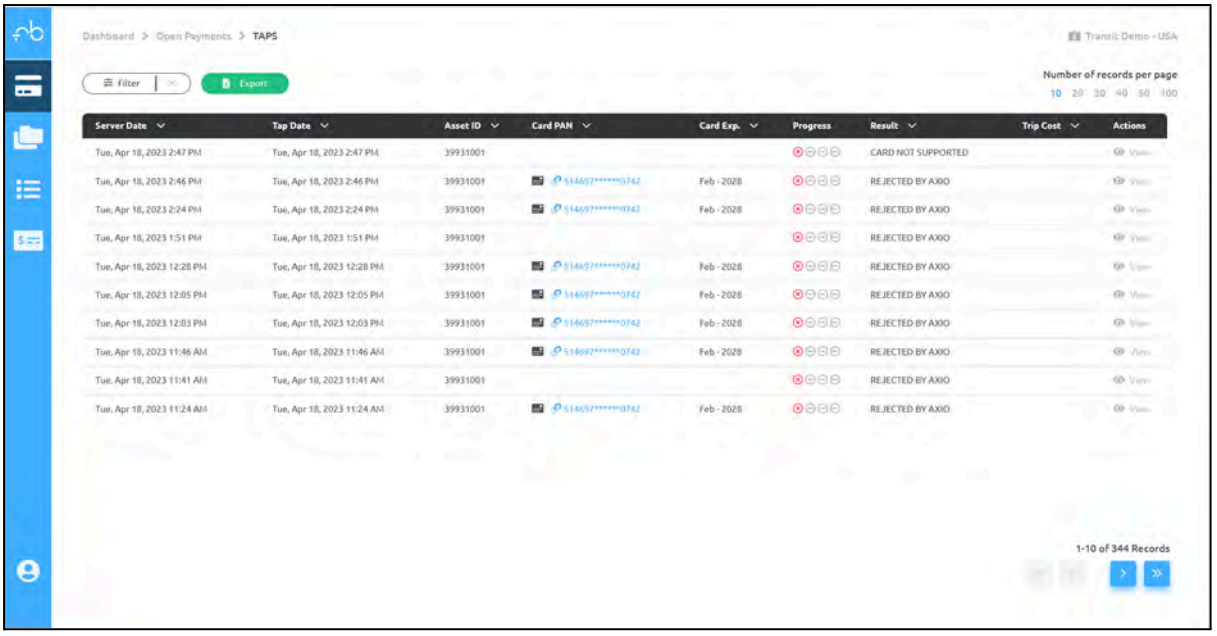
Some of the core features of the solution are:

- Agencies have the option to implement either fare capping or a flat fare scheme where each tap results in a fare charge.
- In both cases, transactions for each card are collected throughout the day (aggregation), with one batch of transactions sent to the acquirer for settlement at the end of the day. This reduces transaction processing costs.
- Where fare capping is applied, the price is calculated a posteriori. The solution automatically calculates the amount to be charged to a customer's bank card at the end of the day, based on their use of the transit system.
- Validations take place in less than a second in all cases (even if the network communication is available) since the solution conducts all checks required by Visa and MasterCard Open Payment rules at the validator. While an authorization request is sent to the acquirer (First Data) right away, the validator does not wait for a response. The (first) validation is approved if the local validations are OK.
- Collection of funds due is assured as Visa and MasterCard provide protection to agencies in cases where a payment is rejected when sent for authorization. In addition, the solution carries out automatic debt collection, resubmitting a rejected transaction on successive days.
- Cards that have been rejected are automatically placed on a deny list, downloaded to each validator in the fleet every 15 minutes. The frequency of deny list updates is configurable. The card is removed from the deny list when the debt is paid.

To ensure transaction security and limit PCI SSC standards (and other applicable regulations) scope, the Open Payment service uses two parallel systems to process bank card payments. The banking system – consisting of certified payment terminals on validators, TVMs and handheld devices (HHDs) and ArchiPEL connected to the acquiring bank – processes the bank card payments and generates tokens for each bank card used. The fare system – consisting of the Axio validator, TVMs, handheld devices and Flowbird Hub – applies the appropriate fare to each transaction and makes any applicable fare-capping calculations.

The Flowbird Hub records details of transactions as they occur around the system and allows the transit operator to view details of open payment taps using the Open Payments module. The following screen provides an example of how the tap data is presented to a Hub user.

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Users can drill down for each transaction to get additional details, a useful feature when responding to customer inquiries.

5.1.4.1.1.4 Other Payment Processing

All payment transactions are treated in a secure and encrypted manner in Flowbird fare collection systems. No card data covered by PCI SSC standards is stored in the system.

All bankcard transactions generated at the Flowbird card reader, which is a certified banking terminal, are connected to Flowbird's own PCI DSS certified Payment Acceptance Services platform named ArchiPEL or a third party payment system such as Ingenico.

Archipel is a Store-and-Forward solution that then sends transactional payment card data to First Data for processing. Flowbird developed ArchiPEL many years ago and has enhanced the system as the payment industry has evolved. Flowbird's experience and expertise with payment solutions makes us the ideal partner for transit operators to work with on their fare collection systems as they will be in very safe hands.

Mobile app, customer web portal and other similar payment transactions are sent to our payment gateway provider, Till, who connects to First Data.

As with Open Payment, all sales transactions are stored in the Flowbird Hub database without any critical data such as card number, expiry date, etc.. With regards to critical data, they are partially stored, for example truncated PAN's for EMV cards. Sales

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transactions can be viewed in real time in Flowbird Hub Revenue Module, a critical feature for customer service. Sales reporting is done using Tableau reports using data from the Snowflake data warehouse.

5.1.4.1.1.5 Validation Transaction Processing

Flowbird's initial roll out of account-based fare payments more than 5 years ago was designed around real-time validation transaction processing. However, while cellular services are ubiquitous, the services cannot be guaranteed to be always available, and always at full speed. Our experience in Indianapolis showed that there were too many incidents where the bus validators could not process transactions due to dropped cellular connections.

We therefore modified our system design to enable more validations to occur reliably at the validator level. The Flowbird Hub automatically generates two lists. The green list is a list of all fare media (including mobile app) that have sufficient value or a fare product associated with them to support a single trip. The red list is a list of all fare media that do not have sufficient value or a fare product to support a trip, or that have been blocked for some reason (e.g. lost or stolen card). As with the Open Payment deny list, the green and red lists are updated on every validator every 15 minutes (or whatever frequency is decided during the design phase).

When the validator carries out a validation transaction, it first checks the red and green lists. If the fare media is on one of the lists, the validator executes the appropriate validation transaction, and then sends the transaction to the Flowbird Hub. If the fare media is not on the list (e.g. newly purchased from a TVM before the validator receives its next list update), the validator carries out on online verification, contacting the Flowbird Hub before executing the validation transaction. This is still a very fast process with the faregate and platform validators, though depending on the cellular connection, could be slower on buses. Based on our experience with other agencies, real time time transactions are a small percentage of all transactions.

5.1.4.1.1.6 Customer Account Management

Riders will usually use the customer website or mobile app to create accounts and add funds or fare products to them once created. However, a rider can have an account created with the help of transit operators customer representatives using the FrontDesk POS application, or using the Flowbird Hub CRM module if the rider contacts the operator by telephone.

Riders can also use the fare collection system anonymously (though with reduced access to benefits such as discount fares) with smart card fare media obtained from

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the retail network, TVMs or operator customer service centers. They can add funds or fare products to their anonymous accounts at these same sales channels. Unlike registered customer accounts, anonymous accounts always have only one smart card fare media associated with them.

5.1.4.1.1.7 Managing an Account

The basic account management functions are available to customers via the mobile app and customer web site, and to transit operator personnel via the Flowbird Hub CRM module and the FrontDesk POS application. These functions include:

- Creation of an account
- Setting up a personal profile
- Choosing a password – Follow industry best practices, passwords are encrypted using a Flowbird defined algorithm before sending it to the Flowbird Hub.
- Add a credit card on file
- Manage subscriptions to receive email and/or SMS alerts.
- Check/Delete history of ticket purchase dates/times and amounts.
- Deleting the account.
-

Details created or edited by a rider will automatically update the Flowbird Hub database. This information is available to view by operator staff using the Flowbird Hub CRM module.

It is important to note that with the Flowbird fare collection system, a customer can associate more than one fare media with their account. Purchased stored value and fare products are associated with a specific fare media, though the system allows moving value and unactivated fare products from one fare media to another. Transactions for each fare media are tracked separately for fare capping purposes. One of the benefits of this capability is that a parent can manage fare media for their entire family. Alternatively, the system allows an account holder to either transfer funds to another account, or give another account permission to access their account (e.g. a child can have their own account, but their parent can fund it from their account).

5.1.4.1.1.8 Reduced Fare Program

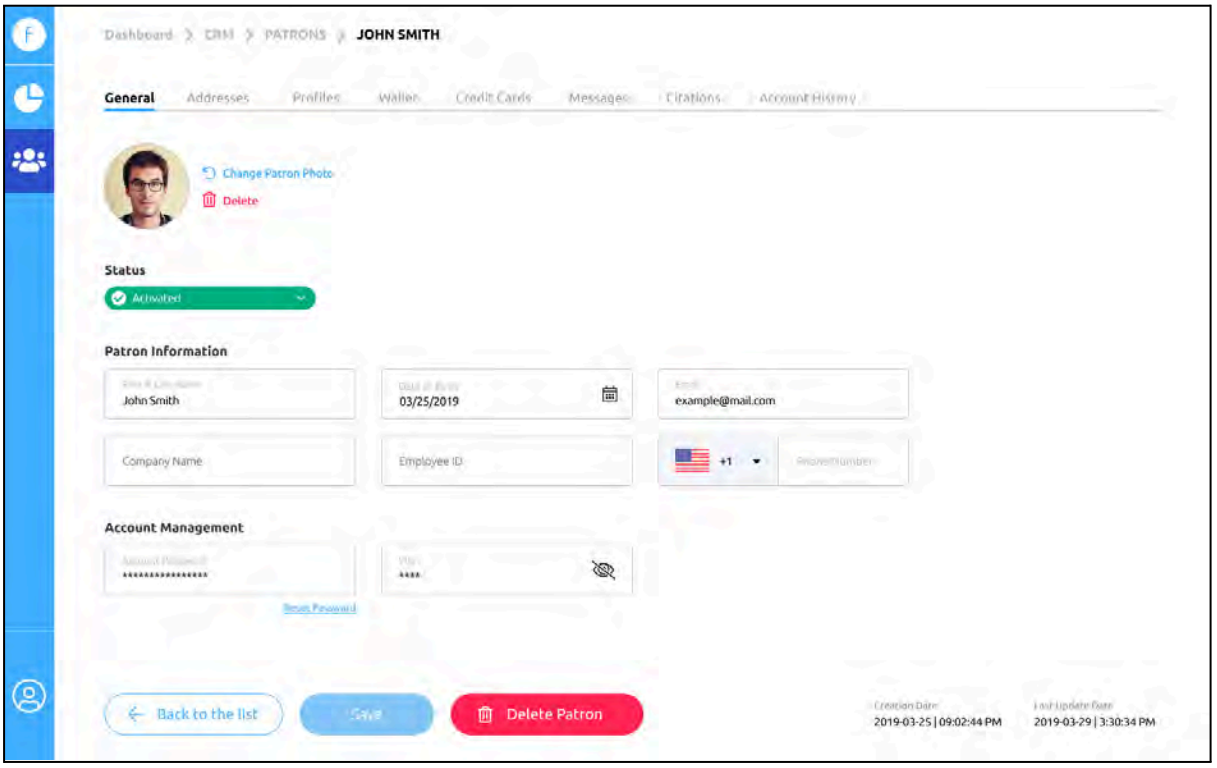
Flowbird Hub supports the configuration of reduced fare programs for eligible riders. Reduced fares are configured in the Fares module for fare capping, and Ticketing module for fare products.

Flowbird Hub is also used to create rider profiles (categories), such as senior, veteran, youth, etc. The reduced fares are configured to be available to specific profiles.

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A profile can be assigned to a rider account, based on the transit operator's eligibility rules, to allow a customer to purchase reduced fares (or be charged reduced fares in accordance with the fare capping rules). The authority to assign a profile to an account is controlled through the Flowbird Hub Users module, although the operator may allow some users to self-assign a profile to their account without verification (seniors, youth, etc).

5.1.4.1.1.9 Customer Relationship Manager



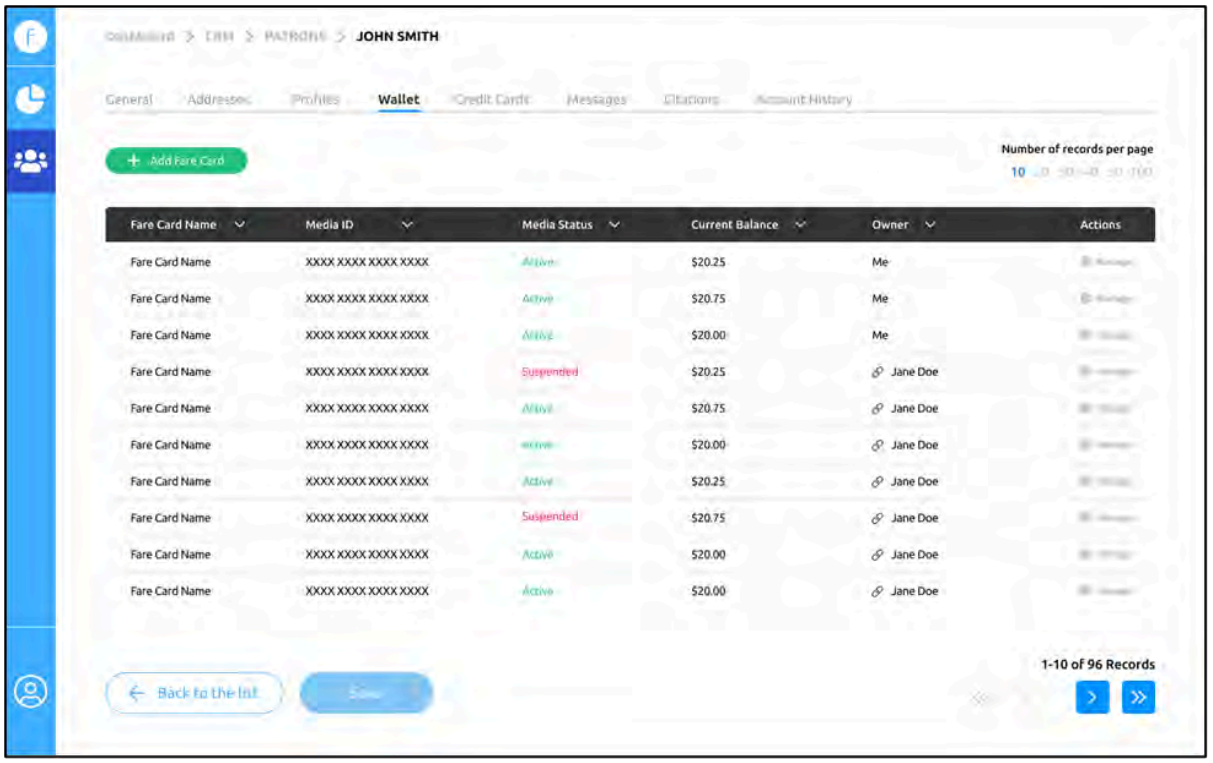
The CRM service is at the core of operating an account-based fare payment system, since having effective tools for managing customer accounts is critical to its success. The CRM gives authorized agency personnel access to customer accounts and, with appropriate agency user rights, the ability to make changes to those accounts (e.g., to assign a person to a discount fare category).

The CRM provides the tools and information about customer accounts to allow agency personnel to respond to customer inquiries, make account adjustments, set profiles and concession rights, etc. The organization of the service allows agency personnel to serve customers quickly and efficiently while maintaining high levels of security for personal information. Any modifications and changes to the customer accounts are logged in the system for security review as may be required. Access rights can be limited based on users' needs and an agency's customer service policies.
Some of the key CRM functions are as follows:

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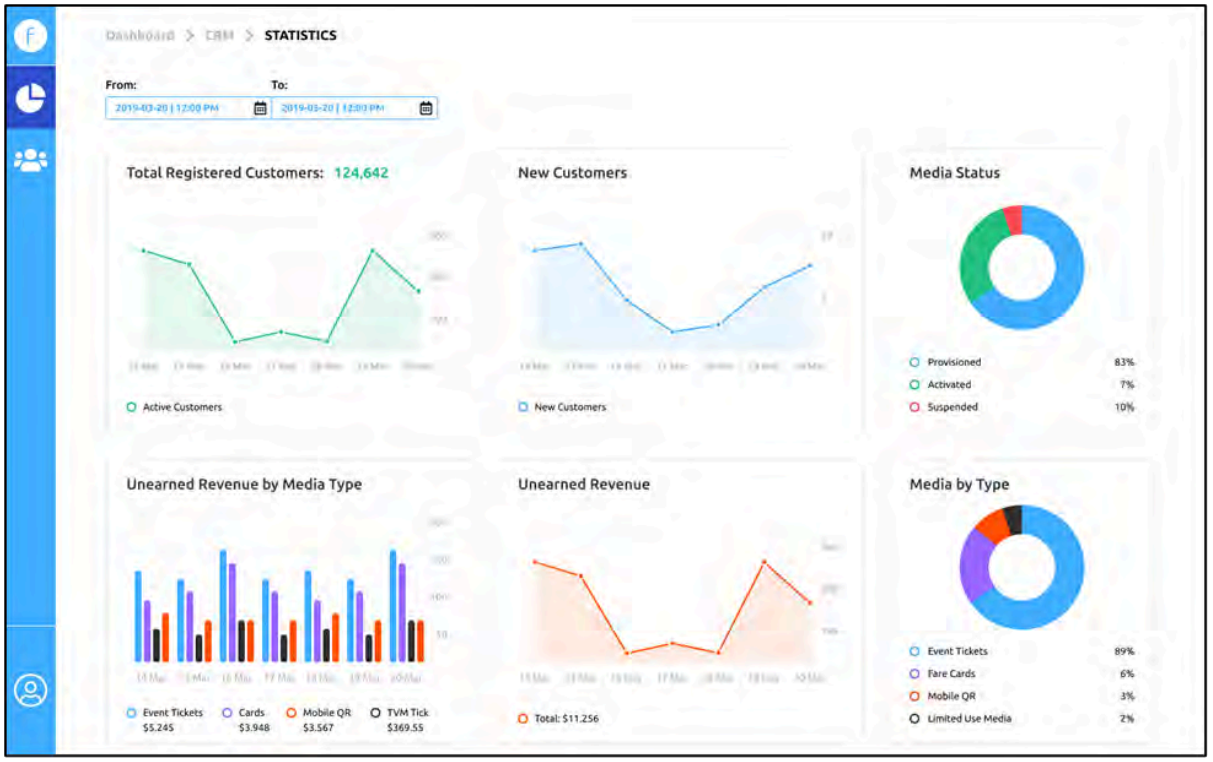
General/Addresses: Agency personnel can look up general information about the account holder and make updates. A password reset function is also available.
Profiles: Agency personnel can assign customers to a profile that may give the customer specific privileges. For example, a senior rider may receive a discount fare and a person eligible for paratransit may ride a fixed-route for free.
Wallet/Credit Card: Agency personnel can assign fare card credentials to account holders and help customers manage their various bank card payment methods.
Account History: The ability to look up a customer's transaction history is one of the more commonly used functions. A filter is available to help narrow a search down to specific transactions.

The following screen demonstrates an example of a typical customer's account history.



Statistics: While most reporting and analysis is done using Tableau, the CRM service does have its own statistical reporting tool, primarily focused on fare program participation rates and customer fare payment patterns. The following screen is a typical example of statistical information which can be provided to the CRM user.

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In addition the CRM stores data regarding the account usage:

- Products (passes) purchased
- Applicable concessions
- Currently registered credit cards
- Start & end dates
- Account history
- Linked media to the account
- Status

5.1.4.1.1.10 Institutional Account Management

The Flowbird Hub includes a Partners and Programs module for managing institutional and/or corporate bulk sales programs.

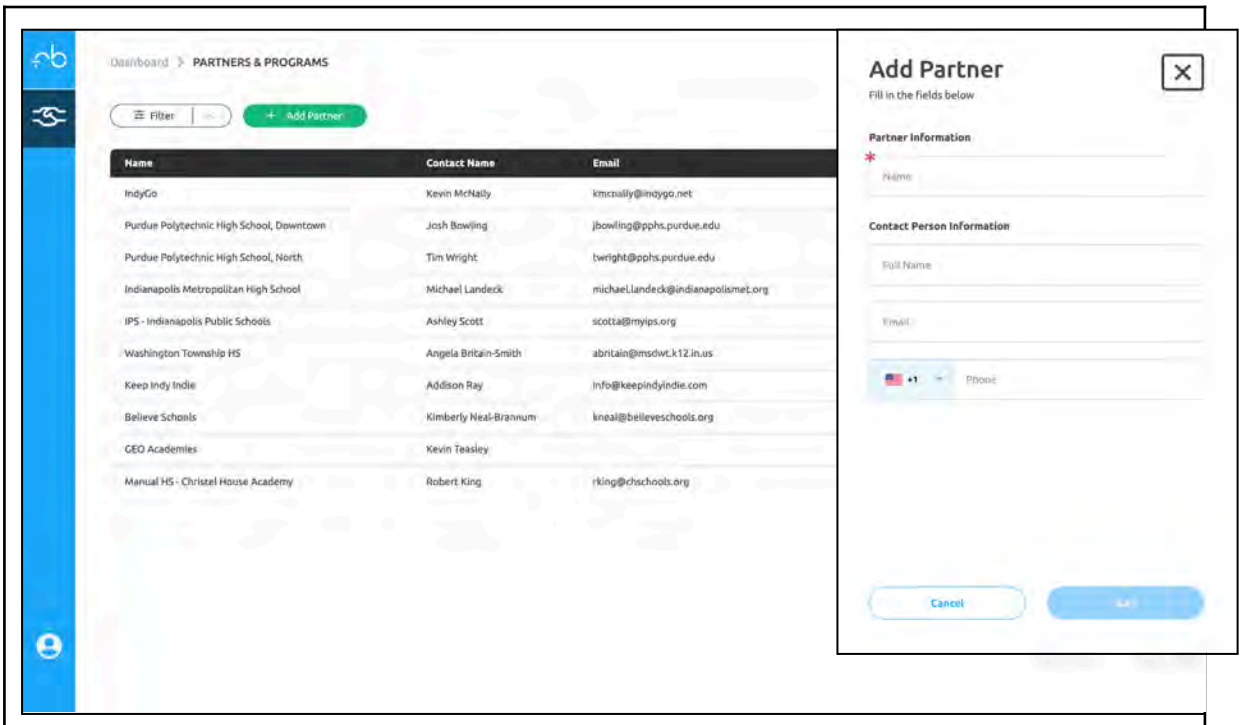
Since this module can be configured to allow access by some or all of its institutional or corporate program partners to give them the means to manage their own program participants (e.g., add or remove participants), the Flowbird Hub Partners and Programs module will be the Institutional Account web portal for Flowbird fare collection systems.

The module is used to create a partner account, and then to assign operator fare media to the partner account. The transit operator can then create a fare product that is only available to the fare media assigned to the partner program (e.g., free semester

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pass, a monthly discount fare pass, etc.). As an example, our customer IndyGo has a program to provide free fares to high school students. Each high school has its own partner account and is responsible for distributing the fare media to the students (in this case, it is a contactless smart sticker that is put on the student ID instead of a smart card). This module allows bulk entry of eligible participants to be imported into the Flowbird Hub, saving the need for individuals to have to register on the system and await approval.

We encourage our client agencies to strongly advocate for institutional partners to take advantage of a functionality that makes it very easy for program participants to join the program and use the discount/free fare features. Wherever possible, corporate and institutional partners should be encouraged to have their participants use the Flowbird fare collection system mobile app as the fare media. This minimizes the number of operator smart cards that need to be distributed. It also makes the assignment of participants to the program much easier. All that a program partner needs to do is supply a list of school or company email addresses of the program participants; these addresses are then bulk imported into Flowbird Hub and assigned to the partner account. Participants then create an account in the mobile app using their school or company email address and then enter an eligibility code (provided by the program administrator), which then gives them access to the appropriate fare product.

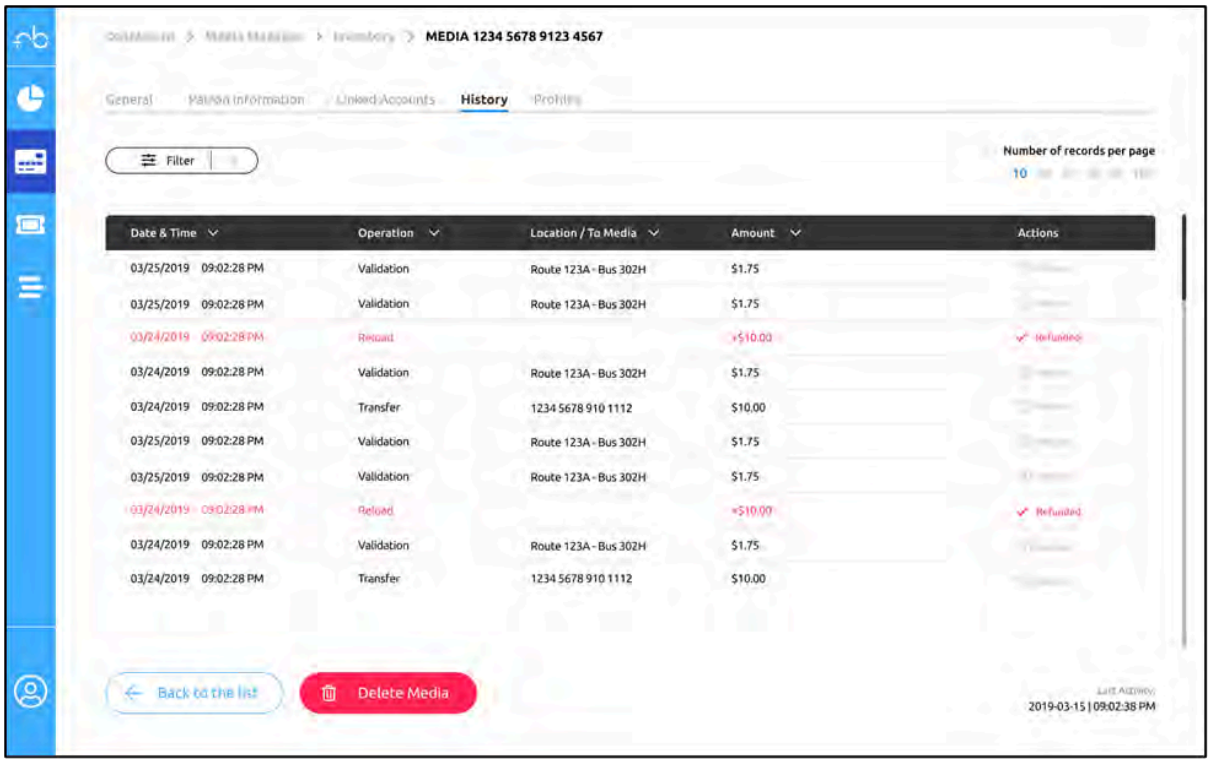


Adding a new Partner

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5.1.4.1.1.11 Fare media Manager

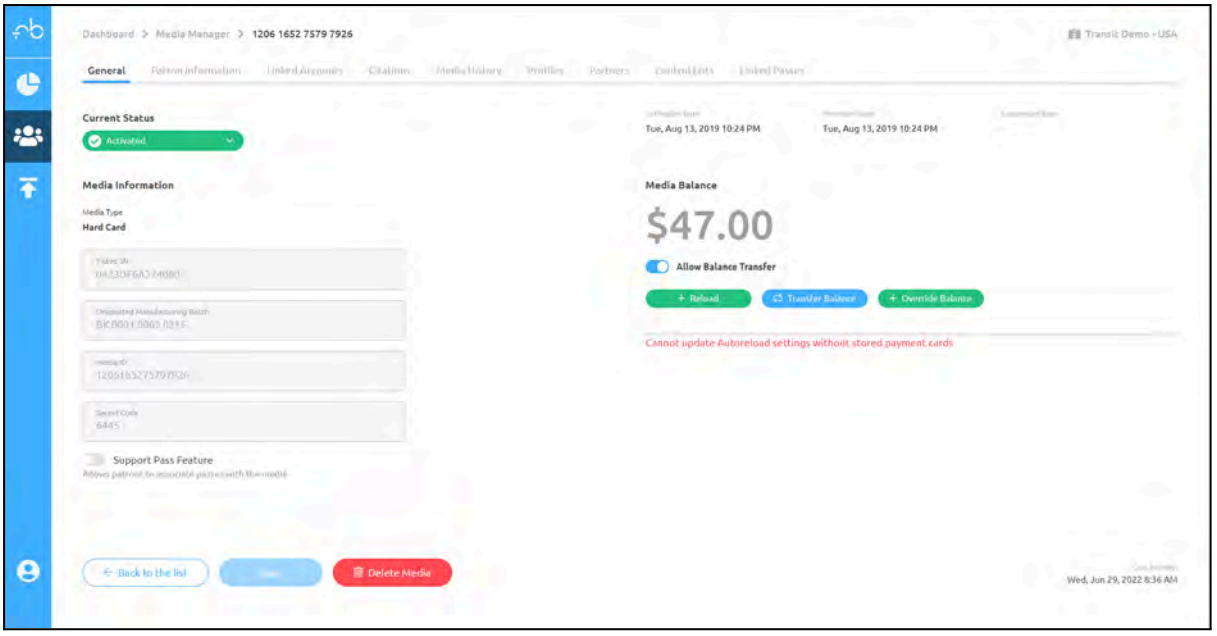
Flowbird provides a Fare Media Manager Module which is used to manage distributed fare media as well as ensuring stocks of physical media can be reordered when necessary. Operator personnel can track the status of each card, and when new cards are added to the system, import the new card numbers into the system as a .csv file.



Transit operator personnel can drill down and get detailed information about each card, whether that is the card transaction history or information about the account holder. In addition, agency personnel will be able to configure how a particular card behaves, or set up new cards, including linking specific user profiles to the card (e.g. if a card belongs to a customer who is part of an institutional fare program).

Details relating to the media can be accessed via the Media Manager. A user can view and update information about the patron, check and reload balances and check other details such as linked accounts, any citations, history of the media & control lists. The screen below illustrates the general information available about the fare media. The CRM module includes links to the Fare Media Manager.

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5.1.4.1.1.12 Media Ordering

The Media Manager allows new paper ticket rolls or smart card physical media to be ordered by an authorized user via the Flowbird Hub. The ordering system allows an authorized user to:

- Create and store media supplier details on the system
- Order specific quantities of particular physical media
- Enter expected and actual delivery dates
- Location for delivery of media
- Record details when the media is delivered (e.g. quantities, location etc.)

A record is kept of all media ordered which can be reconciled against stock still held when required.

5.1.4.1.1.13 Media Configuration

Ticket layouts for paper and smartcard products can be configured via the Flowbird Hub Ticket Layout editor The layout editor enables the authorized user to create and edit ticket layouts including text, typeface and 2D barcode positioning on the ticket.

5.1.4.1.1.14 Transit Promotions Management

The Flowbird Hub functionality has a number of different ways to support transit promotions, depending on the goals of the promotion, and who the promotion is intended to target.

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For system-wide promotions, Flowbird Hub offers the following:

- There is a loyalty points feature. As riders use the system, they can collect points, which can then be redeemed for fare discounts.
- Fare products can be created that last for only a specific area of time. For example, the operator can have discount or free fares for smog days, holidays, around special events, etc. This is done using the Fare Manager module for fare product creation and management. An authorized user can configure a transit promotion by creating a new fare (or reactivating an old one). An application start and end date and time for the fare is created together with conditions for usage.

More targeted approaches are also available.

- For events such as concerts, games, etc., where transit operators and the promoter want to offer ticket holders incentives to take transit, the Partners and Programs module can be used to create a new program for that event only. The ticket holders would receive a discount code that they could then use when purchasing a fare.
- Similarly, a program can be created that gives season ticket holders a transit pass as one of the perks/incentives.
- Fare products can be created for users with a specific profile (e.g. students), who may be eligible to purchase or receive a summer transit pass at a discount or free.

5.1.4.1.1.15 Business Rule Management

The Flowbird Hub supports both fare capping and fare product configuration and management.

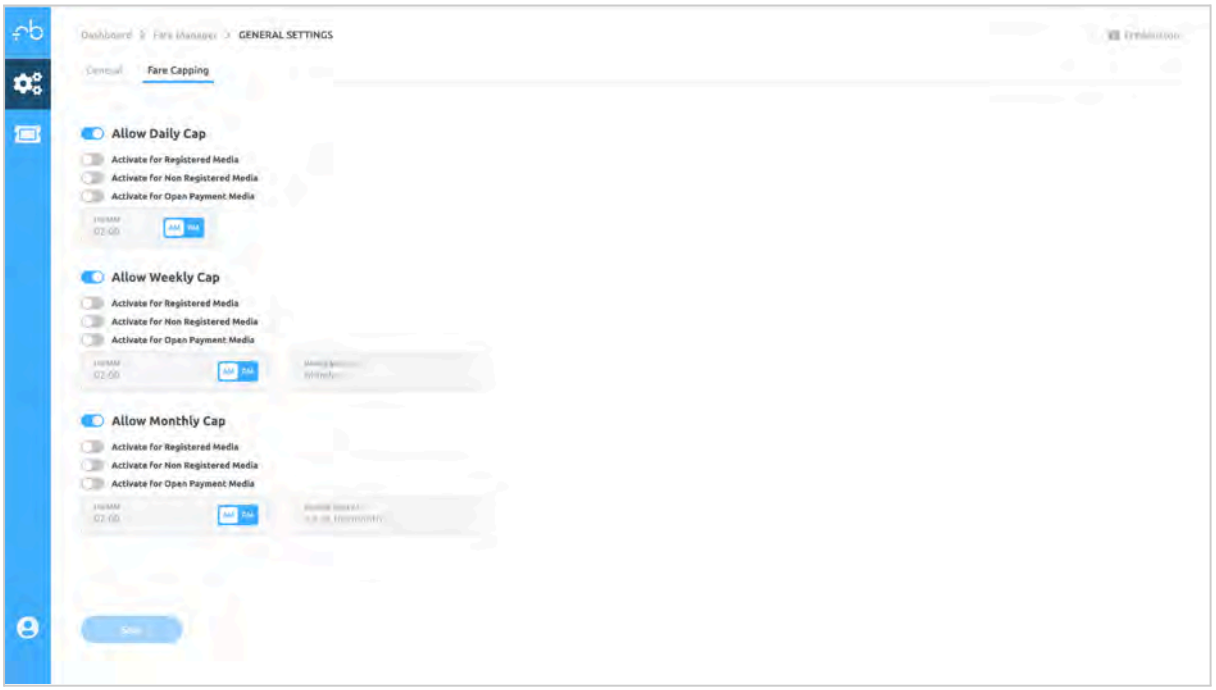
5.1.4.1.1.16 Fare Capping

All over the world, fare capping has proved very popular because customers no longer have to decide what fare product they wish to buy. Fare capping also helps address fare-equity issues because it allows more customers to take advantage of the best fare prices available without the need to pay for an entire monthly pass up front. In addition, fare capping is better suited than traditional fare pass products for projected transit commuter use, where a significant portion of customers may only commute several times a week to work instead of every day as had been the case prior to the COVID-19 pandemic.

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The Flowbird Hub supports the configuration of fare-capping rules that allow agencies to replicate the benefits and revenues of their existing transfer and pass products. It includes tools for agency personnel to make changes to these fare-capping rules as needed, including pricing. Customers only need to maintain funds in their agency-stored value account, and then use the QR code in their mobile app or the agency-issued credential to pay their fares as they travel.

The Flowbird Hub Fare Manager is a powerful yet elegant fare engine to support fare-capping policies. The Fare Manager service supports daily, weekly and monthly fare-cap configuration. Different fare-capping rules can be assigned to different agency services (e.g., local and express routes). Rolling caps (measured in days) are not supported. We have found that these end up being very confusing to customers as it becomes complicated to communicate where the customer is in the fare capping cycle. This then generates a lot of support calls to customer service.



5.1.4.1.1.17 Fare Product Management

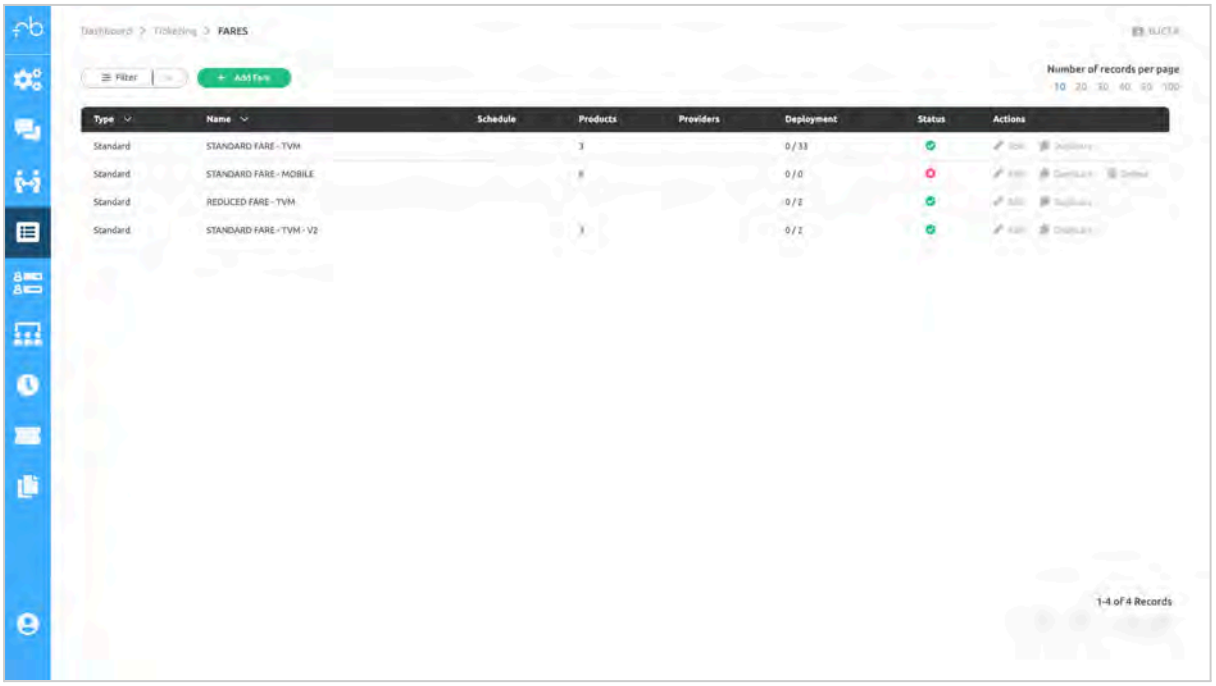
In addition to fare-capping, the Flowbird Hub allows for the configuration and management of traditional fare products (e.g. passes). The Flowbird Hub Ticketing module is used to create and modify fare products, and sub products (concessions). Fares are stored in fare sets, although not all fares are necessarily active at all times. Fares can be effective as soon as they are created or at some future time and date.

The fare set activation parameters can be very specific, even for effective time periods of an hour, ideal for special events or variable pricing based on time of day. All fare changes are easily managed and can be evaluated prior to a planned or scheduled

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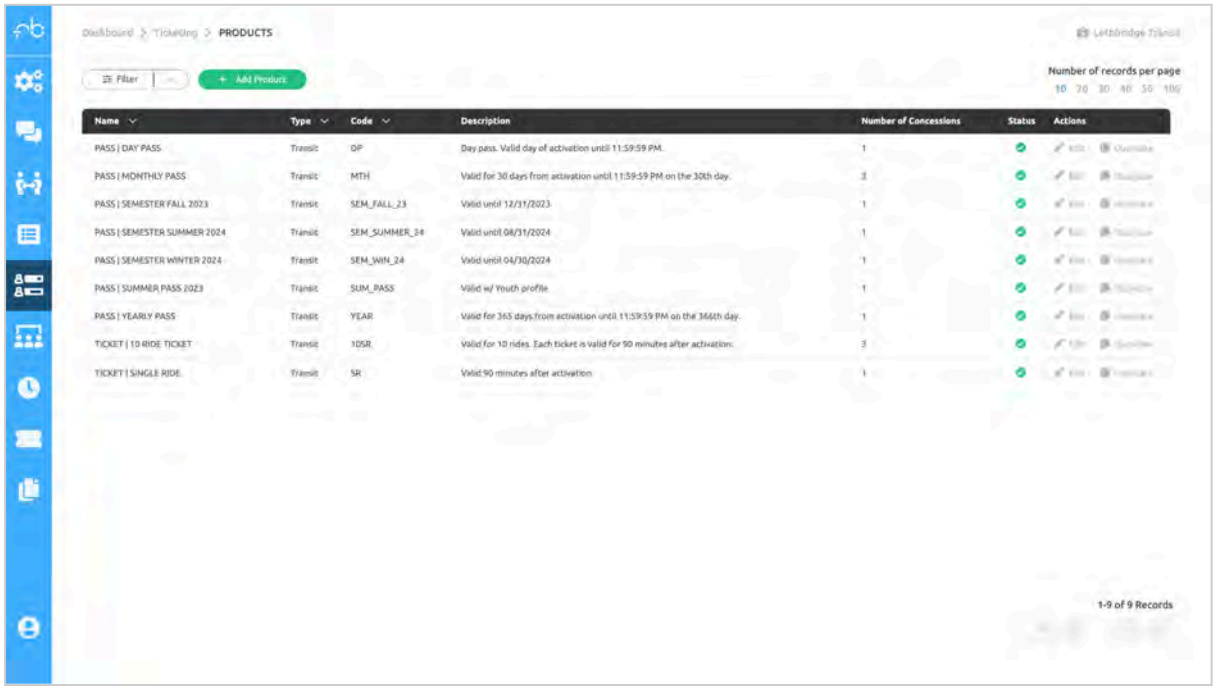
launch. This is an important feature of the Flowbird Hub, as it allows you to anticipate future needs and create in advance new product definitions before they go live.
When creating discounted fares, agencies can restrict their sale to those customers who have been assigned a specific profile. Typically, this would be after the customer has been verified as eligible. Within the CRM module, a profile can then be assigned to a user, giving them certain privileges (e.g., ability to purchase discounted or special fares).

The illustration below shows a list of fare sets. The column “Products” shows how many different fare products are assigned to the fare set.

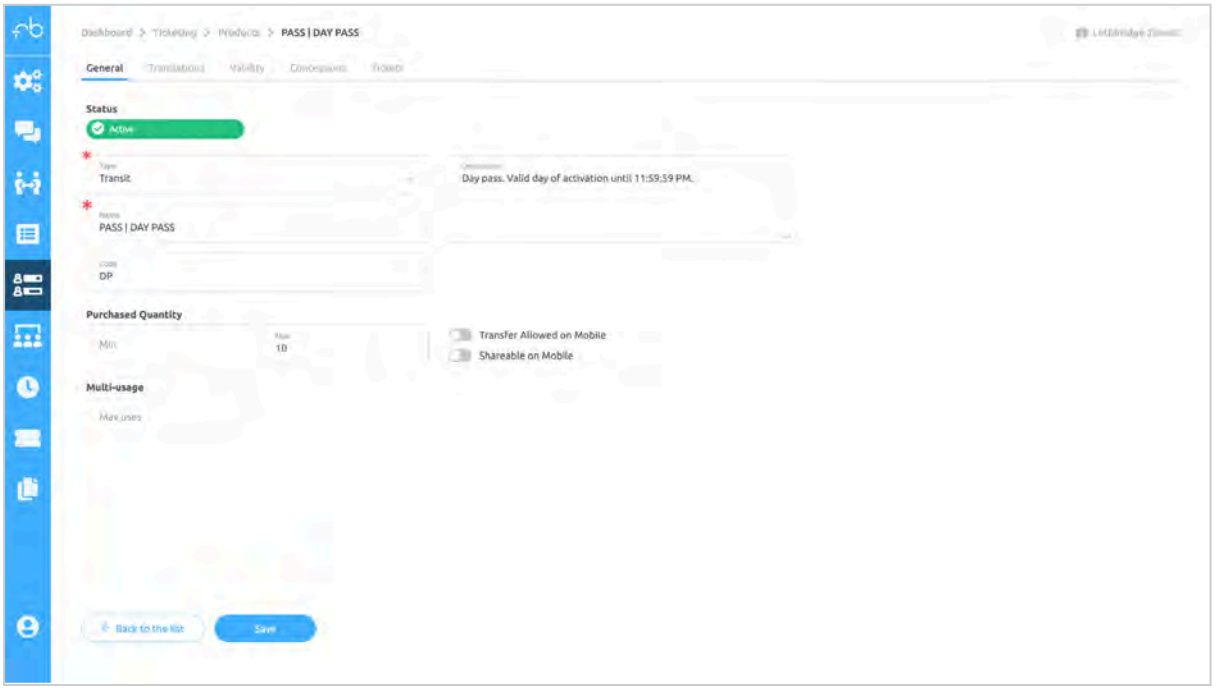


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The following illustration displays the fare products that have been configured by the agency for the system, and which are available to be assigned to a fare set.



The next illustration shows the detailed definition of a product. There are options for allowing the sharing of the products and defining transfer rules as well as the min/max quantities of the fare product that can be purchased during a single transaction.



A product can be configured to be sharable and/or transferable.

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When sharing is allowed, the system allows the configuration of the number of times a ticket can be shared (such as one family sharing a ticket). When a pass is shared, it needs to be activated first, then shared with other account holders.

When a pass is transferred, it is actually moved from one account to another (e.g., a customer purchases two passes, and then transfers one to a friend's account). To prevent double use of a pass, passes cannot be transferred post-activation.
Both features use an email address as the identifier for the account of the recipient. The recipient will receive an invitation to accept the transferred or shared pass.

5.1.4.1.1.18 Fraud Management

Flowbird Hub has a variety of tools and controls to protect transit operators and riders from fraudulent use of the fare collection system.

5.1.4.1.1.19 User Controls

Most fraud is committed by insiders. Fraud control begins with ensuring that Flowbird Hub users are only given access to the functions and features that they need to carry out their job responsibilities. The Flowbird Hub Users module gives operators the ability to create an almost unlimited number of user categories, so the access rights can be very tightly focused. Access is controlled not just to different Flowbird Hub modules, but also to functions within the module.

The Flowbird Hub generates user logs that track what users do. These are used to detect anomalies and trends. But, they can also be used to investigate cases of suspected fraud.

5.1.4.1.1.20 Analytics

The fare collection system generates a tremendous number of transaction and device event records. Tableau is a very flexible tool that allows deep analysis of the data to detect trends and anomalies such as a fare media being used in multiple separate locations within a short period of time (indicating the fare media has potentially been copied).

Unwelcome or unexpected trends do not necessarily mean there is fraud, but could point to a weakness in a policy or fare product design. For example, IndyGo has a program for high school students to receive bus passes. The intention of the program is for the students to use public transit to get to school. However, using Tableau to create a specific query, IndyGo was able to see that students were making significant use of their transit passes outside of normal school commute hours. This is not necessarily a bad thing, but informed the agency's negotiation with the schools regarding the cost of the program.

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5.1.4.1.1.21 Fare Media Controls

One of the common concerns is that fare media is hacked and duplicated. This is in fact not easy to do in scale. However, for protection, the data on the card media is encrypted.

When cards are procured, they have nothing associated with them. Therefore, they have no value. Profiles (e.g. that give discount fare privileges) are assigned to the fare media in the Flowbird Hub, and not on the card itself.

To ensure tight control of discount profile assignment, operators can implement policies that require riders to provide proof of eligibility, and allow only operator personnel to assign a certain profile to an account (e.g. person eligible for paratransit).

An additional control is to add photos to cards that are associated with an account with a discount profile. However, this serves more as a detraction against use of the card by someone who is not eligible for a discount fare, rather than a true control.

A user can access the mobile app on multiple devices. However, they can't have the mobile app open and logged in on more than one device. When a user logs in to their account on one device, the application logs out on the other device.

5.1.4.1.1.22 Control Lists

As described earlier, to support and faster more reliable validation processing, the Flowbird Hub uses positive and negative lists loaded onto the validators,
The lists are green (always approve) and red (always deny). All remaining fare media needs to be validated in real time through the Flowbird Hub). The lists are updated at each validator at a configurable time interval, typically set at every 15 minutes.
Existing lists are retained by the validators in the event of loss of communication until such time as the connection is restored when it will be updated again.
The control lists will be updated with information by authorized users regarding:

- Reported lost or stolen cards or devices
- Suspicious activity such as:
    - Fare media in use at multiple locations simultaneously
    - Duplicated barcodes (which should be unique)
    - Attempted use of barred media
    - Attempts to purchase a large quantity of fare products for a single account or fare media.

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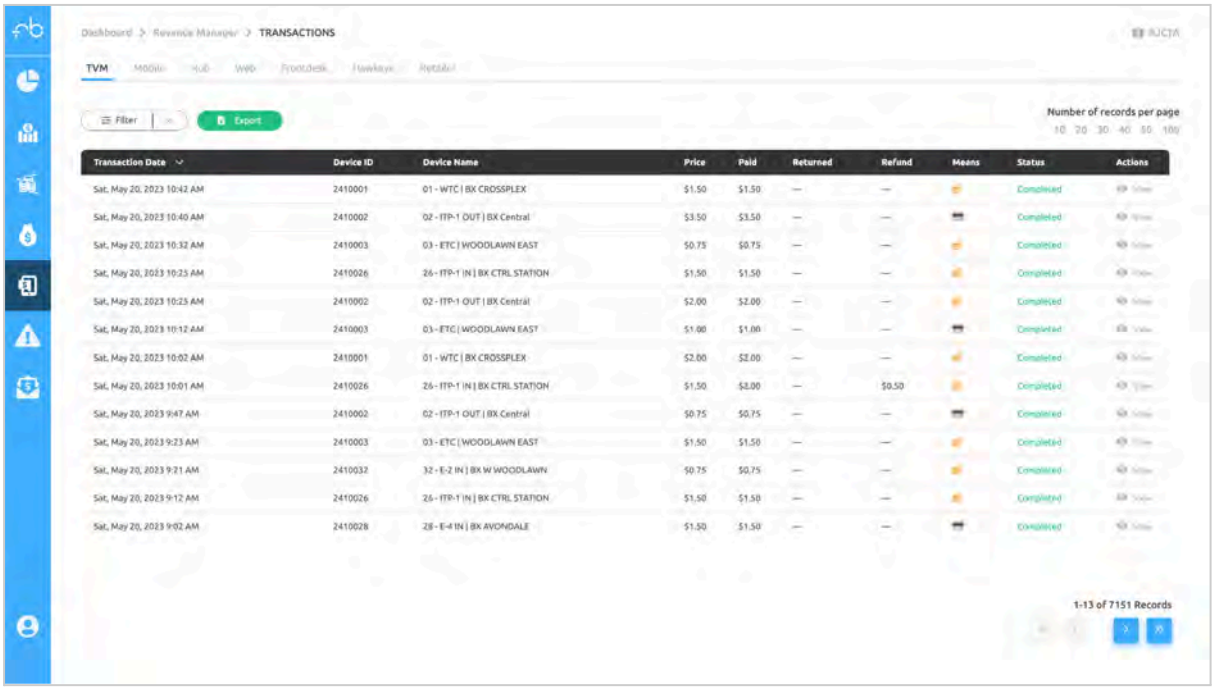
- Logging of attempted use of barred media including location, asset information etc.

5.1.4.1.1.23 Financial Management

One of the Flowbird Hub's primary roles is to process revenue transactions. Revenue reporting is largely provided using Tableau reports from data in the Snowflake data warehouse. Financial reporting can be provided using third party packages, which will be integrated with Snowflake.

5.1.4.1.1.24 Revenue Management

This module allows for the viewing of real-time and past revenue information by each sales channel (TVM, POS, mobile app, etc.). This functionality enables agencies to track incoming revenue for account reconciliation.
You'll note the separation between the TVM revenue, the mobile revenue and the web-generated revenue on the illustration below.



5.1.4.1.1.25 System Configuration and Management

The Flowbird Hub is rich with features that are highly configurable. This allows Flowbird to deliver customized systems to agencies, without custom development.

Configuration of user access, business rules and other aspects of the system have already been covered in previous sections of this proposal.

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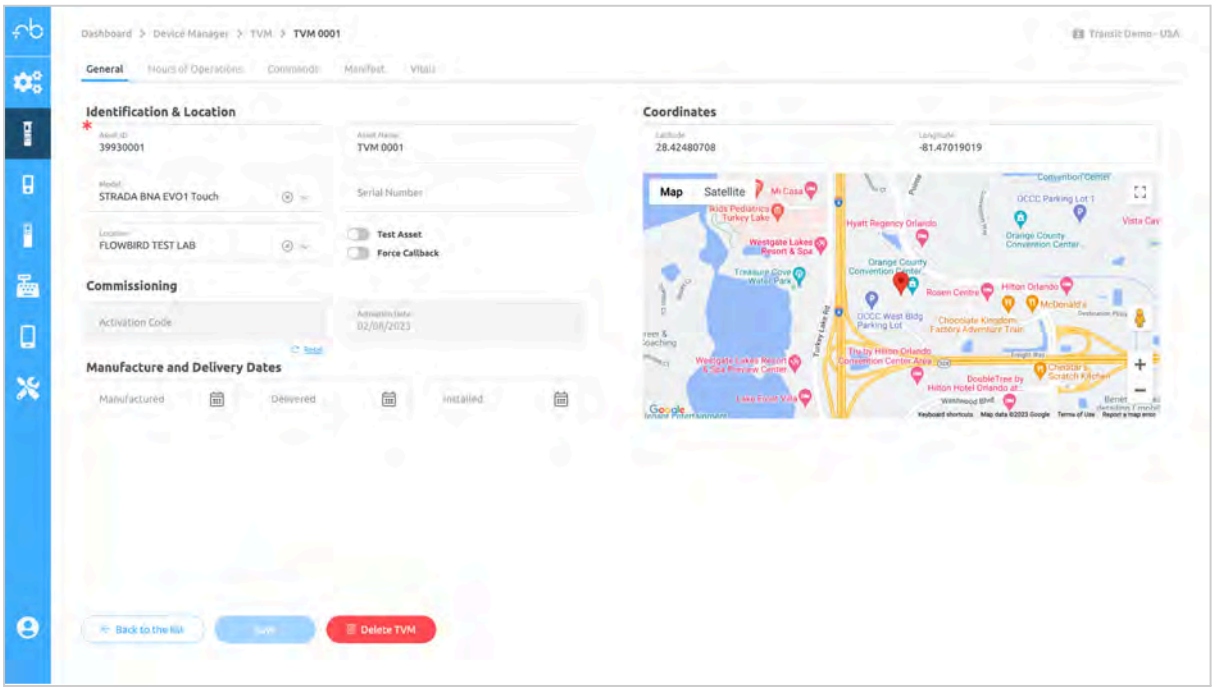
In this section, we'll describe device configuration, which uses several Flowbird Hub modules. Together, these allow authorized users to remotely configure and update equipment, and in real time, monitor its performance.

5.1.4.1.1.26 Device Configuration

The Topology module is used to create locations (e.g., stations, platforms, bus, etc.) to which devices such as TVMs, validators and gates are assigned. This information, such as a map to show the location and status of all devices connected to the fare collection system, which is then used by the rest of the system.
The Devices module manages all aspects related to the definition of the operator's fleet of assets (devices) connected to the Flowbird Hub. This includes configuring the device name,

location and location coordinates (to enable displaying the asset on a map). In addition, a device can be configured with different hours of operation than defined for the fleet in general.

The following diagram indicates how the device configuration is typically presented to the user.

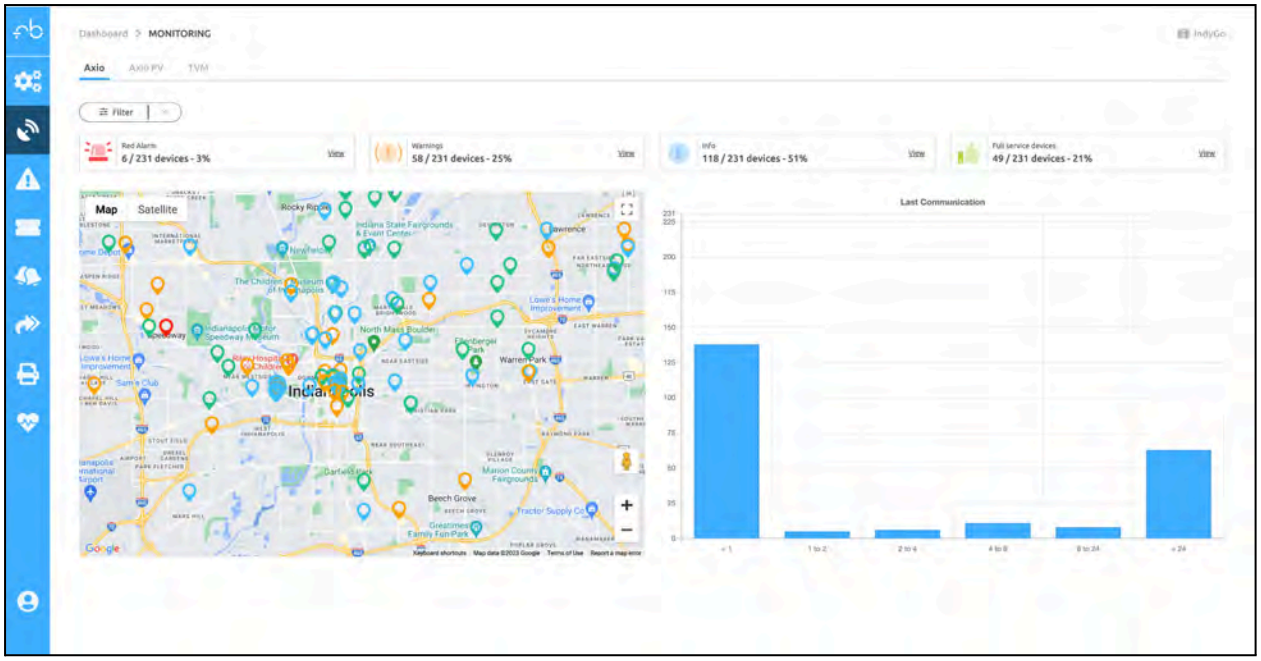


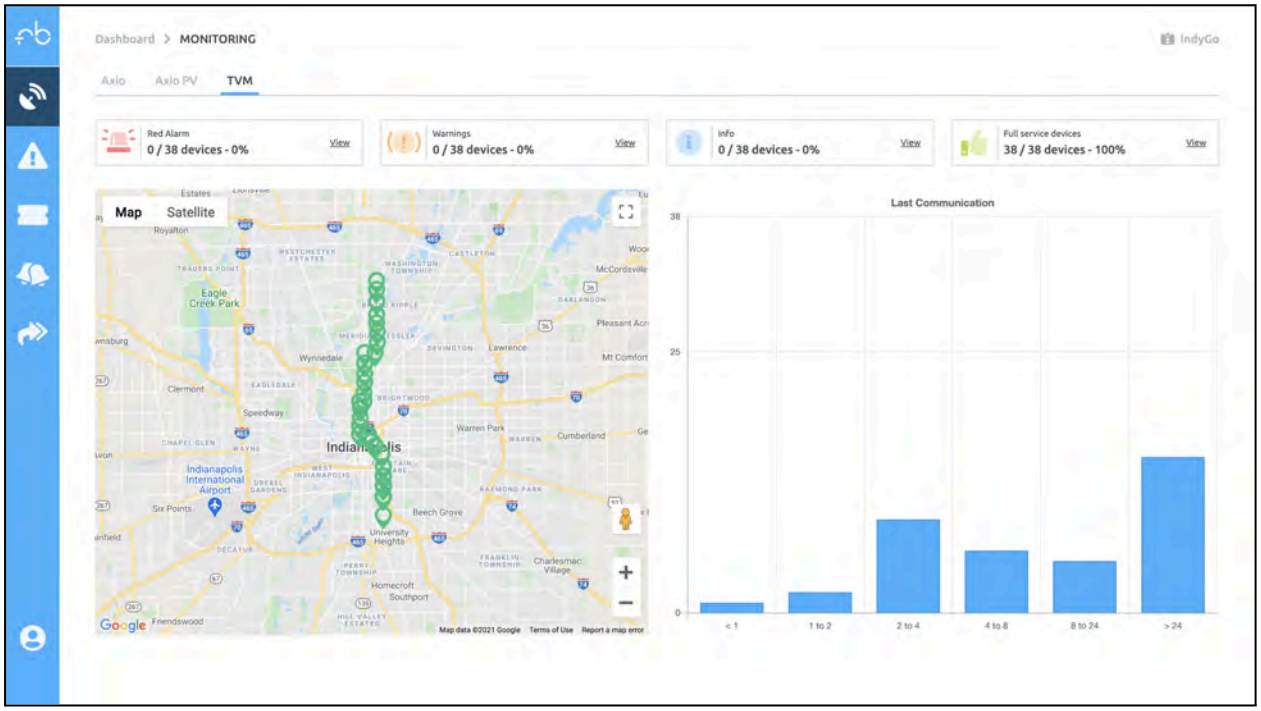
5.1.4.1.1.27 System Monitoring

The Monitoring Service provides a dashboard showing equipment performance for the entire installed base of devices. More detailed information about each device is

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displayed by clicking on the marker representing that device. Users can view both current status and alarm history. Filters are used to search for specific alarms. This is illustrated in the following diagrams.





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5.1.4.1.1.28 Data and Reporting

Flowbird provides an extensive data management and reporting platform to transit operators. The system will be handling large amounts of data in near real-time. Flowbird is therefore providing data warehousing facilities to take data from the Flowbird Hub and make it available for reporting through a variety of tools.

5.1.4.1.1.29 Data Warehousing

Fare collection systems generate significant volumes of data, including fare transaction record, event histories, access logs, etc. This data belongs to the transit operator; Flowbird is simply the caretaker and maintainer of the data for the duration of a services contract.



The Flowbird solution uses two data stores: a primary throughput optimized database (Amazon Aurora) for system operations, and a data warehouse (Snowflake) accessible to transit operator users. The data warehouse contains a copy of the data, current to the previous calendar day and optimized for querying and data-mining activities. This solution architecture means that an operator can have access to its data without impacting the processing speed of the fare collection system, even if compiling complex reports that require significant data-processing power.
The data in the data warehouse is accessed and reported on using the best-in-class Tableau software supplied by Flowbird as an element of the system. In addition, operators can have full access to the data warehouse using their own reporting solution.
Flowbird will produce a System Data Warehouse Design document which will describe how data is to be stored and referenced by the system.

5.1.4.1.1.30 Reporting and Analytics

Reporting in the Flowbird Hub system is robust and incorporates two major features. First, the Flowbird Hub incorporates real-time data and graphics directly in modules. This allows operator personnel to actively review and manage the system.
For more in-depth reporting and data-mining capabilities, Flowbird supplier Tableau as part of the system. Tableau is a premier analytics and data-visualization solution,

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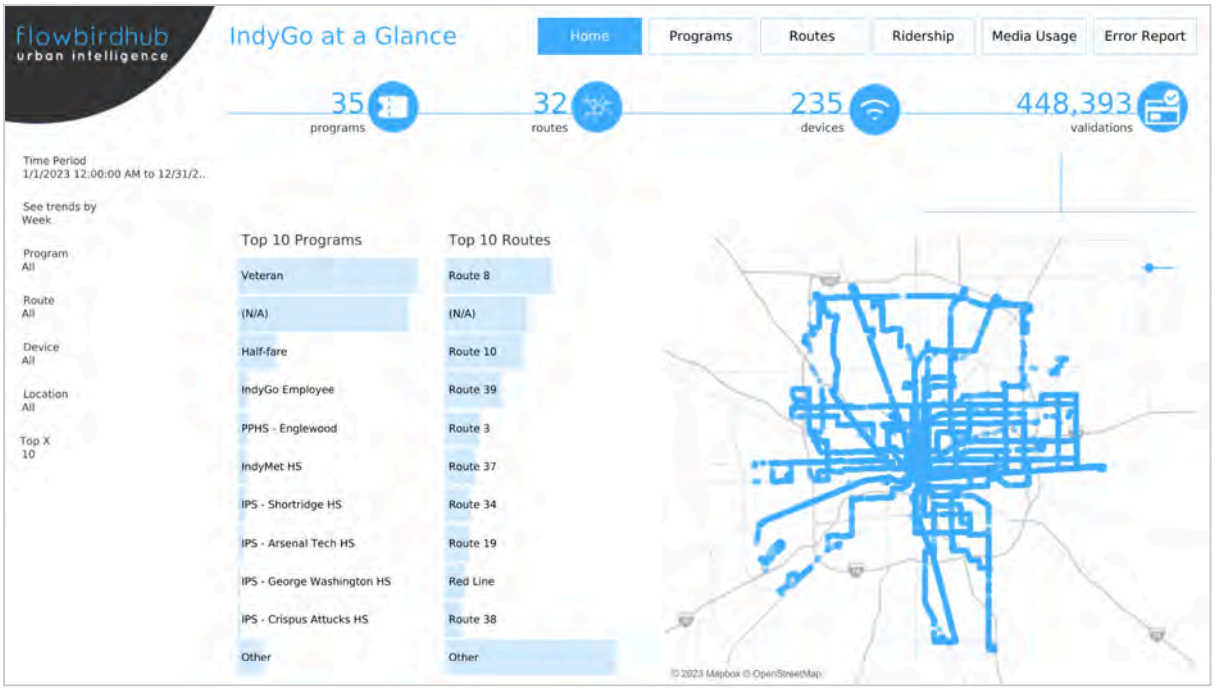
enabling agency personnel to create custom reports, conduct data analysis from multiple data sources, and use data visualization to gain insights into the agency's operations and customers. It is a popular, reliable and economically priced browser-based application.

The Flowbird Hub reporting and analytics system proposed presents a number of key benefits to operators:

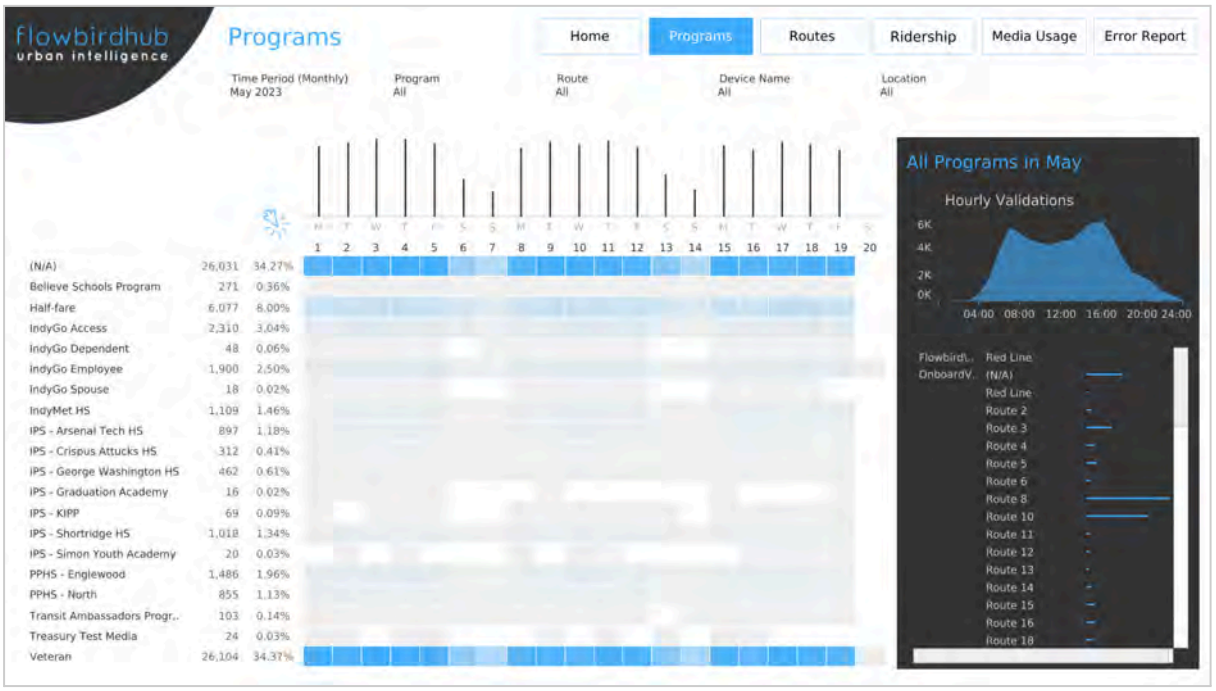
- It is based on the standard, commercial off-the-shelf Tableau package, meaning it is widely understood with and by many additional tools.
- The Tableau system can be rapidly configured by operator staff to provide custom reports to match business needs.
- It is based on knowledge gained by Flowbird's extensive experience of providing transport-ticketing solutions.
- Reporting information is readily exported from Tableau to other operator systems and third-party financial systems
- Simple-to-read financial dashboard reporting provides data for informed operating decision-making.
- Data can be tiered to allow rapid comparisons (e.g., rider numbers, ticket sales, fare income, etc.)

Tableau allows users to create and publish dashboards and explore data using a variety of interactive visualization tools. More importantly, users can ask questions from any connected data source using natural language. Tableau's Dashboard Starters, designed to help users hit the ground running with actionable data in minutes.
Tableau is an established reporting technology standard that enables everyone in an organization to see and understand data, with offerings for every user type. From casual users looking to make data-driven decisions from a published dashboard, to data enthusiasts who want to use web authoring to ask new questions from published data sources, to data geeks who want to create and share their analyses and data sources with the rest of the organization.
Following are sample reports created using Tableau.

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Activity report with geolocalization of the events



Activity on the transportation network with a focus on the usage of programs

5.1.4.2 Website and Mobile Applications

5.1.4.2.1 Mobile App

Flowbird has extensive experience across the globe designing mobile apps for fare payment applications. Our mobile app is one of the many fare sales channels

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supported by the Flowbird Hub. It is a white-label product, configured with the color scheme, logos, web links, etc., which will match transit operator's corporate identity. The design complies with existing accessibility standards and supports the Android operating system's native voiceover features. Customers can download the application from the Apple or Google app stores, where it will be made available as the operator Transit Ticketing App (or whatever branding is selected by the operator).

Flowbird will tailor the app for the operator's particular needs. We have experience doing this with other transit agencies, so bring a lot of knowledge and experience in creating a world beating user experience for operator riders.

Key advantages to riders

The Flowbird Mobile App presents a number of key advantages to riders:

- The user interface design leverages Flowbird's vast experience in developing apps for other transit agencies
- Flowbird will involve rider interest groups in development of the app
- Payment services will be easily accessible for riders allowing them access to a range of services including creating or topping up accounts
- Easy integration with future services such as rewards schemes encouraging riders to use transit operator services

Key Advantages to Transit operators

The Flowbird Mobile App proposed presents a number of key advantages to operators:

- A existing proven application that will be configured to operator's specific requirements,
- A white label app which can benefit from Flowbird on-going developments without incurring significant additional costs for an operator
- Providing an opportunity to generate advertising revenue for an operator
- Access to the US based Flowbird App team for future developments

Customers use the mobile app to set up an account for maintaining funds in a stored-value purse, purchase fares, and to view their transaction history. They then use the mobile app's dynamic digital QR code as a credential to ride. The mobile app is supplied in both iOS and Android versions, providing the features and functions expected by transit agencies. Customers find the application very familiar and easy to use, since the user interface consists of layouts, functions and processes that are common to many other mobile applications.

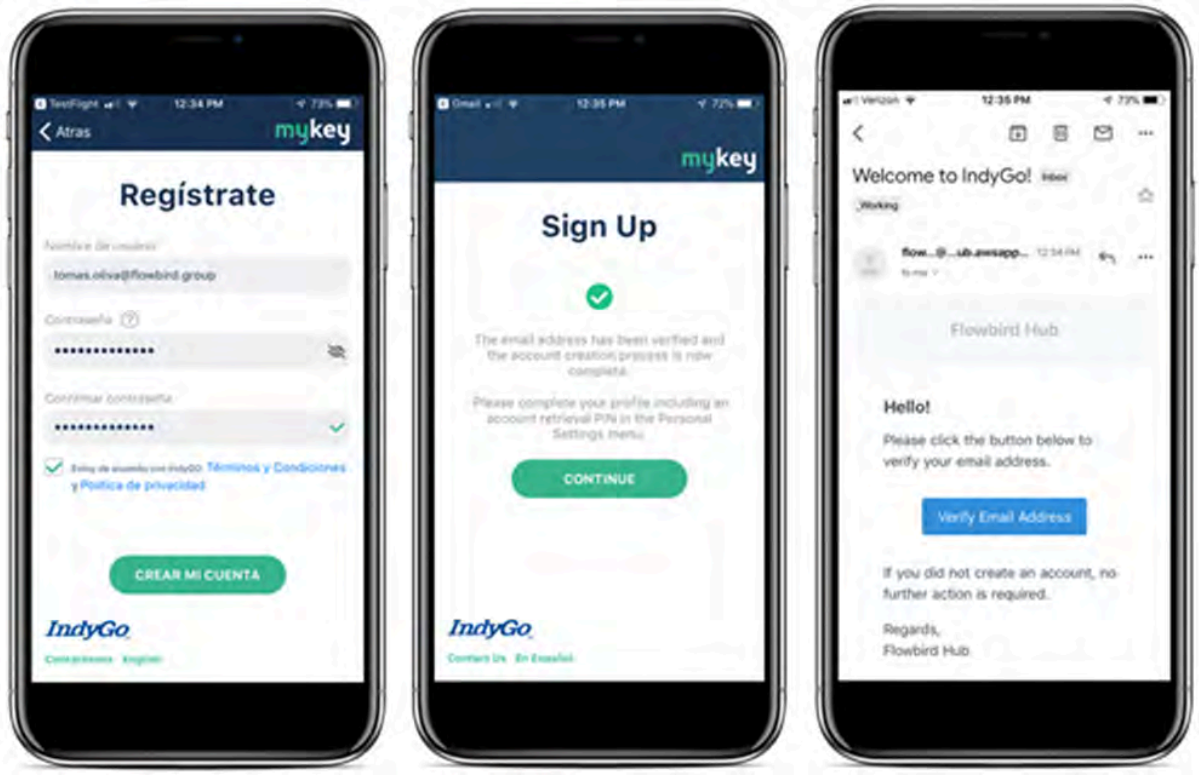
While feature-rich, the mobile app's user interface is based on a minimalist design for graphics and text, as a cluttered screen is difficult to use. The selection keys are logically organized and well-spaced to limit the chance that a customer will press one

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or more keys incorrectly. The concept of a shopping bag is used to enable the purchase of more than one fare or product during a single transaction.

5.1.4.2.1.1 Launching the App

During the initial launch of the mobile app, following its download, customers are presented with the options to log in or sign up. Customers can also use the application without registering, a feature intended for one-time or infrequent transactions when a customer does not want to set up an account. However, in that case, customers don't get access to all of the mobile app functions and features, such as the ability to save a payment method.



Customers can manage their account via the personal settings menu, where they can:

- Choose a password (following industry best practices, passwords are encrypted using a Flowbird-defined algorithm before being sent to the Flowbird Hub).
- Add a credit card on file.
- Manage subscriptions to receive email and/or SMS alerts.
- Check or delete history of ticket purchase dates, times and amounts.
- Delete their account.

Flowbird fare collection systems support the use of profiles to get access to reduced fare pricing. This feature is accessible not only through the mobile app, but also using the Customer Web Portal, Flowbird Hub CRM and the FrontDesk POS application.The system offers three ways for a profile to be assigned to a customer :

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- Immediate enrollment using a code provided by the operator. The code is defined in the configuration of the discount fare program and presents a validity period as well as a number of uses..
- Submitting an enrollment request using a code. The program is configured to allow the patron to use a code to request the enrollment but an operator customer representative will first have to validate the request.
- Manual enrollment. Operator customer service representatives will have access to CRM on Flowbird Hub (or the FrontDesk POS) and will have the ability to assign profiles to patrons.

5.1.4.2.1.2 Mobile Payment Configuration

To pay for tickets, customers can either enter payment information during the check-out process, or use a stored payment means. Payment options are credit cards as well as branded (Visa, MasterCard, etc.) debit and prepaid cards.
Setting up a stored payment makes the purchase of future tickets faster and more convenient. To maintain an uncluttered user interface, the number of payment methods registered to a user is limited to five by default. However, this limit can be adjusted. Expired cards are automatically removed from the list of available payment means.

The payment-means registration process is based on an API provided by Flowbird's payment processing partner and is compliant with PCI Data Security Standards (PCI DSS). The mobile app sends the registered card information to the payment processor and receives a token in return. The application only stores the data needed to perform the transaction payment as permitted by PCI DSS. Neither the mobile app nor the Flowbird Hub store the credit card information.

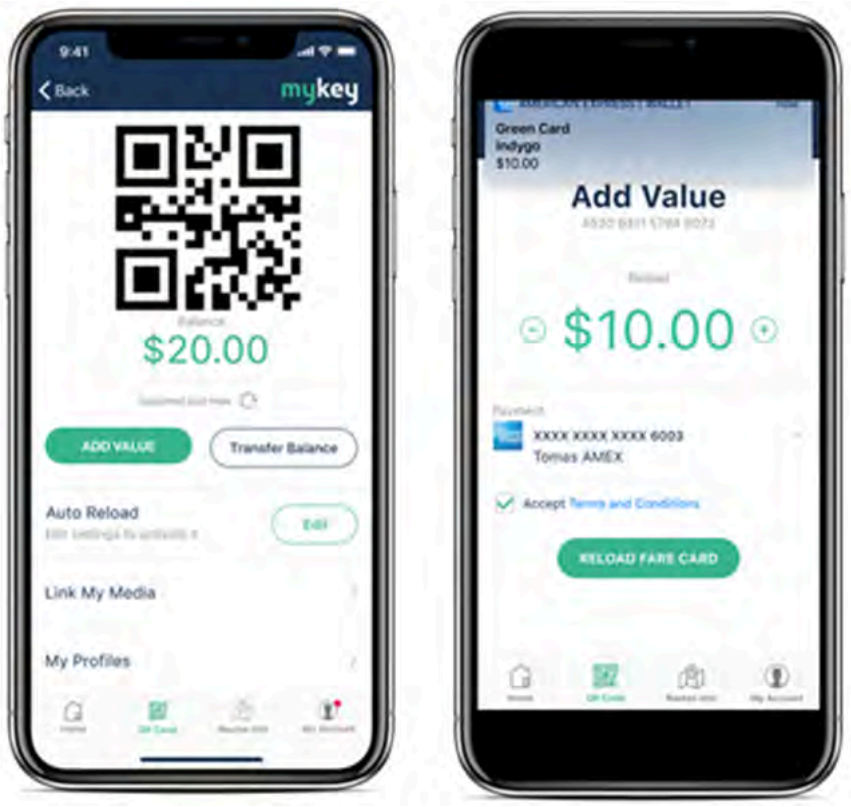
5.1.4.2.1.3 Transaction History

A purchase and transaction history is available for customers to see all purchases made from their account. When the history records are accessed, the mobile app checks with the Flowbird Hub to make sure the list of displayed items is accurate. Typically, this list is limited to the 10 most recent items, although the number of items on the list is configurable.

5.1.4.2.1.4 Addition of Account Funding via Mobile

To add funds to their account, customers simply select the amount they wish to add to their account and confirm if they wish to proceed with the transaction.

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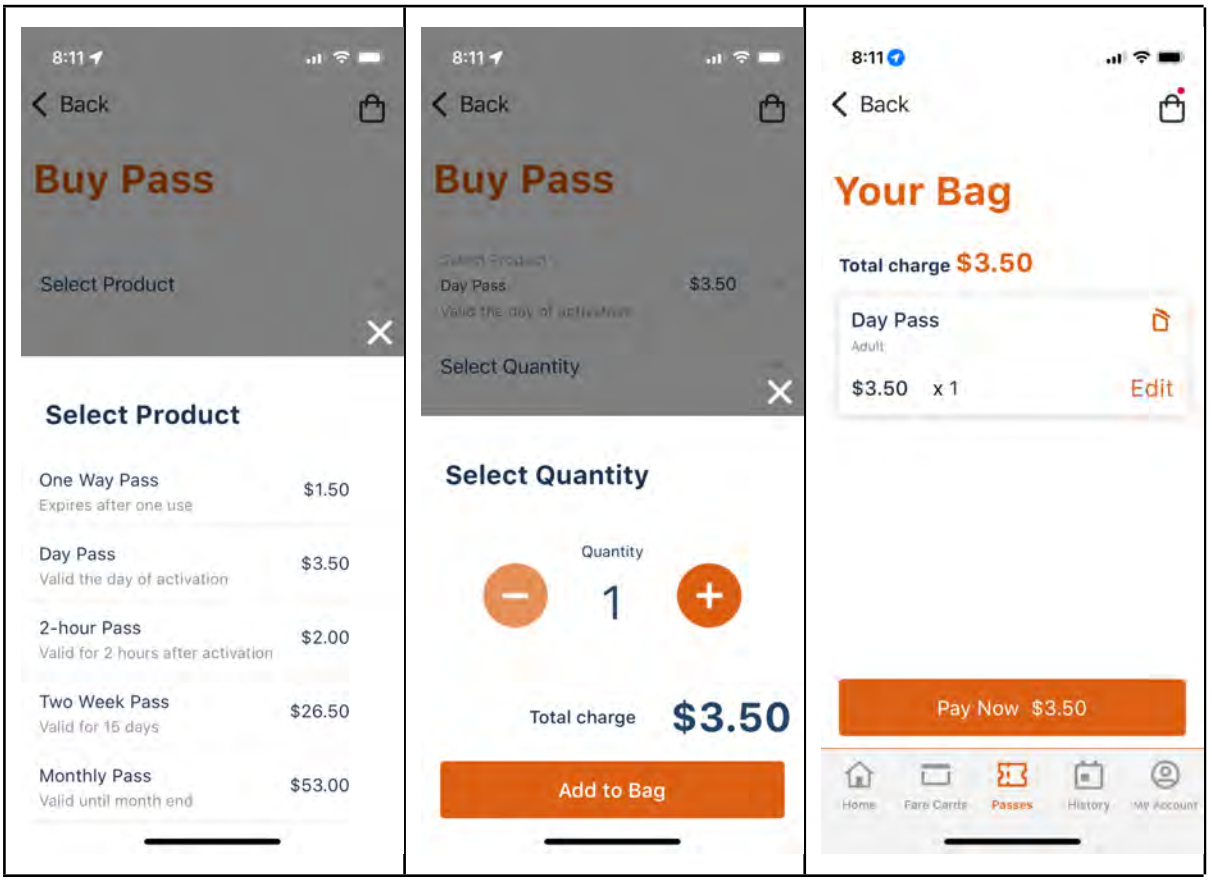
5.1.4.2.1.5 Buying Tickets via Mobile

Customers purchase tickets following the same process users are familiar with when buying products or services online. The choice of fare products (referred to as passes) as well as the time they can be used (at time of purchase, when activated, some time or specific days in the future, etc.) is configurable by the agency using the Flowbird Hub ticketing service. The steps to purchase products are:

1. **Select a provider.** The Flowbird platform natively supports the notion of provider. This allows the operator to offer fares related to other service providers (e.g., microtransit services) or transit partners. This feature can be disabled by configuration if not needed.
2. **Select a product.** The product is the type of pass (e.g., single ride, day pass, 31-day pass, etc.). The number of products an agency can create and maintain using the Flowbird Hub ticketing service is unlimited.
3. **Select a concession.** The customer selects the rider category to which they belong (e.g., adult, child, senior, etc.), which determines the pricing for the passes available for sale. This step is not used if the customer belongs to an institutional fare program (e.g., a college student) or the agency requires verification of discount fare eligibility. In that case, the pricing presented for the passes available for purchase is based on the program to which their account is linked.

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4. Select quantity of tickets. The maximum number of tickets for a same product is configurable in the Flowbird Hub ticketing service. By default, the most common limit is set to five tickets.



Once the selection process is complete, the customer is offered the opportunity to review the pass details and to confirm its addition to the shopping bag. The shopping bag can be accessed via an icon located on the top right corner of the screen. A red dot over the icon means that the bag contains items. Tickets or passes located in the shopping bag can be edited to change the quantity.

The “Pay Now” button at the bottom of the shopping bag content review page takes the customer to the checkout phase. To pay for tickets, customers use a stored payment means or enter the details of a payment method.

Immediately following the payment, the mobile app sends the transaction to the Flowbird Hub, which responds by supplying the values to be used to generate the ticket ID, QR code and other security features.

While purchases can only be made when the phone is online, purchased fare products stored within the application can be activated and used even if the phone is offline.

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5.1.4.2.1.6 Traveling with the App

When fare capping is implemented, travel is very easy for customers; they do not need to pre-purchase or activate a fare. Rather, they simply scan the QR code in their mobile app, which represents their account, from which the proper payment amount is then deducted. The QR code changes every three seconds to ensure account security.



When a customer is ready to ride, they can easily select their purchased ticket(s) and activate them, even offline. The activation and access to an activated ticket are based on a validity schedule defined for the product in the Flowbird Hub. This mechanism prevents a user from activating or accessing a non-rush-hour pass during the rush-hour period, for example, or a weekend pass to be used during weekdays.

Digital tickets include fraud-prevention features such as updated purchase and expiration dates and times as well as dynamic animations for visual enforcement. Here are some of those features:

- Multi-layered animation. The vehicle, clouds, trees, birds and background skyline are animated.
- Touch. Tapping the screen will reverse the motion direction.
- Rotating QR code. When enabled, the QR code is refreshed every three seconds.
- Product code. A large letter can be used to differentiate each product type.
- Remaining duration. A progress bar provides a visual representation of how much longer the ticket is valid.

The color scheme and the design of the animated vehicle are configurable at the Flowbird Hub. Each product can be defined with a different color and animation.

5.1.4.2.2 Customer Website

Transit operator customer websites complement mobile apps, allowing account access via a web browser. The site can be configured to allow for printing or emailing tickets, perfect for those users who may not have a smartphone. Similar to the mobile app, the customer website is a white-labeled product that will be deployed with operator brand colors and logos.

A common user experience will be created providing riders with an easy to use system which will be consistent wherever they are accessing it from.

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Flowbird has a customer experience team which has created websites for a large array of transit agencies for parking and transportation ticketing. This includes creation of systems for some of the largest transport agencies and authorities in the world.

Key Advantages to riders

The Flowbird Customer Website proposed presents a number of key advantages to riders:

- The user experience will present as similar a user experience as possible to the mobile app
- Flowbird will involve rider interest groups in development of the customer website as with the mobile app
- Potential linking with third party services to provide customers with information (e.g. tourist information, future events and travel updates
- Payment services will be easily accessible for riders allowing them access to a range of services including viewing balances, creating or topping up accounts, autopay etc.
- Easy integration with future services such as rewards schemes encouraging riders to use transit operator services

Key Advantages to Operators

The Flowbird Customer Website proposed presents a number of key advantages to operators:

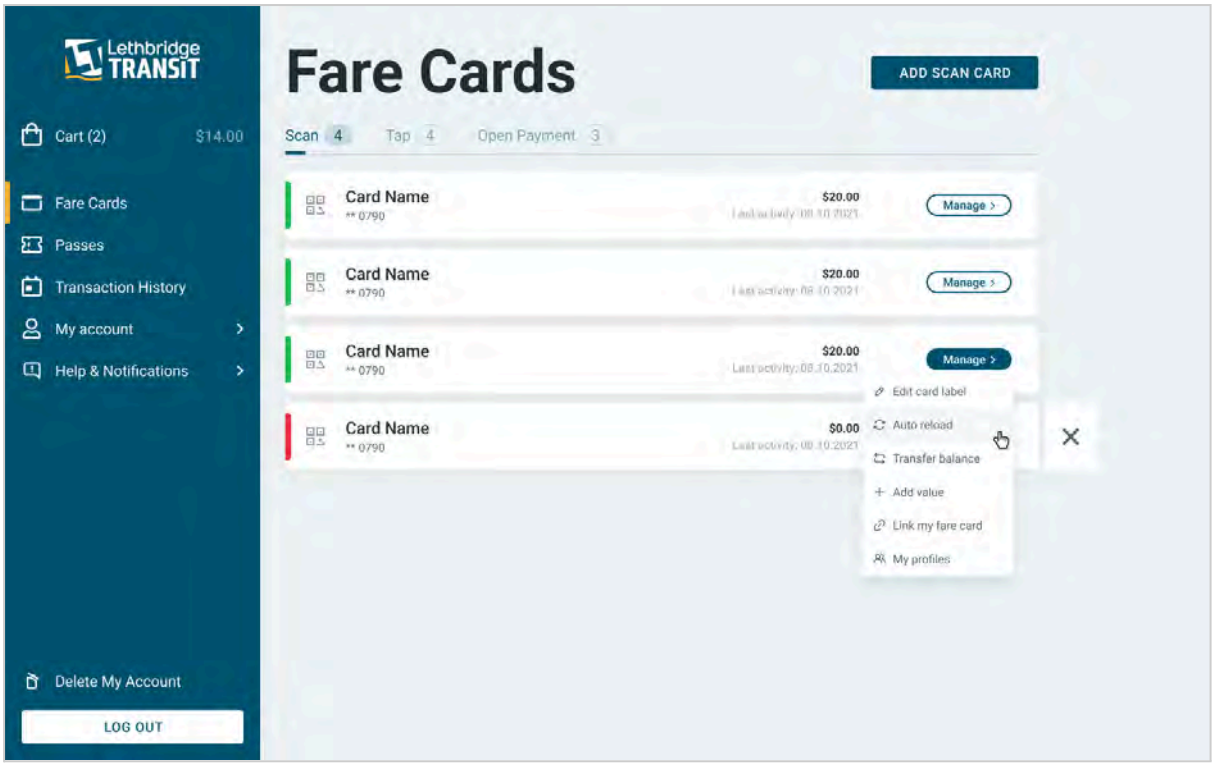
- A customer website will be developed jointly with the operator and their marketing groups to ensure a consistent message to riders with the mobile app
- Providing additional advertising revenue potential for operators
- Easy creation of special offers and rewards to encourage riders on the operator network
- The printing and distribution of tickets will ensure riders without access to a smart phone can still use online services
-

Customers can set up an account or access one created previously. The credentials are the same as used for the mobile app; thus, customers can, at any time, choose to access their account using the platform that is best for them. As with the mobile app, users can complete the following tasks on the site:

- Configure their accounts
- Add/change payment methods
- Purchase tickets and passes
- Review transaction history

Customers can also manage the fare media associated with their account. This feature is also available on the mobile app.

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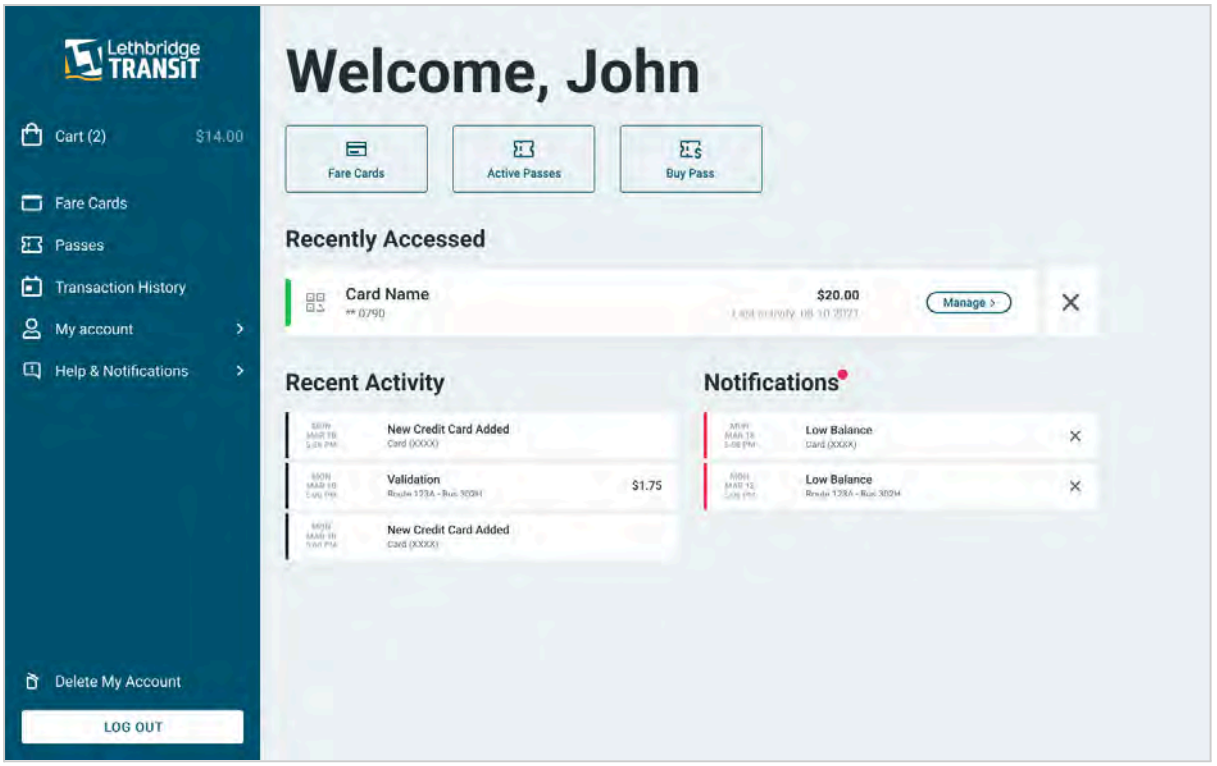
As with all other Flowbird modules, the customer website connects to the Flowbird Hub for seamless solution management. The homepage of the site presents an account dashboard with navigation links at the top and to the left to allow navigation within the different menus.

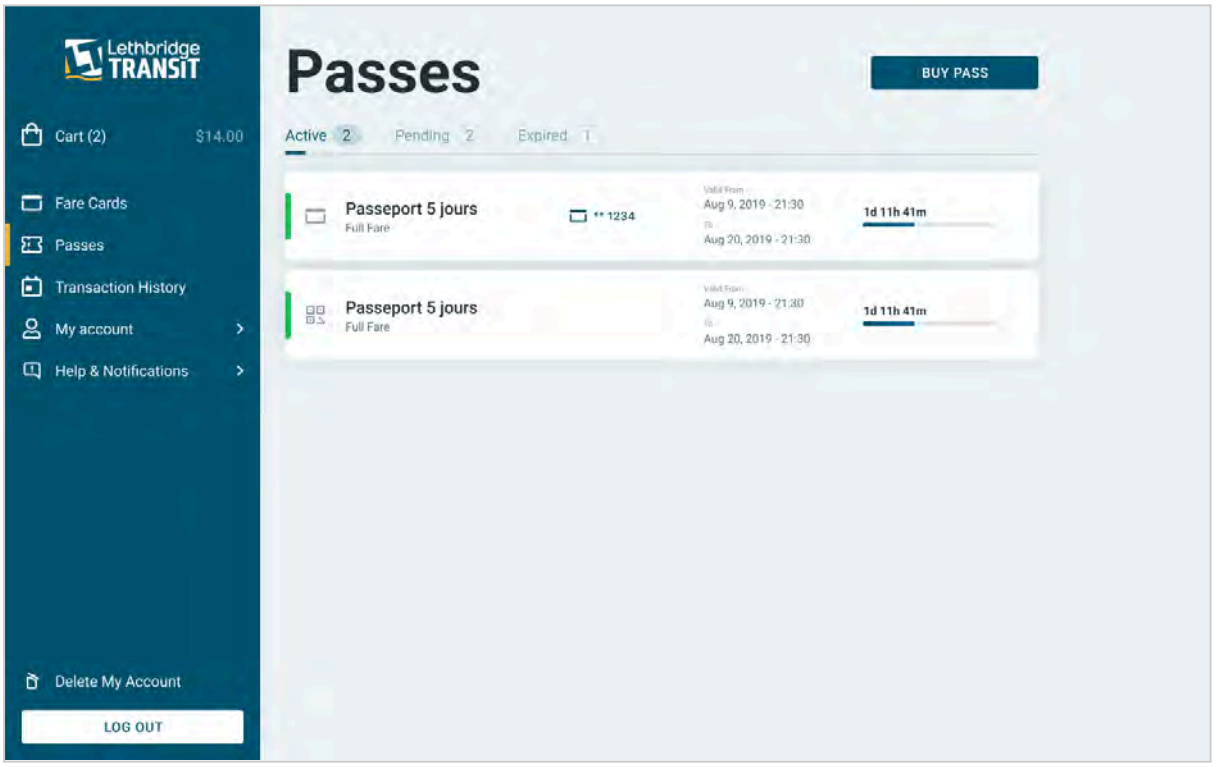
To use the customer website, an account must be registered using, at least, an email address. By creating a personal account, customers are able to manage fare cards online and on their mobile device, as well as protect their fare card balance. If a card is registered and is lost or stolen, operators can freeze the remaining balance and transfer it to a new card. With a personal account, customers can also set the default language displayed when they log into their account.

Customers can associate one or more of their smart card credentials and the mobile ticketing application with their account. Once they have obtained a transit operator smart card (or downloaded the mobile app), they will be able to purchase fares for their account and link them to a specific smart card credential (or mobile app). Where fare capping has been implemented, they will add funds to stored-value accounts associated with specific fare media in their account.

The customer website also provides registered customers with online account-management tools, with which they are able to check balances or stored passes and view their ride history.

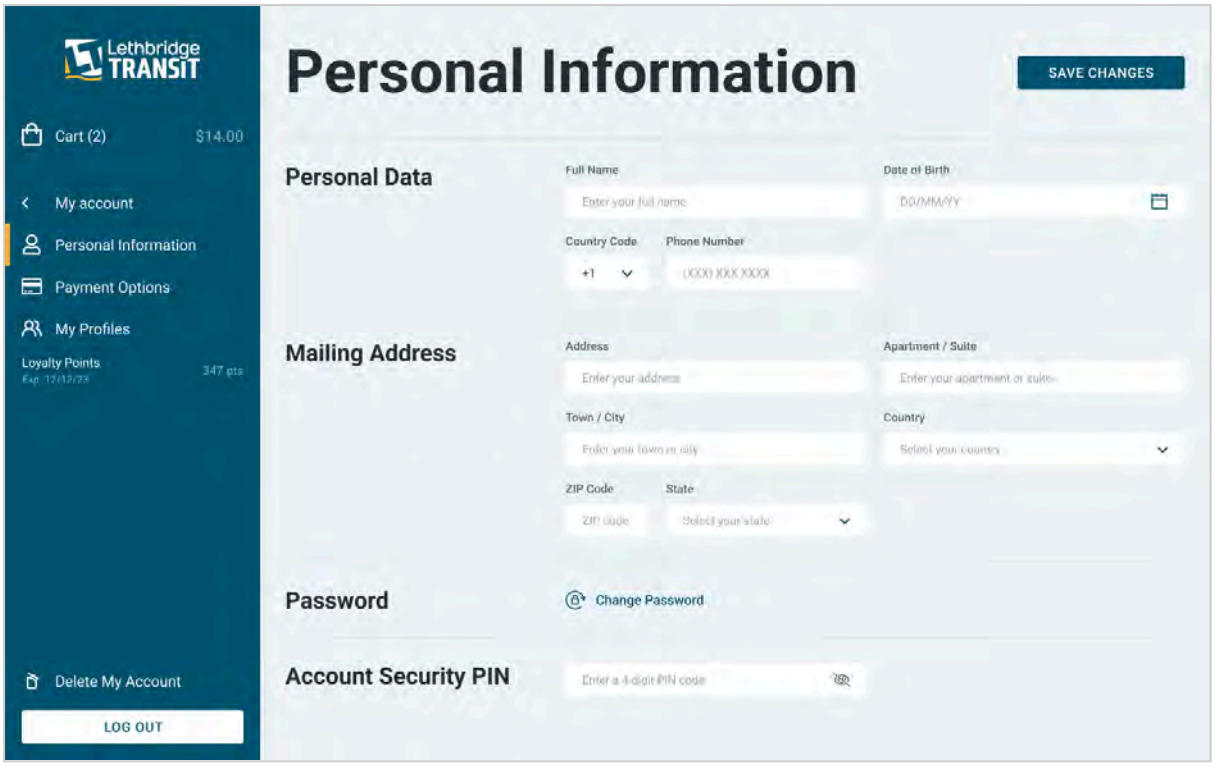
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Located at the top of the left navigation menu, the "Passes" link provides access to the list of tickets held on a customer's account.

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Personal data customers can input to the system. The only required field is the email address that serves as the unique identifier for the account.

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5.1.4.3 Onboard and Platform Validators



Flowbird Axio validator installed on the Monaco bus system, supporting Open Payment as well as validating Flowbird's Monapass MaaS application.

The Flowbird Axio validator is a state-of-the-art device benefitting from the latest generation of embedded processor technology, running the Android operating system. It includes both the most sophisticated contactless smartcard interface electronics on the market today and an encrypted barcode scanner.

The Axio validator will be supplied in two different form factors. The electronics, functionality and certifications are the same across both models.

The architecture of the new validator is based on the Flowbird Axio platform and offers fast and reliable processing capacity for all media allowing travel on public transit using closed-loop smart cards, contactless bank cards, QR codes and NFC media. The contactless reader is PCI PTS and EMV Level 1 and Level 2 certified for payment.

The Axio is Flowbird's fourth-generation, state-of-the-art open-platform validation device that includes the following attributes to make it user-friendly for all riders:

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- The IPS color, 5” high-brightness TFT touchscreen and backlit display ensures optimal visibility.
- The display, colors, messages, action and dynamics of the transaction are configurable.
- The validator is fitted with a speaker and an internal amplifier.
- The device runs on the Android operating system.
- The contactless target is fitted for smart media and contactless bank card payments.
- A barcode/QR code scanner is included.
- Communication is via an Ethernet connection to an on-board cellular router or existing wired Ethernet. The validator includes an internal daughterboard to provide WiFi communication as back up, as well as Bluetooth capability.
-

The Axio validator is certified and tested to a broad range of standards applicable to on-board and off-board electronic equipment, as well as banking security standards required for the processing of bank card transactions. The Axio validates contactless smart card credentials as well as paper tickets with a QR code and tickets purchased on the mobile app. The validator also allows for quick and reliable fare payments using contactless EMV bank cards and NFC-enabled mobile wallets.

Key advantages to riders

The Axio validator presents a number of key benefits to riders:

- A very reliable device that riders can be confident will operate in all conditions (even if data communication systems are inoperative for any reason)
- A common user experience between gates, platform and bus validators, making it easy for riders to access the device
- An easy-to-read display with audible alarms providing clear information to riders when they travel
- A simple user experience designed to allow riders to quickly use the device and travel on their way
- A flexible product allowing use of closed-loop and contactless cards, paper tickets and mobile devices, depending on riders’ personal preference for payment

Key advantages to operators

The Flowbird Axio validator presents a number of key benefits to transit operators:

- A proven device with many applications running successfully in the field around the world
- A common platform and bus validator design ensures simple and quick maintenance and servicing of the unit
- Platform, bus and platform validator devices are designed to be secure but easily accessible when required

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- Validators are easily integrated into buses and gates or on platforms, thanks to simple interfaces
- Flowbird's experience with validators has led to a robust design resistant to both vandalism and normal wear and tear
- The device can be easily replaced, if required
- The certified contactless reader is a stand alone module that can be replaced, should PCI SSC, EMV, banking or other applicable standard updates require hardware changes to payment terminals. The whole validator does not need to be replaced.

5.1.4.3.1 Axio Validator Hardware

The validator contains:

- A main electronic board and its daughter boards
- An EMV contactless card reader
- A QR code reader
- A speaker for tones or voice messages
- A 5" color touch display with light sensor and red, yellow and green LEDs

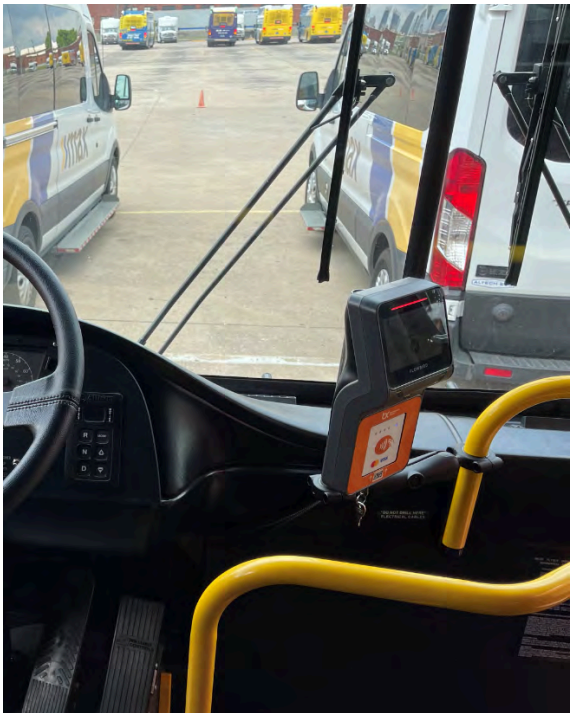
There is an LED bar at the top and front face of the device that is used to give transaction indications to customers. Combined with the configurable messaging on the primary screen, the Axio clearly communicates to riders the status of their transaction.



An example of Axio display messaging and use of LED bar used to communicate idle, validation OK and validation KO status.

The Axio is designed to be user friendly and provide a full range of services to riders using it. The device can be used as a bus validator, platform validator or faregates validator.

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Axio BV on-board validator at MAX Transit in Birmingham



Axio PV platform validator at SNCF (French railways)

We will supply the Axio in its on-board (pole mounted) and panel mount (for platform validator and gates) form factors. As an option, the on-board validator can also be supplied with a wall mounted adaptor.

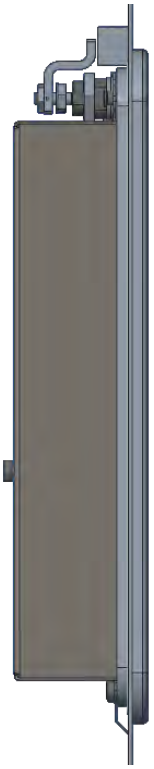
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Axio pole mounted on-board validator

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Axio panel mount validator, used for the platform validator and in the Saima faregates



Flowbird Axio panel mount validator, installed in the platform validator



Flowbird Axio panel mount validator, installed in the Saima faregate.

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housing.	





Flowbird Axio on-board validator, with a wall mount adaptor.

5.1.4.3.2 Contactless Card Reader

A key component of the Axio validator is the Flowbird A1000 contactless card reader. It is used not only in the Axio validators, but also with our TVMs and parking pay stations for contactless bank card payments. It is certified as PCI-PTS 4.0 and EMV L1 L2 (Visa, Mastercard, Amex and Discover) compliant and is a critical component of the Open Payment by Flowbird solution. The reader handles contactless EMV and supports the ISO 14443 standards (A and B) as well as the ISO 15693 standard.

5.1.4.3.3 Fare Payment Validation

The Flowbird system makes extensive use of local lists and other checks to enable both closed loop and Open Payment validations even if communications with the central system are lost. For Open Payments, we take advantage of the rules the card networks have established to allow offline transactions while still protecting operators from declined transactions. Real-time online validation is carried out only if local validation cannot be completed (e.g. the fare media is not on any of the locally stored

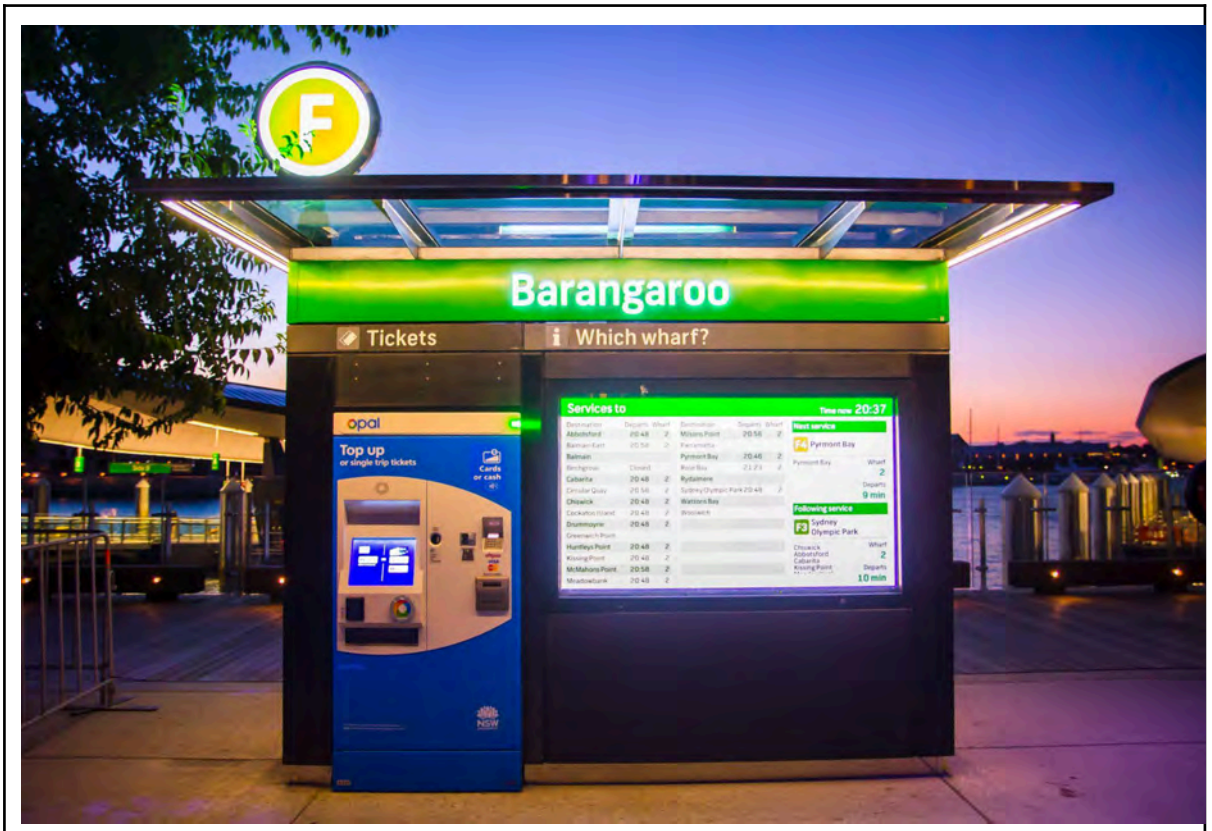
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lists). The normal process is a) validate locally b) send the transaction in near real time to the central system c) update local lists regularly (configurable period, for most of our customers it is every 15 minutes for the complete fleet of validators). This approach has the benefit of speeding up transactions, all the while ensuring that riders have paid their fare.

5.1.4.4 Ticket Vending Machines

Flowbird manufactures a range of TVMs to suit differing transit operator requirements.

5.1.4.4.1 Astreo TVM



Flowbird Astro TVM at the Sydney Barangaroo ferry terminal

Flowbird can supply the latest generation of our Astreo TVM to operators as part of a fare collection system. The Astreo has been very successfully proven in many countries around the world in a wide variety of operating conditions. The Astreo is extremely reliable and very secure for use in unattended environments.

The Flowbird Astreo TVM is a full-size TVM designed for very high-capacity, self-service sales. Building on the experience of an installed base of thousands from

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previous generations of Astreo TVMs, the current generation incorporates significant improvements over previous models while retaining the design and components that have proven to be most effective and reliable over years of extended operation. It is a very rugged machine and, with regular preventive maintenance, will give many years of proven reliable service.

Key advantages to riders
The Astreo TVM presents a number of key benefits to riders:

- A flexible TVM with a User Experience tailored to particular requirements
- A device designed with ADA requirements in mind to ensure it can be used by all riders
- A device which supports a wide range of payment options for riders
- The TVM can provide riders with up to date information about their accounts
- Riders can obtain their transit cards at the TVM, avoiding the need for riders to obtain these tickets from the ticket office or by mail.

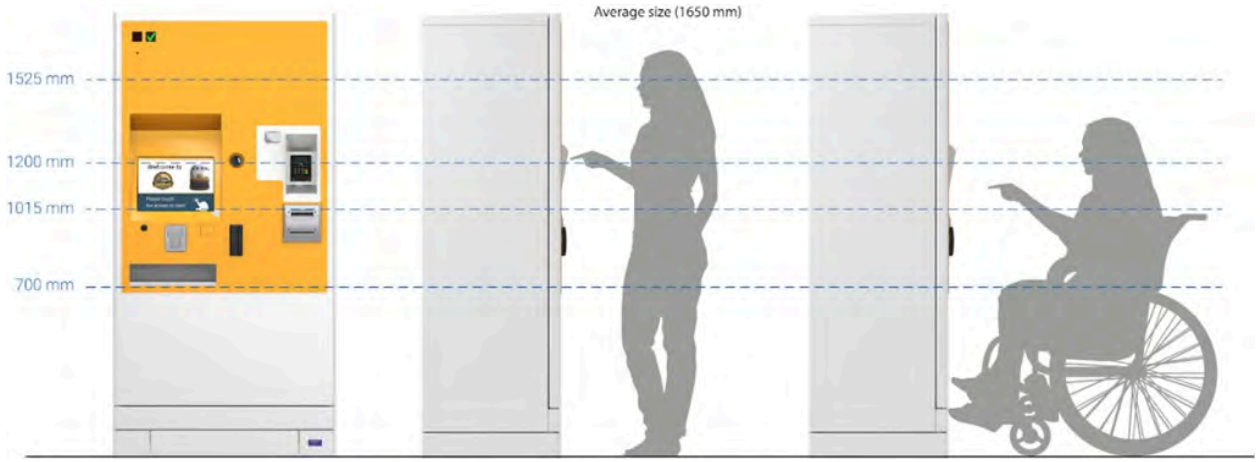
Key Advantages to Operators
The Astreo TVM presents a number of key benefits to operators:

- The TVM is of a very robust design ensuring it is resistant to attack or extreme environmental conditions
- The TVM can operate in degraded mode if the device runs out of change for instance
- The TVM can continue to function if communications to the Flowbird Hub fail for any reason
- The Astreo ticket stocks can easily be replenished when required
- The TVM warning and alarm system provides advanced information to operator staff when the device needs attention (e.g. low banknote, change or ticket stocks)

5.1.4.4.2 TVM Accessibility

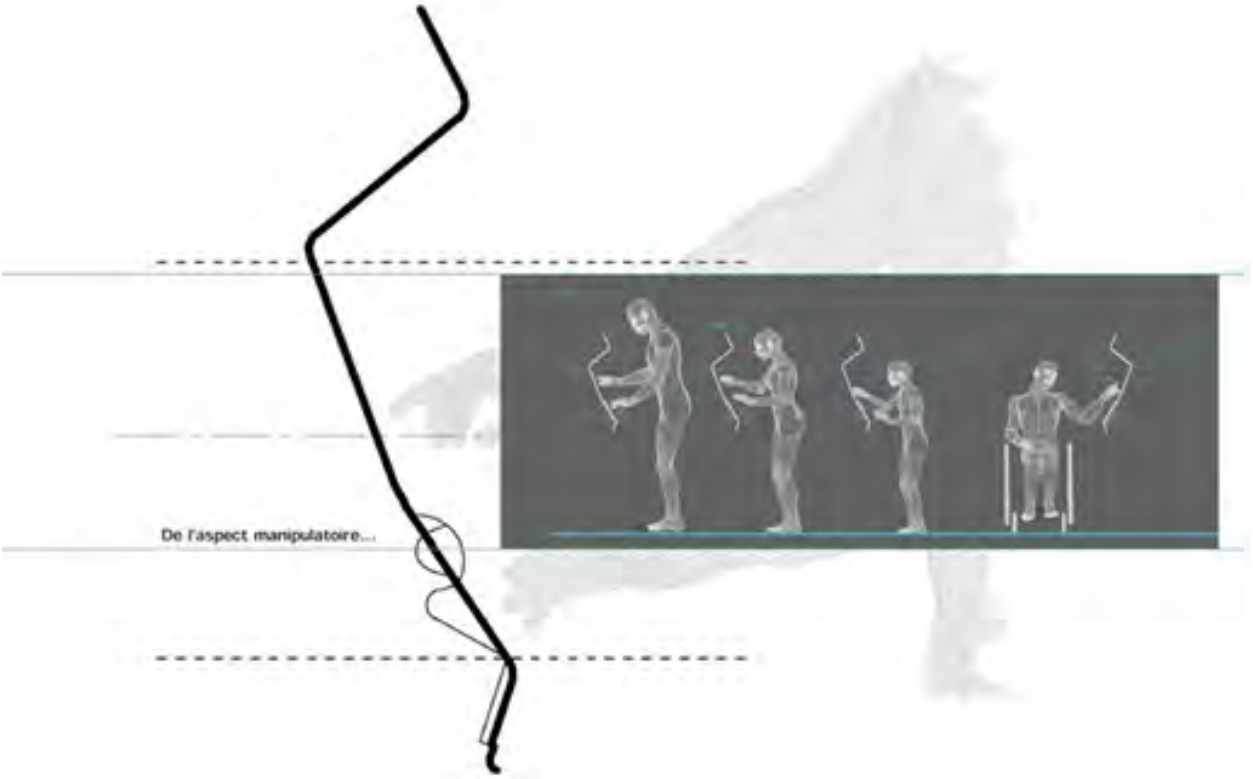
The Astro TVM is compliant with ADA regulations. The user interfaces on the TVM are all within the acceptable range (15 inches/380 mm to 48 inches/1220 mm).

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The Astreo TVM includes Braille stickers and raised text to help visually impaired users to locate the different interfaces to be used during a transaction.It includes an audio assistance mode that can be accessed via the loudspeaker and/or the audio jack for use of personal headphones.

The screen of the TVM is recessed and tilted to improve usability and visibility. Around the screen embossing marks on all edges help to locate specific areas.



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The entire user interface is recessed to help privacy during transactions and shade the screen from the sun. In particular, the bank card reader and PIN keypad have been positioned as close to the passenger's body as possible to reduce the risk of theft and narrow the PIN keypad viewing angle, to help protect the passengers' PIN. The convex mirror located on the top left corner on the payment terminal will improve the passenger safety during the banking transaction.

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5.1.4.4.2.1 Key Components



One of the strengths of the Astreo TVM is that it is highly configurable and able to address a wide range of requirements without needing a custom hardware design. The reliability of the Astreo TVM and its components is well known and documented. The Astreo TVM has the following features:

- Customers can use bills, coins, contact and contactless bank cards, as well as bank cards stored on mobile wallets such as Google Pay and Apple Pay, to either add funds to their stored value accounts or purchase fare products.
- The Crane Payment Innovations' MEI BNR bill acceptor and recycler system, with a high-capacity bill vault (600 bills).

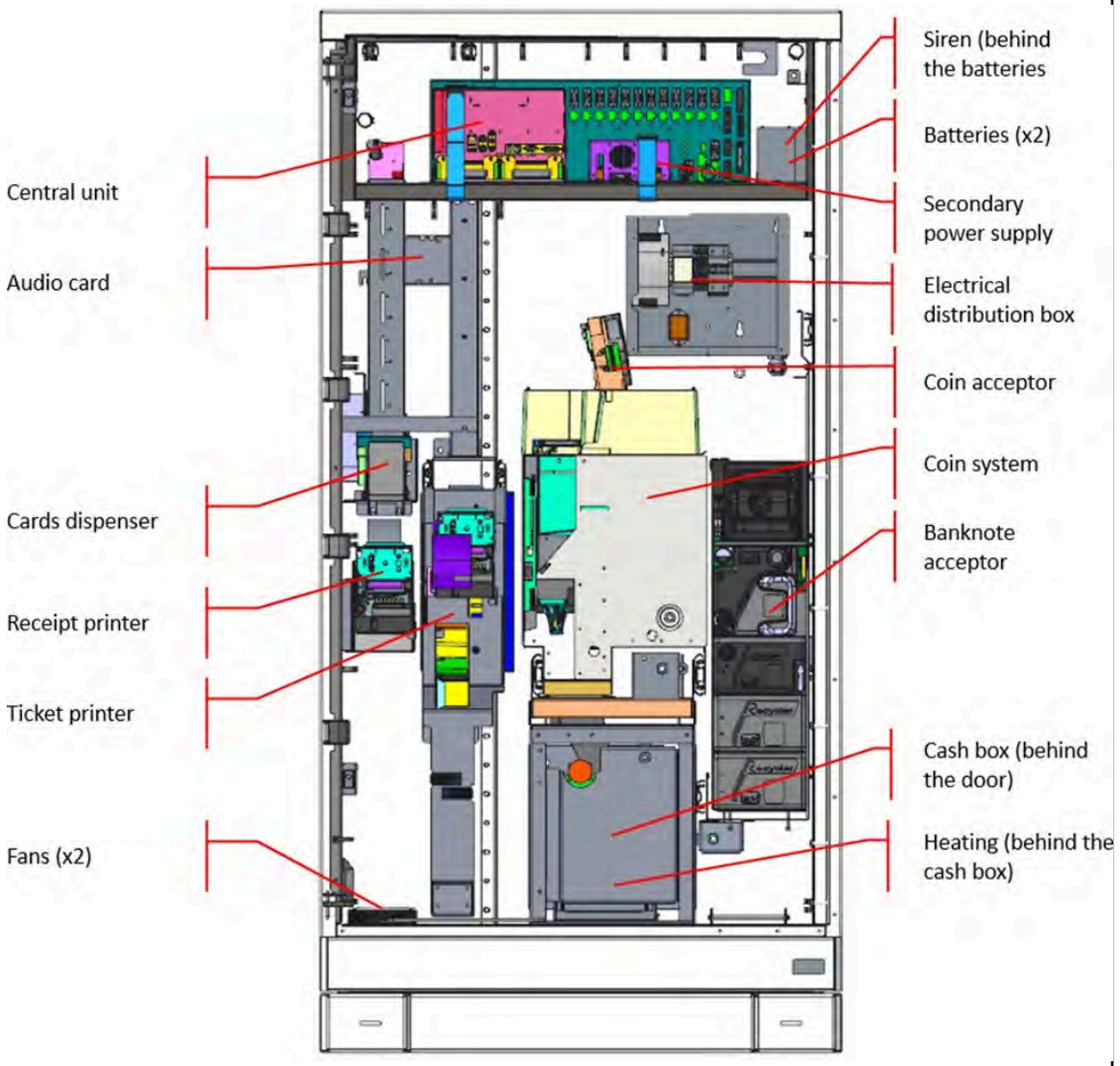
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- The coin system is designed and manufactured by Flowbird. Its specific design allows the machine to respect the ADA guidelines in terms of heights of the user interfaces for the coin inlet and the coin return bowl. It satisfies operating requirements for outdoor environments and offers the benefits of a complete coin payment management system (acceptance, return change, recycling, emptying, etc.). It has a very high capacity coin recycling system with five recycling hoppers, each with a capacity of 350 to 800 coins (depending on coin size). In addition, the coin recycling system includes one supplemental transfer hopper that is used to add coins to one of the recycling hoppers if it is low on recycled coins.
- The Astreo TVM dispenses a variety of fare media. The Flowbird IML5 thermal printer is used to print tickets with or without a QR code, receipts and maintenance reports. Flowbird developed the IML5 printer and uses it in all Flowbird ticket vending machines and parking pay terminals all over the world and in harsh, unattended environments. The printer has a capacity of 4,500 tickets using 85µm-thick paper stock. The Astreo also has a multi-stock fare media dispenser that can print and issue limited-use, contactless fare media as well as issue normal printed tickets with or without a QR code). It has a capacity of up to 3,000 standard ISO2 contactless tickets. Last, the Astreo optionally also includes an extended-use (PVC) smart card issuer, with a capacity of up to 500 cards.
- The Astreo has a 15'' high luminosity touch screen with light sensor and projective capacitive touch technology.
- A contactless reader to read operator issued contactless cards, allowing riders to access their accounts to add value or products, check transactions, etc.
- The coin and ticket bowl has an audio buzzer and an internal lighting system, making it easier for riders to know when their ticket or fare media is ready. The coin and ticket bowl has a very large opening, making it easier to access by persons with a mobility impairment (e.g. a shaking hand, difficulty with precise hand control, etc.)
- There is an external TVM status indicator to indicate "In service / Out of service", making it easy for riders to know the status of the machine from a distance.
- As protection for service technicians, there is a red punch button inside the machines to trigger a burglary alarm in case the technician is threatened or in danger.
- The machine has very robust physical security, including a multi-point door latching system and high security locks. But, it also has a security system consisting of door opening and shock sensors, linked to a siren as well as the Flowbird Hub, and where applicable, a SCADA circuit.

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- The primary communication mode for the Astreo will be a wired Ethernet connection to the transit operator network. The Astreo will be fitted with a cellular router for backup communication.

The position of the sub-assemblies has been studied to be modular and ergonomic. The following diagrams represents the layout of the various sub-assemblies in the TVM:



Astreo TVM hardware layout

5.1.4.4.2.2 Physical Properties and Power

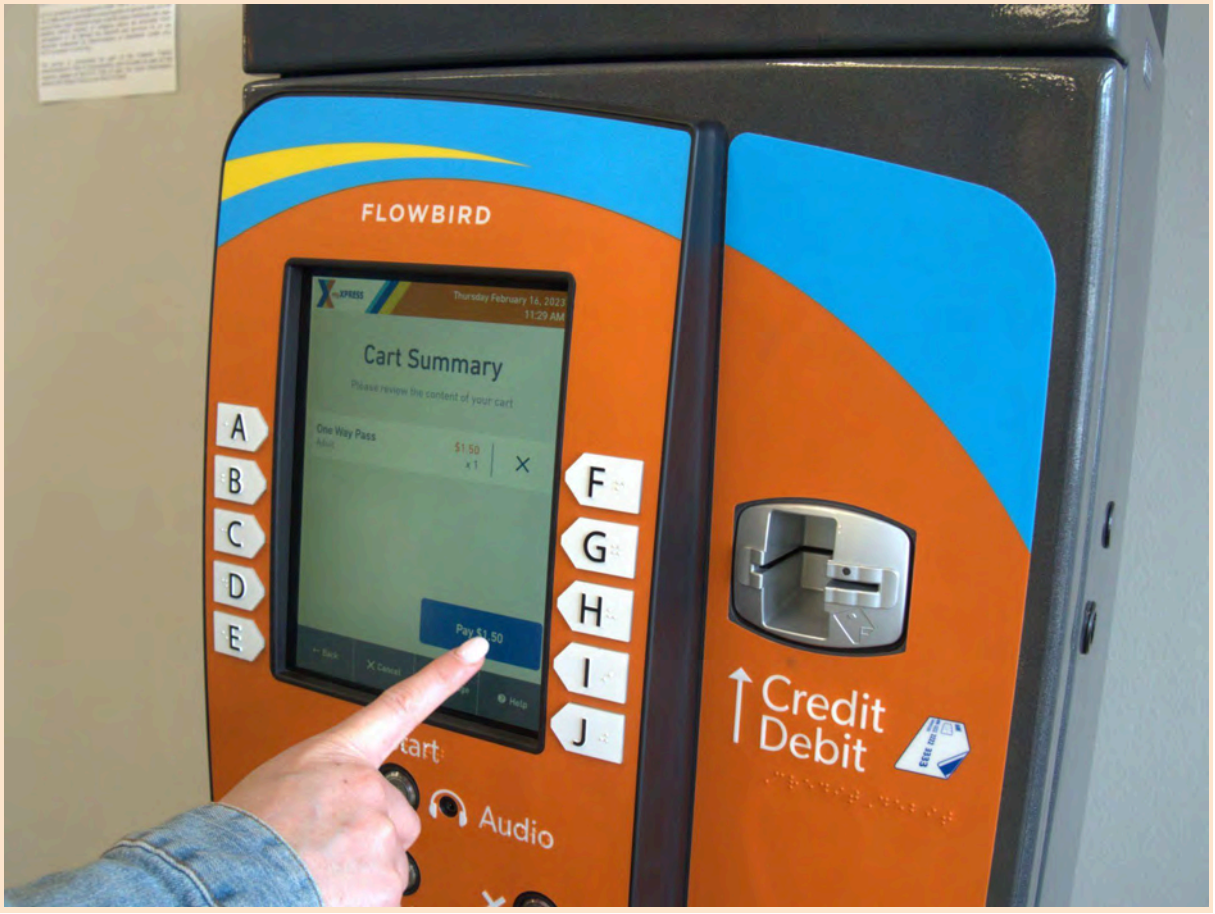
The Astreo dimensions measure Height: 5.9 ft - Width: 2.9 ft - Depth: 1.8 ft and the unit weighs approximately 900 lbs. The TVM is made of 2mm, 2.5mm and 3mm stainless steel sheets and has a door on the front with a multi-point latch locking

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mechanism. The interlocking design on the hinge side allows the machine to resist burglary attempts using a crowbar.

The Astreo is powered by 120V AC power, and includes an Uninterruptible Power Supply (UPS) so that it can operate for up to 4 hours after AC power is lost. It also has a backup battery that will allow the machines to carry out an orderly shutdown in case all power (AC and UPS) is lost.

5.1.4.4.3 Strada TVM



Flowbird will supply our Strada TVM, a world-class and well-proven, next-generation TVM designed specifically for account-based fare payment systems. While other TVMs may provide similar functionality, none are as ruggedized or optimized for the transit environment, nor can they demonstrate the proven dependability of the Strada design. There are more than 100,000 Stradas installed around the world. The Strada is a low-maintenance machine, requiring about 20 minutes of preventive maintenance only every three months.

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The Strada can be configured to accept cash and/or it can be configured to accept contact and contactless bank card payments (including mobile wallets). It has two paper stock rolls (used for either thermal paper tickets or limited use cards) and an extended use smart card dispenser. The Strada is an ideal unattended fare sales channel as it can be used by customers to obtain cards, purchase and load fare products or value that is then associated with their card. ATL will be able to define when a limited use card or an extended use card will be dispensed. The machines can also issue paper tickets with QR codes, ideal for single ride fares or day passes.

The Strada has a small form factor compared to full-size TVMs, and can be configured for cellular communications, minimizing the required infrastructure needed at the installation location.

Key Advantages to Riders

The Flowbird Strada TVMs present a number of key benefits to riders:

- A very reliable device based on a proven design that rarely fails
- An easy-to-read display with audible alarms, making it easy to use for all riders
- A customized and simple user experience for all riders, based on Flowbird's strong working knowledge of transportation customers
- Full ADA compliance, including a usable-height interface and Braille labels sight-impaired riders proven with many customers around the world
- A flexible product allowing the purchase of tickets in a wide variety of ways onto multiple forms of ticket media



Key Advantages to Transit Operators

The Flowbird Strada TVMs present a number of key benefits to operators:

- A low cost entry point device
- Proven standard design and components in use on thousands of devices around the world
- A well-proven warning and alarm system allowing TVMs to provide real-time status information to staff
- TVMs that function in degraded mode of operation without ticket stock or change
- TVMs that function without communications for extensive periods of time

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- Robust design resistant to extreme weather, vandalism, and normal wear and tear
- Extensive protection from theft and vandalism
- Extremely economical to purchase and maintain

The Strada TVM is a flexible device designed to provide a full featured unattended fare sales channel where the transaction volume does not warrant a full size TVM like the Astreo. The machine complies with ADA standards. The user interfaces are less than 48 inches from the ground; front-panel stickers contain raised text and Braille; and the software provides audio assistance via a regular headset or loud-speaker. The 9.7 inch touchscreen is surrounded by 10 tactile stickers presenting a letter and the associated Braille symbols. Those stickers are used to guide visually impaired patrons in combination with the audio text-to-speech assistance.

The modular design means the Strada TVM is highly configurable around core features and a variety of payment, ticket-issuing, power and communication options. The device usually uses a transit operator supplied hardwire Ethernet connection, although cellular communications is also an option.

The Strada TVM is an extremely durable machine. The touchscreen is protected by a 6mm-thick hardened pane of glass (IK10). It also receives an anti-glare treatment for optimal use outside. There is a tilt board built into the Strada TVM to detect any attempt at vandalism to or burglary of the device, and trigger both a siren and an alarm in the Flowbird Hub.

The contactless-media card reader is located on the front face of the Strada TVM. It can be used by riders to check the balance on their account by tapping their card to the reader, and entering their PIN on the TVM screen. The TVM is also fitted with a barcode reader and can be used to check the status of a bar-coded ticket or pass. This barcode reader is located in the screen bezel, right behind the left side button. As with the Astreo, the card and QR code readers can also be used to add value or fare products to an account.

5.1.4.5 Retail Web Application

The FrontDesk Web retail sales application is a web-based solution that will allow an agency’s customer service personnel to add funds or fare products to customer accounts without needing to install any new equipment. All that is required is a computer or tablet with an internet connection. The payment for the fares is then processed using the existing POS system. Retail partners can also use the same application, thus expanding the number of locations where customers can use cash to add funds or fares to their mobile app accounts.

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This solution is integrated into Flowbird Hub, and access to this module is governed by user permissions. City personnel can select Restrictions to functionalities for their retailers.

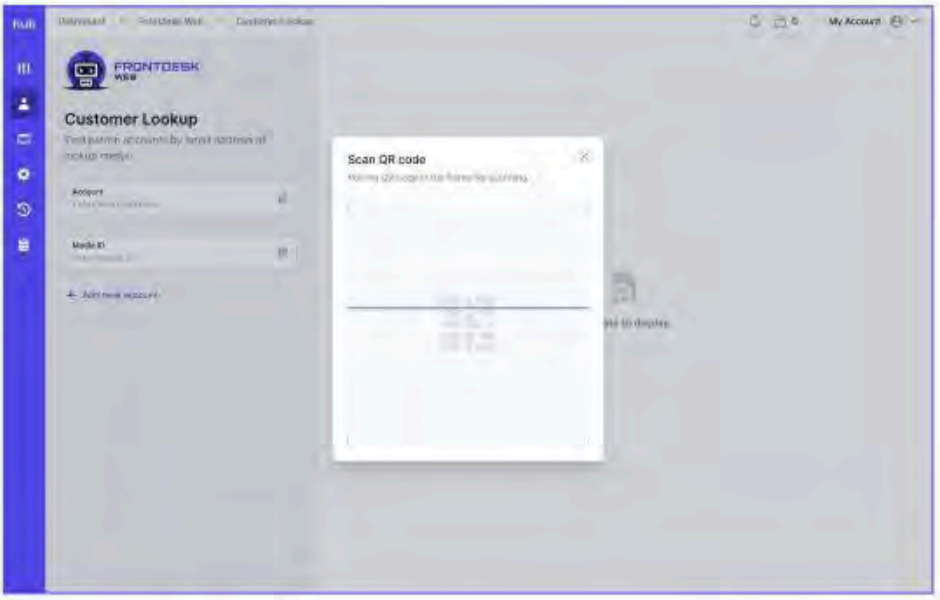
The FrontDesk Web site can be easily navigated through an organized submenu with the following tabs: Settings, Customer Lookup, Media Lookup, Bulk Action, Order Checkout, and Statements.

Customers can easily be pulled up with a history of transactions and potentially linked accounts (for a family, for example). Special populations, such as those who qualify for affordable fares, will be listed in their profile. Their balance can be easily found, too.

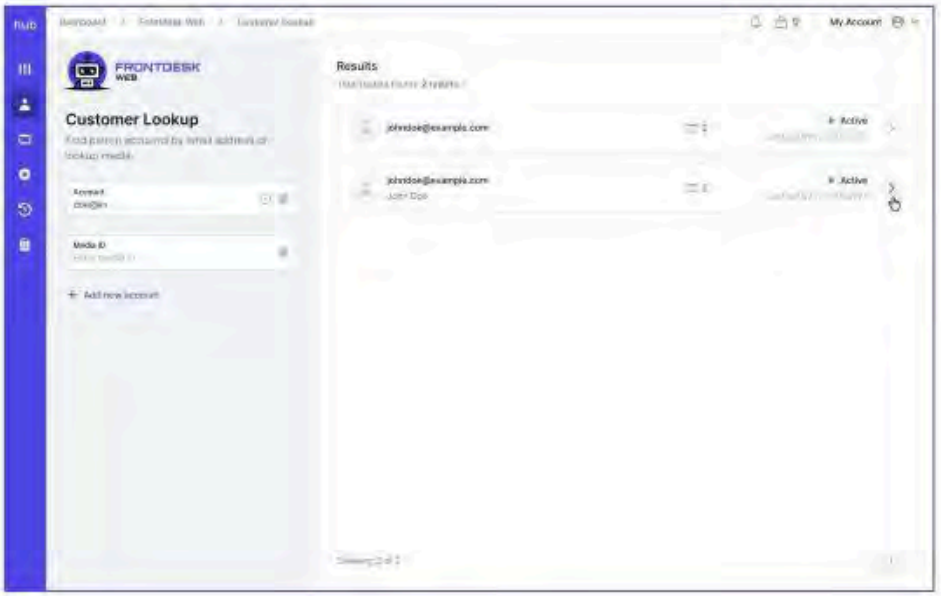
New customers can create accounts with the help of a retail worker at any retail location.
All accounts created on the customer web portal or through the mobile application will be accessible through the FrontDesk Web application.

Customers' email addresses, phone numbers, and other account names can be easily updated. An agent may select the QR code icon within the search bar to scan a QR code media if the patron uses the mobile app.

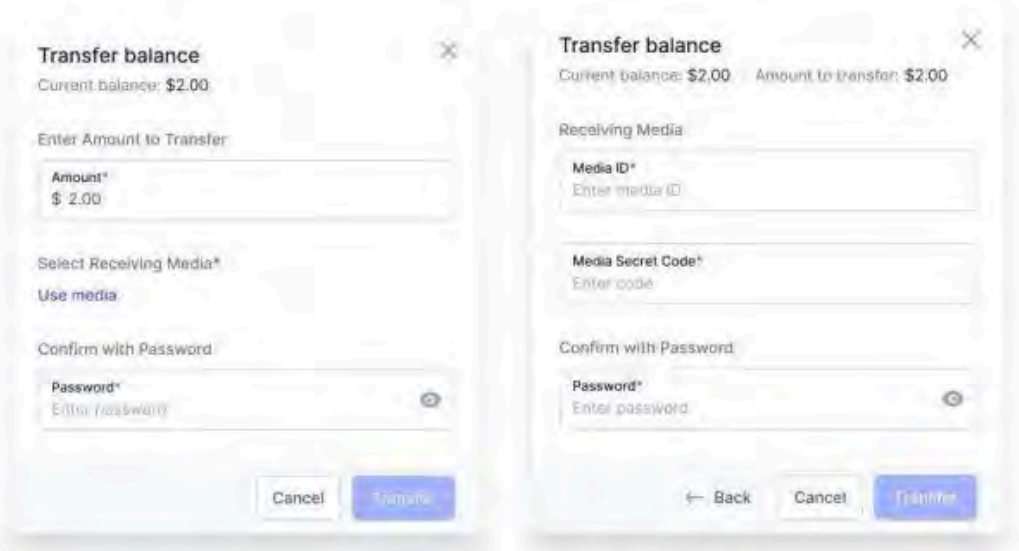
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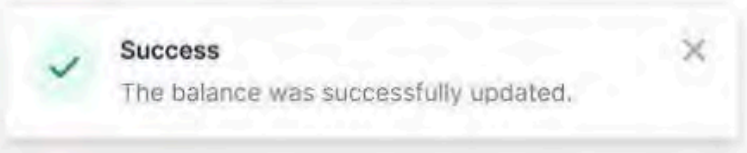
Once a patron's account has been identified in the results the agent may make a selection from the results using the arrow icon.



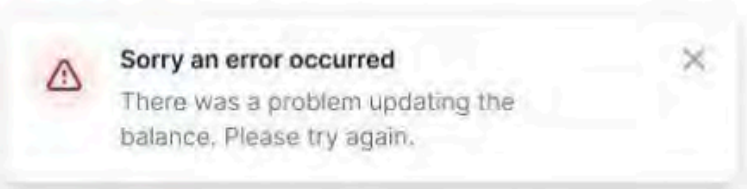
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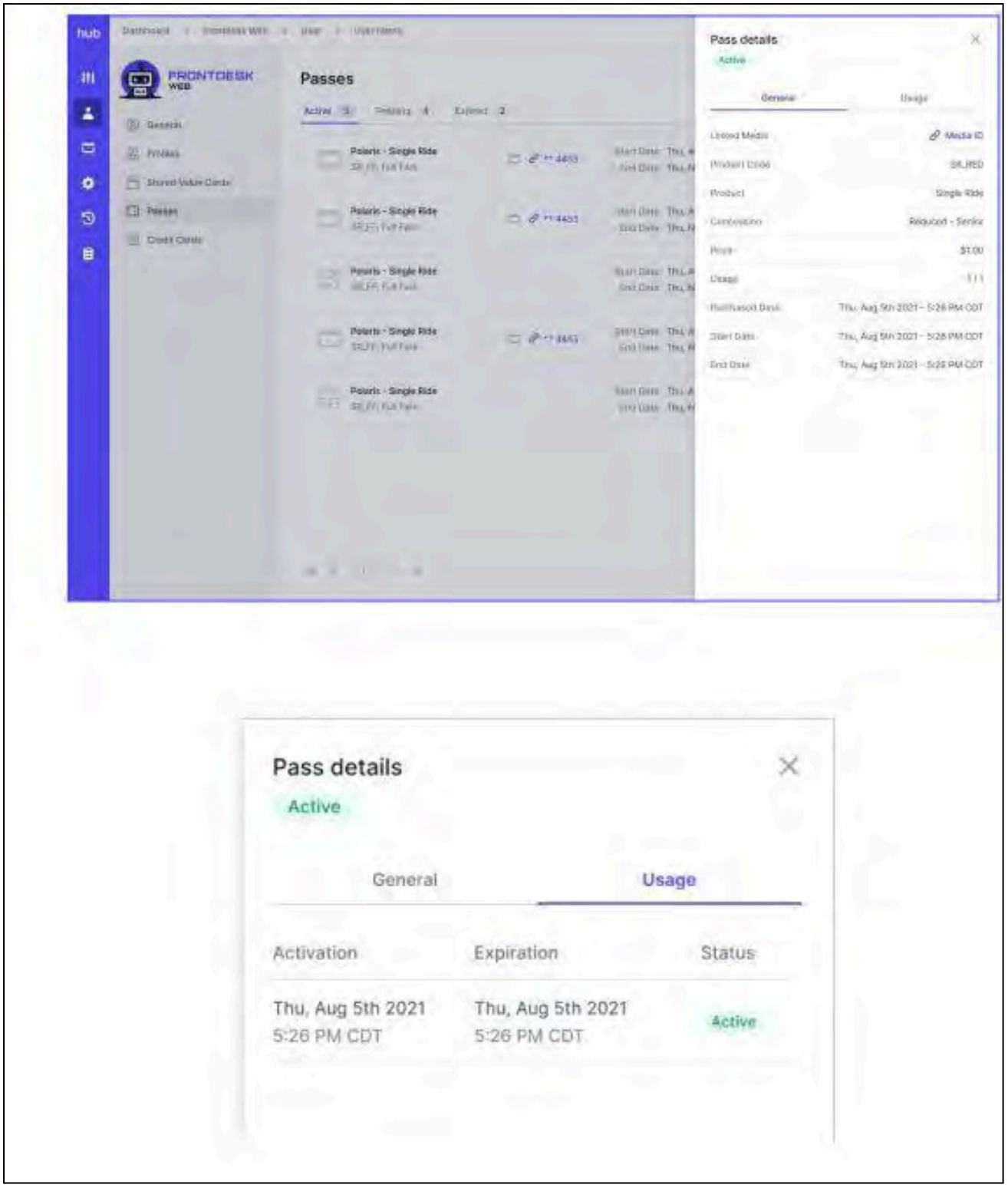
The agent will receive a Success message if the media is activated properly.



The agent will receive an Error message if the transfer is not successful. In this case, the agent may try again, ensuring all characters are correctly input.



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5.1.4.5.1 Smart Card Printing Workstation

Flowbird can supply an off-the-shelf standalone card-printing solution that includes a web camera and print-management software. This system will be used to take photos of customers who are assigned a reduced-fare profile where the transit system fare

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policy requires the customer to show a photo ID to bus operators to confirm their eligibility for such fares.

We selected the Evolius card printer as it is very robust, fast and quiet.

5.2 Other Value Added Services

5.2.1 Project Delivery

Flowbird's overall project approach is to provide one primary project manager/point of contact who manages the project. This project manager is surrounded by a strong support system that provides clients with a high level of attention concerning all aspects of the project – quality control, project control, and document control.

We are dedicated to helping our clients use our products and services to meet Smart City initiatives. To achieve our goals, we continue to enhance our solutions year after year. We do that by getting feedback from our customers and assigning resources to put that feedback into real applications. This approach has proven to be fruitful as we have developed very important applications over the last several years:

These applications were all built based on client requests and needs. You can be assured that we will listen to your needs and adapt as you need to adapt to your customers.

5.2.1.1 Key Areas of Responsibility

Project Management – The Project Manager reports directly to Flowbird's Chief Operating Officer. The Project Manager will be the main point of contact for the University.
Sales Administration – The Sales Administration Manager reports directly to Flowbird's Chief Financial Officer
Customization – Software Customization Specialist and Portfolio Project Manager report directly to Flowbird's COO.
Installation and Training – The Field Project Engineer reports directly to Flowbird's Customer Service Manager.
Integrations – The software development team reports directly to the COO.

If problems or changes occur during the Project Implementation Phase, Flowbird is well prepared to respond quickly. We anticipate that changes will be made during the

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Implementation Phase, such as software changes or schedule changes. This is normal when implementing medium to large-scale systems.

We have assembled a top-notch team with years of experience managing similar projects. Our team members are trained on what to do and when to escalate. The management team for Flowbird in the US has also been involved in similar projects over many years. The team takes swift, decisive action when issues are escalated. Our US team is backed up by a group of 1,300 people working worldwide (with offices in 8 countries). This group supports Flowbird offices worldwide and includes the Build team, Engineering team, R&D team, Customer Support team, and Marketing team. Following the project's Implementation Phase, the key areas of responsibility shift to Flowbird's Customer Support Team. The Customer Support Team reports to Flowbird's Customer Service Manager.

5.2.2 Equipment Installation

Flowbird will work with the customer to determine the best locations for our parking equipment. The Flowbird team, along with trusted local partners, will install all equipment. All multi-space meter locations are assumed to have a minimum of 3" deep concrete for wedge anchor installation. Otherwise, a concrete pad must be poured. Flowbird can provide a quote for concrete services if necessary.

5.2.3 On-Going Maintenance and Support



Flowbird's service team supports over 600 clients across the United States. Many of our clients have utilized Flowbird solutions for over a decade, demonstrating the reliability of our equipment, the flexibility of our system, and the dedication of our support team. Our help desk is available via phone and email. We strive to resolve problems over the phone quickly to keep your pay stations collecting revenue.

Flowbird devices and applications require clients to purchase a support services agreement that covers software maintenance, hosting services as well as Help Desk Services. A sample support services agreement is presented in Section 6 - Required Documents

5.2.4 Client Training

Flowbird provides comprehensive training on all equipment, operations, and back-office systems. We provide clients with the necessary training to fully support

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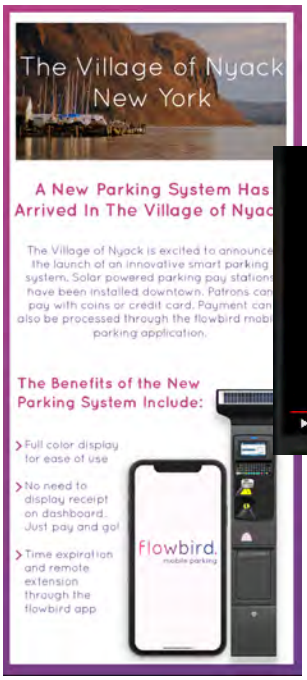
the new parking system. Typical training is one day on-site for the hardware and a half day on-site or remotely on the back-office system.

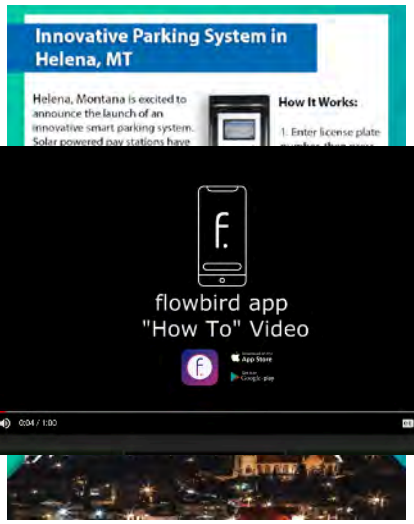
5.2.5 Marketing Assistance

Flowbird has many years of experience helping clients launch new parking systems. We believe it is vital to share the benefits of our proposed solution with key stakeholders such as residents, merchants, and city officials.

Our team works together with clients to provide complimentary marketing services such as:

- Signs and stickers promoting our mobile applications
- Flyer designs promoting the new pay stations and the mobile apps
- “How To” videos
- Content for press releases, websites, social media
- Assistance with press conferences







In addition to our complimentary services, Flowbird can customize marketing packages based on client needs. We can provide a quotation for these services upon request.

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5.3 Additional Equipment Offerings

Flowbird has no other additional equipment offerings to those included within this proposal at the present moment in time. Flowbird will advise OMNIA Partners of future equipment developments as and when they occur.

5.4 Equipment Reconditioning

Flowbird does not usually provide equipment reconditioning services to customers other than specific exceptional circumstances.

However, we do offer a number of upgrade packages to existing equipment, including color and touch screen upgrades for older Flowbird multi-space meters, as well as multi-space meter cabinet refurbishments.

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6 Required Documents

In this section, we provide a comprehensive overview of the necessary documents associated with our proposal. Please note that while some forms will need to be executed immediately after a contract is negotiated, others will be required at different stages of our partnership.

We have also included additional language to address our terms and conditions, ensuring clarity and mutual understanding regarding the commitments and responsibilities of both parties.

The table below outlines each form, including its purpose and the stage at which it will be required. Detailed versions of these forms are attached in the following pages for your review.

Location	Form	Status
	Signature Form	Executed with additional language
Appendix A	HB 1295	Acknowledged, will submit during contract negotiations. Flowbird has submitted this document on several occasions for current clients.
	Antitrust Certification	Executed
	TX 2270	Executed
Appendix B	Exhibit A - Response for National Cooperative Contract	To be negotiated
	Exhibit B - Administration Agreement, Example	To be negotiated
	Exhibit C - Master Intergovernmental Cooperative Purchasing Agreement, Example	To be negotiated
	Exhibit D - Principal Procurement Agency Certificate, Example	Not applicable, example only

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	Exhibit E - Contract Sales Reporting Template	Acknowledged
	Exhibit F - Federal Funds Certifications	Executed
	Exhibit G - Ne wJersey Business Compliance	Forms signed and completed
	Exhibit H - Advertising Compliance Requirement	Acknowledged
Exhibit G docs	DOC 1 Statement of Ownership Form	Executed
	DOC 2 Non Collusion Affidavit	Executed
	DOC 3 Affirmative Action Affidavit	Executed
	DOC 4 Political Contribution Disclosure Form	Executed
	DOC 5 Stockholder Disclosure Form	Executed
	DOC 6 Iran Form	Executed
	DOC 7 Non-Involvement with Russia Or Belarus	Executed
	DOC 8 NJ Business Certificate	Executed
	DOC 9 EEOAA Evidence	Executed
	DOC 10 MacBride Principles	Executed
Other Docs	Receipt of Question and Answer Acknowledgement	Executed
	Flowbird Services Agreement	Provided separately. To be executed by Participating Public Agencies when purchasing services from Flowbird.
	Flowbird Sales Agreement	Provided separately. To be executed by Participating Public Agencies when purchasing goods and services from Flowbird.

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Appendix A, Doc #1

ANTITRUST CERTIFICATION STATEMENTS
(Tex. Government Code § 2155.005)
Attorney General Form

I affirm under penalty of perjury of the laws of the State of Texas that:

1. I am duly authorized to execute this Contract on my own behalf or on behalf of the company, corporation, firm, partnership or individual (Company) listed below;

2. In connection with this proposal, neither I nor any representative of the Company has violated any provision of the Texas Free Enterprise and Antitrust Act, Tex. Bus. & Comm. Code Chapter 15;

3. In connection with this proposal, neither I nor any representative of the Company has violated any federal antitrust law; and

4. Neither I nor any representative of the Company has directly or indirectly communicated any of the contents of this proposal to a competitor of the Company or any other company, corporation, firm, partnership or individual engaged in the same line of business as the Company.

Company Flowbird America Inc.

Address 4o Twosome Drive Suite 7
Moorestown, NJ 08057

Phone 856-234-8000

Fax N/A

Contact

Signature

Ronald Kroes
Printed Name

CFO
Position with Company

Official Authorizing Proposal

Signature

Ronald Kroes
Printed Name

CFO
Position with Company

Appendix A, DOC # 3

Texas Government Code 2270 Verification Form

House Bill 89 (85R Legislative Session), which adds Chapter 2270 to the Texas Government Code, provides that a governmental entity may not enter into a contract with a company without verification that the contracting vendor does not and will not boycott Israel during the term of the contract.

Furthermore, Senate Bill 252 (85R Legislative Session), which amends Chapter 2252 of the Texas Government Code to add Subchapter F, prohibits contracting with a company engaged in business with Iran, Sudan or a foreign terrorist organization identified on a list prepared by the Texas Comptroller.

I, Ronald Kroes, as an authorized representative of

Flowbird America Inc., a contractor engaged by

Insert Name of Company

Region 14 Education Service Center, 1850 Highway 351, Abilene, Texas 79601, verify by this writing that the above-named company affirms that it (1) does not boycott Israel; and (2) will not boycott Israel during the term of this contract, or any contract with the above-named Texas governmental entity in the future.

Also, our company is not listed on and we do not do business with companies that are on the Texas Comptroller of Public Accounts list of Designated Foreign Terrorists Organizations found at https://comptroller.texas.gov/purchasing/docs/foreign-terrorist.pdf.

I further affirm that if our company's position on this issue is reversed and this affirmation is no longer valid, that the above-named Texas governmental entity will be notified in writing within one (1) business day and we understand that our company's failure to affirm and comply with the requirements of Texas Government Code 2270 et seq. shall be grounds for immediate contract termination without penalty to the above-named Texas governmental entity.

I swear and affirm that the above is true and correct.

Signature of Named Authorized Company Representative

July 18, 2024
Date

Exhibit F
Federal Funds Certifications

FEDERAL CERTIFICATIONS
ADDENDUM FOR AGREEMENT FUNDED BY U.S. FEDERAL GRANT

TO WHOM IT MAY CONCERN:

Participating Agencies may elect to use federal funds to purchase under the Master Agreement. This form should be completed and returned.

DEFINITIONS

Contract means a legal instrument by which a non–Federal entity purchases property or services needed to carry out the project or program under a Federal award. The term as used in this part does not include a legal instrument, even if the non–Federal entity considers it a contract, when the substance of the transaction meets the definition of a Federal award or subaward

Contractor means an entity that receives a contract as defined in Contract.

Cooperative agreement means a legal instrument of financial assistance between a Federal awarding agency or pass-through entity and a non–Federal entity that, consistent with 31 U.S.C. 6302–6305:

(a) Is used to enter into a relationship the principal purpose of which is to transfer anything of value from the Federal awarding agency or pass-through entity to the non–Federal entity to carry out a public purpose authorized by a law of the United States (see 31 U.S.C. 6101(3)); and not to acquire property or services for the Federal government or pass-through entity's direct benefit or use;

(b) Is distinguished from a grant in that it provides for substantial involvement between the Federal awarding agency or pass-through entity and the non–Federal entity in carrying out the activity contemplated by the Federal award.

(c) The term does not include:

(1) A cooperative research and development agreement as defined in 15 U.S.C. 3710a; or

(2) An agreement that provides only:

(i) Direct United States Government cash assistance to an individual;

(ii) A subsidy;

(iii) A loan;

(iv) A loan guarantee; or

(v) Insurance.

Federal awarding agency means the Federal agency that provides a Federal award directly to a non–Federal entity

Federal award has the meaning, depending on the context, in either paragraph (a) or (b) of this section:

(a)(1) The Federal financial assistance that a non–Federal entity receives directly from a Federal awarding agency or indirectly from a pass-through entity, as described in § 200.101 Applicability; or

(2) The cost-reimbursement contract under the Federal Acquisition Regulations that a non–Federal entity receives directly from a Federal awarding agency or indirectly from a pass-through entity, as described in § 200.101 Applicability.

(b) The instrument setting forth the terms and conditions. The instrument is the grant agreement, cooperative agreement, other agreement for assistance covered in paragraph (b) of § 200.40 Federal financial assistance, or the cost-reimbursement contract awarded under the Federal Acquisition Regulations.

(c) Federal award does not include other contracts that a Federal agency uses to buy goods or services from a contractor or a contract to operate Federal government owned, contractor operated facilities (GOCOs).

(d) See also definitions of Federal financial assistance, grant agreement, and cooperative agreement.

Non–Federal entity means a state, local government, Indian tribe, institution of higher education (IHE), or nonprofit organization that carries out a Federal award as a recipient or subrecipient.

Nonprofit organization means any corporation, trust, association, cooperative, or other organization, not including IHEs, that:
(a) Is operated primarily for scientific, educational, service, charitable, or similar purposes in the public interest;
(b) Is not organized primarily for profit; and
(c) Uses net proceeds to maintain, improve, or expand the operations of the organization.

Obligations means, when used in connection with a non–Federal entity's utilization of funds under a Federal award, orders placed for property and services, contracts and subawards made, and similar transactions during a given period that require payment by the non–Federal entity during the same or a future period.

Pass-through entity means a non–Federal entity that provides a subaward to a subrecipient to carry out part of a Federal program.

Recipient means a non–Federal entity that receives a Federal award directly from a Federal awarding agency to carry out an activity under a Federal program. The term recipient does not include subrecipients.

Simplified acquisition threshold means the dollar amount below which a non–Federal entity may purchase property or services using small purchase methods. Non–Federal entities adopt small purchase procedures in order to expedite the purchase of items costing less than the simplified acquisition threshold. The simplified acquisition threshold is set by the Federal Acquisition Regulation at 48 CFR Subpart 2.1 (Definitions) and in accordance with 41 U.S.C. 1908. As of the publication of this part, the simplified acquisition threshold is $250,000, but this threshold is periodically adjusted for inflation. (Also see definition of § 200.67 Micro-purchase.)

Subaward means an award provided by a pass-through entity to a subrecipient for the subrecipient to carry out part of a Federal award received by the pass-through entity. It does not include payments to a contractor or payments to an individual that is a beneficiary of a Federal program. A subaward may be provided through any form of legal agreement, including an agreement that the pass-through entity considers a contract.

Subrecipient means a non–Federal entity that receives a subaward from a pass-through entity to carry out part of a Federal program; but does not include an individual that is a beneficiary of such program. A subrecipient may also be a recipient of other Federal awards directly from a Federal awarding agency.

Termination means the ending of a Federal award, in whole or in part at any time prior to the planned end of period of performance.

The following provisions may be required and apply when Participating Agency expends federal funds for any purchase resulting from this procurement process. Per FAR 52.204-24 and FAR 52.204-25, solicitations and resultant contracts shall contain the following provisions.

52.204-24 Representation Regarding Certain Telecommunications and Video Surveillance Services or Equipment (Oct 2020)

The Offeror shall not complete the representation at paragraph (d)(1) of this provision if the Offeror has represented that it "does not provide covered telecommunications equipment or services as a part of its offered products or services to the Government in the performance of any contract, subcontract, or other contractual instrument" in paragraph (c)(1) in the provision at 52.204-26, Covered Telecommunications Equipment or Services—Representation, or in paragraph (v)(2)(i) of the provision at 52.212-3, Offeror Representations and Certifications-Commercial Items. The Offeror shall not complete the representation in paragraph (d)(2) of this provision if the Offeror has represented that it "does not use covered telecommunications equipment or services, or any equipment, system, or service that uses covered telecommunications equipment or services" in paragraph (c)(2) of the provision at 52.204-26, or in paragraph (v)(2)(ii) of the provision at 52.212-3.

(a) *Definitions.* As used in this provision—

Backhaul, covered telecommunications equipment or services, critical technology, interconnection arrangements, reasonable inquiry, roaming, and substantial or essential component have the meanings provided in the clause 52.204-25, Prohibition on Contracting for Certain Telecommunications and Video Surveillance Services or Equipment.

(b) *Prohibition.*

(1) Section 889(a)(1)(A) of the John S. McCain National Defense Authorization Act for Fiscal Year 2019 (Pub. L. 115-232) prohibits the head of an executive agency on or after August 13, 2019, from procuring or obtaining, or extending or renewing a contract to procure or obtain, any equipment, system, or service that uses covered telecommunications equipment or services as a substantial or essential component of any system, or as critical technology as part of any system. Nothing in the prohibition shall be construed to—

(i) Prohibit the head of an executive agency from procuring with an entity to provide a service that connects to the facilities of a third-party, such as backhaul, roaming, or interconnection arrangements; or

(ii) Cover telecommunications equipment that cannot route or redirect user data traffic or cannot permit visibility into any user data or packets that such equipment transmits or otherwise handles.

(2) Section 889(a)(1)(B) of the John S. McCain National Defense Authorization Act for Fiscal Year 2019 (Pub. L. 115-232) prohibits the head of an executive agency on or after August 13, 2020, from entering into a contract or extending or renewing a contract with an entity that uses any equipment, system, or service that uses covered telecommunications equipment or services as a substantial or essential component of any system, or as critical technology as part of any system. This prohibition applies to the use of covered telecommunications equipment or services, regardless of whether that use is in performance of work under a Federal contract. Nothing in the prohibition shall be construed to—

(i) Prohibit the head of an executive agency from procuring with an entity to provide a service that connects to the facilities of a third-party, such as backhaul, roaming, or interconnection arrangements; or

(ii) Cover telecommunications equipment that cannot route or redirect user data traffic or cannot permit visibility into any user data or packets that such equipment transmits or otherwise handles.

(c) *Procedures.* The Offeror shall review the list of excluded parties in the System for Award Management (SAM) (https://www.sam.gov) for entities excluded from receiving federal awards for "covered telecommunications equipment or services".

(d) *Representation.* The Offeror represents that—

(1) It □ will, □ will not provide covered telecommunications equipment or services to the Government in the performance of any contract, subcontract or other contractual instrument resulting from this solicitation. The Offeror shall provide the additional disclosure information required at paragraph (e)(1) of this section if the Offeror responds "will" in paragraph (d)(1) of this section; and

(2) After conducting a reasonable inquiry, for purposes of this representation, the Offeror represents that—

It □ does, □ does not use covered telecommunications equipment or services, or use any equipment, system, or service that uses covered telecommunications equipment or services. The Offeror shall provide the additional disclosure information required at paragraph (e)(2) of this section if the Offeror responds "does" in paragraph (d)(2) of this section.

(e) *Disclosures.*

(1) Disclosure for the representation in paragraph (d)(1) of this provision. If the Offeror has responded "will" in the representation in paragraph (d)(1) of this provision, the Offeror shall provide the following information as part of the offer.

(i) For covered equipment—

(A) The entity that produced the covered telecommunications equipment (include entity name, unique entity identifier, CAGE code, and whether the entity was the original equipment manufacturer (OEM) or a distributor, if known);

(B) A description of all covered telecommunications equipment offered (include brand; model number, such as OEM number, manufacturer part number, or wholesaler number; and item description, as applicable); and

(C) Explanation of the proposed use of covered telecommunications equipment and any factors relevant to determining if such use would be permissible under the prohibition in paragraph (b)(1) of this provision.

(ii) For covered services—

(A) If the service is related to item maintenance: A description of all covered telecommunications services offered (include on the item being maintained: Brand; model number, such as OEM number, manufacturer part number, or wholesaler number; and item description, as applicable); or

(B) If not associated with maintenance, the Product Service Code (PSC) of the service being provided; and explanation of the proposed use of covered telecommunications services and any factors relevant to determining if such use would be permissible under the prohibition in paragraph (b)(1) of this provision.

(2) Disclosure for the representation in paragraph (d)(2) of this provision. If the Offeror has responded "does" in the representation in paragraph (d)(2) of this provision, the Offeror shall provide the following information as part of the offer:

(i) For covered equipment—

(A) The entity that produced the covered telecommunications equipment (include entity name, unique entity identifier, CAGE code, and whether the entity was the OEM or a distributor, if known);

(B) A description of all covered telecommunications equipment offered (include brand; model number, such as OEM number, manufacturer part number, or wholesaler number; and item description, as applicable); and

(C) Explanation of the proposed use of covered telecommunications equipment and any factors relevant to determining if such use would be permissible under the prohibition in paragraph (b)(2) of this provision.

(ii) For covered services—

(A) If the service is related to item maintenance: A description of all covered telecommunications services offered (include on the item being maintained: Brand; model number, such as OEM number, manufacturer part number, or wholesaler number; and item description, as applicable); or

(B) If not associated with maintenance, the PSC of the service being provided; and explanation of the proposed use of covered telecommunications services and any factors relevant to determining if such use would be permissible under the prohibition in paragraph (b)(2) of this provision.

52.204-25 Prohibition on Contracting for Certain Telecommunications and Video Surveillance Services or Equipment (Aug 2020).

(a) *Definitions.* As used in this clause—

Backhaul means intermediate links between the core network, or backbone network, and the small subnetworks at the edge of the network (*e.g.*, connecting cell phones/towers to the core telephone network). Backhaul can be wireless (e.g., microwave) or wired (*e.g.*, fiber optic, coaxial cable, Ethernet).

Covered foreign country means The People's Republic of China.

Covered telecommunications equipment or services means–

(1) Telecommunications equipment produced by Huawei Technologies Company or ZTE Corporation (or any subsidiary or affiliate of such entities);

(2) For the purpose of public safety, security of Government facilities, physical security surveillance of critical infrastructure, and other national security purposes, video surveillance and telecommunications equipment produced by Hytera Communications Corporation, Hangzhou Hikvision Digital Technology Company, or Dahua Technology Company (or any subsidiary or affiliate of such entities);

(3) Telecommunications or video surveillance services provided by such entities or using such equipment; or

(4) Telecommunications or video surveillance equipment or services produced or provided by an entity that the Secretary of Defense, in consultation with the Director of National Intelligence or the Director of the Federal Bureau of Investigation, reasonably believes to be an entity owned or controlled by, or otherwise connected to, the government of a covered foreign country.

Critical technology means–

(1) Defense articles or defense services included on the United States Munitions List set forth in the International Traffic in Arms Regulations under subchapter M of chapter I of title 22, Code of Federal Regulations;

(2) Items included on the Commerce Control List set forth in Supplement No. 1 to part 774 of the Export Administration Regulations under subchapter C of chapter VII of title 15, Code of Federal Regulations, and controlled-

(i) Pursuant to multilateral regimes, including for reasons relating to national security, chemical and biological weapons proliferation, nuclear nonproliferation, or missile technology; or

(ii) For reasons relating to regional stability or surreptitious listening;

(3) Specially designed and prepared nuclear equipment, parts and components, materials, software, and technology covered by part 810 of title 10, Code of Federal Regulations (relating to assistance to foreign atomic energy activities);

(4) Nuclear facilities, equipment, and material covered by part 110 of title 10, Code of Federal Regulations (relating to export and import of nuclear equipment and material);

(5) Select agents and toxins covered by part 331 of title 7, Code of Federal Regulations, part 121 of title 9 of such Code, or part 73 of title 42 of such Code; or

(6) Emerging and foundational technologies controlled pursuant to section 1758 of the Export Control Reform Act of 2018 (50 U.S.C. 4817).

Interconnection arrangements means arrangements governing the physical connection of two or more networks to allow the use of another's network to hand off traffic where it is ultimately delivered (*e.g.*, connection of a customer of telephone provider A to a customer of telephone company B) or sharing data and other information resources.

Reasonable inquiry means an inquiry designed to uncover any information in the entity's possession about the identity of the producer or provider of covered telecommunications equipment or services used by the entity that excludes the need to include an internal or third-party audit.

Roaming means cellular communications services (*e.g.*, voice, video, data) received from a visited network when unable to connect to the facilities of the home network either because signal coverage is too weak or because traffic is too high.

Substantial or essential component means any component necessary for the proper function or performance of a piece of equipment, system, or service.

(b) *Prohibition.*

(1) Section 889(a)(1)(A) of the John S. McCain National Defense Authorization Act for Fiscal Year 2019 (Pub. L. 115-232) prohibits the head of an executive agency on or after August 13, 2019, from procuring or obtaining, or extending or renewing a contract to procure or obtain, any equipment, system, or service that uses covered telecommunications equipment or services as a substantial or essential component of any system, or as critical technology as part of any system. The Contractor is prohibited from providing to the Government any equipment, system, or service that uses covered telecommunications equipment or services as a substantial or essential component of any system, or as critical technology as part of any system, unless an exception at paragraph (c) of this clause applies or the covered telecommunication equipment or services are covered by a waiver described in FAR 4.2104.

(2) Section 889(a)(1)(B) of the John S. McCain National Defense Authorization Act for Fiscal Year 2019 (Pub. L. 115-232) prohibits the head of an executive agency on or after August 13, 2020, from entering into a contract, or extending or renewing a contract, with an entity that uses any equipment, system, or service that uses covered telecommunications equipment or services as a substantial or essential component of any system, or as critical technology as part of any system, unless an exception at paragraph (c) of this clause applies or the covered telecommunication equipment or services are covered by a waiver described in FAR 4.2104. This prohibition applies to the use of covered telecommunications equipment or services, regardless of whether that use is in performance of work under a Federal contract.

(c) *Exceptions.* This clause does not prohibit contractors from providing—

(1) A service that connects to the facilities of a third-party, such as backhaul, roaming, or interconnection arrangements; or

(2) Telecommunications equipment that cannot route or redirect user data traffic or permit visibility into any user data or packets that such equipment transmits or otherwise handles.

(d) Reporting requirement.

(1) In the event the Contractor identifies covered telecommunications equipment or services used as a substantial or essential component of any system, or as critical technology as part of any system, during contract performance, or the Contractor is notified of such by a subcontractor at any tier or by any other source, the Contractor shall report the information in paragraph (d)(2) of this clause to the Contracting Officer, unless elsewhere in this contract are established procedures for reporting the information; in the case of the Department of Defense, the Contractor shall report to the website at https://dibnet.dod.mil. For indefinite delivery contracts, the Contractor shall report to the Contracting Officer for the indefinite delivery contract and the Contracting Officer(s) for any affected order or, in the case of the Department of Defense, identify both the indefinite delivery contract and any affected orders in the report provided at https://dibnet.dod.mil.

(2) The Contractor shall report the following information pursuant to paragraph (d)(1) of this clause

(i) Within one business day from the date of such identification or notification: the contract number; the order number(s), if applicable; supplier name; supplier unique entity identifier (if known); supplier Commercial and Government Entity (CAGE) code (if known); brand; model number (original equipment manufacturer number, manufacturer part number, or wholesaler number); item description; and any readily available information about mitigation actions undertaken or recommended.

(ii) Within 10 business days of submitting the information in paragraph (d)(2)(i) of this clause: any further available information about mitigation actions undertaken or recommended. In addition, the Contractor shall describe the efforts it undertook to prevent use or submission of covered telecommunications equipment or services, and any additional efforts that will be incorporated to prevent future use or submission of covered telecommunications equipment or services.

(e) *Subcontracts.* The Contractor shall insert the substance of this clause, including this paragraph (e) and excluding paragraph (b)(2), in all subcontracts and other contractual instruments, including subcontracts for the acquisition of commercial items.

The following certifications and provisions may be required and apply when Participating Agency expends federal funds for any purchase resulting from this procurement process. Pursuant to 2 C.F.R. § 200.326, all contracts, including small purchases, awarded by the Participating Agency and the Participating Agency's subcontractors shall contain the procurement provisions of Appendix II to Part 200, as applicable.

APPENDIX II TO 2 CFR PART 200

(A) Contracts for more than the simplified acquisition threshold currently set at $250,000, which is the inflation adjusted amount determined by the Civilian Agency Acquisition Council and the Defense Acquisition Regulations Council (Councils) as authorized by 41 U.S.C. 1908, must address administrative, contractual, or legal remedies in instances where contractors violate or breach contract terms, and provide for such sanctions and penalties as appropriate.

Pursuant to Federal Rule (A) above, when a Participating Agency expends federal funds, the Participating Agency reserves all rights and privileges under the applicable laws and regulations with respect to this procurement in the event of breach of contract by either party.

Does offeror agree? YES _____ Initials of Authorized Representative of offeror

(B) Termination for cause and for convenience by the grantee or subgrantee including the manner by which it will be effected and the basis for settlement. (All contracts in excess of $10,000)

Pursuant to Federal Rule (B) above, when a Participating Agency expends federal funds, the Participating Agency reserves the right to immediately terminate any agreement in excess of $10,000 resulting from this procurement process in the event of a breach or default of the agreement by Offeror as detailed in the terms of the contract.

Does offeror agree? YES _____ Initials of Authorized Representative of offeror

(C) Equal Employment Opportunity. Except as otherwise provided under 41 CFR Part 60, all contracts that meet the definition of "federally assisted construction contract" in 41 CFR Part 60-1.3 must include the equal opportunity clause provided under 41 CFR 60-1.4(b), in accordance with Executive Order 11246, "Equal Employment Opportunity" (30 CFR 12319, 12935, 3 CFR Part, 1964-1965 Comp., p. 339), as amended by Executive Order 11375, "Amending Executive Order 11246 Relating to Equal Employment Opportunity," and implementing regulations at 41 CFR part 60, "Office of Federal Contract Compliance Programs, Equal Employment Opportunity, Department of Labor."

Pursuant to Federal Rule (C) above, when a Participating Agency expends federal funds on any federally assisted construction contract, the equal opportunity clause is incorporated by reference herein.

Does offeror agree to abide by the above? YES _____ Initials of Authorized Representative of offeror

(D) Davis-Bacon Act, as amended (40 U.S.C. 3141-3148). When required by Federal program legislation, all prime construction contracts in excess of $2,000 awarded by non-Federal entities must include a provision for compliance with the Davis-Bacon Act (40 U.S.C. 3141-3144, and 3146-3148) as supplemented by Department of Labor regulations (29 CFR Part 5, "Labor Standards Provisions Applicable to Contracts Covering Federally Financed and Assisted Construction"). In accordance with the statute, contractors must be required to pay wages to laborers and mechanics at a rate not less than the prevailing wages specified in a wage determination made by the Secretary of Labor. In addition, contractors must be required to pay wages not less than once a week. The non-Federal entity must place a copy of the current prevailing wage determination issued by the Department of Labor in each solicitation. The decision to award a contract or subcontract must be conditioned upon the acceptance of the wage determination. The non - Federal entity must report all suspected or reported violations to the Federal awarding agency. The contracts must also include a provision for compliance with the Copeland "Anti-Kickback" Act (40 U.S.C. 3145), as supplemented by Department of Labor regulations (29 CFR Part 3, "Contractors and Subcontractors on Public Building or Public Work

Financed in Whole or in Part by Loans or Grants from the United States"). The Act provides that each contractor or subrecipient must be prohibited from inducing, by any means, any person employed in the construction, completion, or repair of public work, to give up any part of the compensation to which he or she is otherwise entitled. The non-Federal entity must report all suspected or reported violations to the Federal awarding agency.
Pursuant to Federal Rule (D) above, when a Participating Agency expends federal funds during the term of an award for all contracts and subgrants for construction or repair, offeror will be in compliance with all applicable Davis-Bacon Act provisions.

Does offeror agree? YES _____ Initials of Authorized Representative of offeror

(E) Contract Work Hours and Safety Standards Act (40 U.S.C. 3701-3708). Where applicable, all contracts awarded by the non-Federal entity in excess of $100,000 that involve the employment of mechanics or laborers must include a provision for compliance with 40 U.S.C. 3702 and 3704, as supplemented by Department of Labor regulations (29 CFR Part 5). Under 40 U.S.C. 3702 of the Act, each contractor must be required to compute the wages of every mechanic and laborer on the basis of a standard work week of 40 hours. Work in excess of the standard work week is permissible provided that the worker is compensated at a rate of not less than one and a half times the basic rate of pay for all hours worked in excess of 40 hours in the work week. The requirements of 40 U.S.C. 3704 are applicable to construction work and provide that no laborer or mechanic must be required to work in surroundings or under working conditions which are unsanitary, hazardous or dangerous. These requirements do not apply to the purchases of supplies or materials or articles ordinarily available on the open market, or contracts for transportation or transmission of intelligence.

Pursuant to Federal Rule (E) above, when a Participating Agency expends federal funds, offeror certifies that offeror will be in compliance with all applicable provisions of the Contract Work Hours and Safety Standards Act during the term of an award for all contracts by Participating Agency resulting from this procurement process.

Does offeror agree? YES _____ Initials of Authorized Representative of offeror

(F) Rights to Inventions Made Under a Contract or Agreement. If the Federal award meets the definition of "funding agreement" under 37 CFR §401.2 (a) and the recipient or subrecipient wishes to enter into a contract with a small business firm or nonprofit organization regarding the substitution of parties, assignment or performance of experimental, developmental, or research work under that "funding agreement," the recipient or subrecipient must comply with the requirements of 37 CFR Part 401, "Rights to Inventions Made by Nonprofit Organizations and Small Business Firms Under Government Grants, Contracts and Cooperative Agreements," and any implementing regulations issued by the awarding agency.

Pursuant to Federal Rule (F) above, when federal funds are expended by Participating Agency, the offeror certifies that during the term of an award for all contracts by Participating Agency resulting from this procurement process, the offeror agrees to comply with all applicable requirements as referenced in Federal Rule (F) above.

Does offeror agree? YES _____ Initials of Authorized Representative of offeror

(G) Clean Air Act (42 U.S.C. 7401-7671q.) and the Federal Water Pollution Control Act (33 U.S.C. 1251-1387), as amended—Contracts and subgrants of amounts in excess of $150,000 must contain a provision that requires the non-Federal award to agree to comply with all applicable standards, orders or regulations issued pursuant to the Clean Air Act (42 U.S.C. 7401-7671q) and the Federal Water Pollution Control Act as amended (33 U.S.C. 1251- 1387). Violations must be reported to the Federal awarding agency and the Regional Office of the Environmental Protection Agency (EPA)

In the event Federal Transit Administration (FTA) or Department of Transportation (DOT) funding is used by Participating Public Agency, Offeror also agrees to include Clean Air and Clean Water requirements in each subcontract exceeding $100,000 financed in whole or in part with Federal assistance provided by FTA.

Pursuant to Federal Rule (G) above, when federal funds are expended by Participating Agency, the offeror certifies that during the term of an award for all contracts by Participating Agency member resulting from this procurement process, the offeror agrees to comply with all applicable requirements as referenced in Federal Rule (G) above.

Does offeror agree? YES _____ Initials of Authorized Representative of offeror

(H) Debarment and Suspension (Executive Orders 12549 and 12689)—A contract award (see 2 CFR 180.220) must not be made to parties listed on the government wide exclusions in the System for Award Management (SAM), in accordance with the Executive Office of the President Office of Management and Budget (OMB) guidelines at 2 CFR 180 that implement Executive Orders 12549 (3 CFR part 1986 Comp., p. 189) and 12689 (3 CFR part 1989 Comp., p. 235), "Debarment and Suspension." SAM Exclusions contains the names of parties debarred, suspended, or otherwise excluded by agencies, as well as parties declared ineligible under statutory or regulatory authority other than Executive Order 12549.

Pursuant to Federal Rule (H) above, when federal funds are expended by Participating Agency, the offeror certifies that during the term of an award for all contracts by Participating Agency resulting from this procurement process, the offeror certifies that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation by any federal department or agency. If at any time during the term of an award the offeror or its principals becomes debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation by any federal department or agency, the offeror will notify the Participating Agency.

Does offeror agree? YES _____ Initials of Authorized Representative of offeror

(I) Byrd Anti-Lobbying Amendment (31 U.S.C. 1352)—Contractors that apply or bid for an award exceeding $100,000 must file the required certification. Each tier certifies to the tier above that it will not and has not used Federal appropriated funds to pay any person or organization for influencing or attempting to influence an officer or employee of any agency, a member of Congress, officer or employee of Congress, or an employee of a member of Congress in connection with obtaining any Federal contract, grant or any other award covered by 31 U.S.C. 1352. Each tier must also disclose any lobbying with non-Federal funds that takes place in connection with obtaining any Federal award. Such disclosures are forwarded from tier to tier up to the non-Federal award.

Pursuant to Federal Rule (I) above, when federal funds are expended by Participating Agency, the offeror certifies that during the term and after the awarded term of an award for all contracts by Participating Agency resulting from this procurement process, the offeror certifies that it is in compliance with all applicable provisions of the Byrd Anti-Lobbying Amendment (31 U.S.C. 1352). The undersigned further certifies that:

(1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

(2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure of Lobbying Activities," in accordance with its instructions.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by Section 1352, Title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

(3) The prospective participant also agrees by submitting his or her bid or proposal that he or she shall require that the language of this certification be included in all lower tier subcontracts, which exceed $100,000 and that all such subrecipients shall certify and disclose accordingly.

Does offeror agree? YES _____ Initials of Authorized Representative of offeror

RECORD RETENTION REQUIREMENTS FOR CONTRACTS INVOLVING FEDERAL FUNDS

When federal funds are expended by Participating Agency for any contract resulting from this procurement process, offeror certifies that it will comply with the record retention requirements detailed in 2 CFR § 200.333. The offeror further certifies that offeror will retain all records as required by 2 CFR § 200.333 for a period of three years after grantees or subgrantees submit final expenditure reports or quarterly or annual financial reports, as applicable, and all other pending matters are closed.

Does offeror agree? YES _____ Initials of Authorized Representative of offeror

CERTIFICATION OF COMPLIANCE WITH THE ENERGY POLICY AND CONSERVATION ACT

When Participating Agency expends federal funds for any contract resulting from this procurement process, offeror certifies that it will comply with the mandatory standards and policies relating to energy efficiency which are contained in the state energy conservation plan issued in compliance with the Energy Policy and Conservation Act (42 U.S.C. 6321 et seq.; 49 C.F.R. Part 18).

Does offeror agree? YES _____ Initials of Authorized Representative of offeror

CERTIFICATION OF COMPLIANCE WITH BUY AMERICA PROVISIONS

To the extent purchases are made with Federal Highway Administration, Federal Railroad Administration, or Federal Transit Administration funds, offeror certifies that its products comply with all applicable provisions of the Buy America Act and agrees to provide such certification or applicable waiver with respect to specific products to any Participating Agency upon request. Purchases made in accordance with the Buy America Act must still follow the applicable procurement rules calling for free and open competition. Additionally:

(1) The Contractor agrees to comply with 49 USC 5323(j) and 49 CFR Part 661, which provide that federal funds may not be obligated unless steel, iron and manufactured products used in FTA-funded projects are produced in the United States, unless a waiver has been granted by FTA or the product is subject to a general waiver. General waivers are listed in 49 CFR 661.7.A general public interest waiver from the Buy America requirements applies to microprocessors, computers, microcomputers, software or other such devices, which are used solely for the purpose of processing or storing data. This general waiver does not extend to a product or device that merely contains a microprocessor or microcomputer and is not used solely for the purpose of processing or storing data. Separate requirements for rolling stock are set out at 5323(j)(2)(C) and 49 CFR 661.11.

(2) A bidder or offeror must submit to the FTA recipient the appropriate Buy America certification with all bids on FTA-funded contracts, except those subject to a general waiver. Bids or offers that are not accompanied by a completed Buy America certification must be rejected as nonresponsive. This requirement does not apply to lower tier subcontractors.

The following certificates titled FTA and DOT Buy America Certification should be completed and returned with the response as part of FTA and DOT requirements.

FEDERAL TRASIT ADMINISTRATION (FTA) AND DEPARTMENT OF TRANSPORTATION (DOT) - BUY AMERICA: CERTIFICATION REQUIREMENT FOR PROCUREMENTOF ROLLING STOCK

CERTIFICATE OF COMPLIANCE
(select one of the two options, NOT BOTH)
Certificate of Compliance with 49 USC §5323(j)
The proposer hereby certifies that it will comply with the requirements of 49 U.S.C. 5323(j), and the applicable regulations of 49 CFR 661.11.
Check for YES: ✓

All Flowbird Transit products are Buy America Act compliant. Some of Flowbird's parking products are Buy America Act compliant, including all software and related services. Flowbird will execute a Certification of Compliance for each Participating Agency that wishes to order Flowbird products that are Buy America compliant.

OR

Certificate of Non-Compliance with 49 USC §5323(j)

The proposer hereby certifies that it cannot comply with the requirements of 49 U.S.C. 5323(j), but may qualify for an exception to the requirement consistent with 49 U.S.C. 5323(j)(2)(C), and the applicable regulations in 49 CFR 661.7.
Check for YES: ☐

FEDERAL TRASIT ADMINISTRATION (FTA) AND DEPARTMENT OF TRANSPORTATION (DOT) - BUY AMERICA: CERTIFICATION REQUIREMENT FOR PROCUREMENT OF STEEL OR MANUFACTURED PRODUCTS

CERTIFICATE OF COMPLIANCE (select one of the two options, NOT BOTH)
Certificate of Compliance with 49 USC §5323(j)(1)
The proposer hereby certifies that it will comply with the requirements of 49 U.S.C. 5323(j)(1), and the applicable regulations in 49 CFR part 661.
Check for YES: ☑

OR

Certificate of Non-Compliance with 49 USC §5323(j)(1)
The proposer hereby certifies that it cannot comply with the requirements of 49 U.S.C. 5323(j), but it may qualify for an exception to the requirement pursuant to 49 U.S.C. 5323(j)(2), as amended, and the applicable regulations in 49 CFR 661.7.
Check for YES: ☐

Does offeror agree? YES _____Initials of Authorized Representative of offeror

Offeror's Name: _____
Address, City, State, and Zip Code: _____
Phone Number: _____
Fax Number: _____

Printed Name and Title of Authorized Representative: _____
Email Address: _____
Signature of Authorized Representative: _____
Date: _____

CERTIFICATION OF COMPLIANCE WITH BUY AMERICAN PROVISIONS

7 CFR Part 210.21 School Lunch Procurement.

The school food authority must include the following provisions in all cost reimbursable contracts, including contracts with cost reimbursable provisions, and in solicitation documents prepared to obtain offers for such contracts:

(i) Allowable costs will be paid from the nonprofit school food service account to the contractor net of all discounts, rebates and other applicable credits accruing to or received by the contractor or any assignee under the contract, to the extent those credits are allocable to the allowable portion of the costs billed to the school food authority;

(ii)

(A) The contractor must separately identify for each cost submitted for payment to the school food authority the amount of that cost that is allowable (can be paid from the nonprofit school food service account) and the amount that is unallowable (cannot be paid from the nonprofit school food service account); or

(B) The contractor must exclude all unallowable costs from its billing documents and certify that only allowable costs are submitted for payment and records have been established that maintain the visibility of unallowable costs, including directly associated costs in a manner suitable for contract cost determination and verification;

(iii) The contractor's determination of its allowable costs must be made in compliance with the applicable Departmental and Program regulations and Office of Management and Budget cost circulars;

(iv) The contractor must identify the amount of each discount, rebate and other applicable credit on bills and invoices presented to the school food authority for payment and individually identify the amount as a discount, rebate, or in the case of other applicable credits, the nature of the credit. If approved by the State agency, the school food authority may permit the contractor to report this information on a less frequent basis than monthly, but no less frequently than annually;

(v) The contractor must identify the method by which it will report discounts, rebates and other applicable credits allocable to the contract that are not reported prior to conclusion of the contract; and

Unless Supplier is exempt *(See FAR 25.103)*, when authorized by statute or explicitly indicated by Participating Public Agency, Buy American requirements will apply where only unmanufactured construction material mined or produced in the United States shall be used *(see Subpart 25.6 – American Recovery and Reinvestment Act-Buy American statute for additional details).*

CERTIFICATION OF ACCESS TO RECORDS – 2 C.F.R. § 200.336

Offeror agrees that the Inspector General of the Agency or any of their duly authorized representatives shall have access to any documents, papers, or other records of offeror that are pertinent to offeror's discharge of its obligations under the Contract for the purpose of making audits, examinations, excerpts, and transcriptions. The right also includes timely and reasonable access to offeror's personnel for the purpose of interview and discussion relating to such documents.

Does offeror agree? YES _____ Initials of Authorized Representative of offeror

CERTIFICATION OF APPLICABILITY TO SUBCONTRACTORS

Offeror agrees that all contracts it awards pursuant to the Contract shall be bound by the foregoing terms and conditions.

Does offeror agree? YES _____ Initials of Authorized Representative of offeror

COMMUNITY DEVELOPMENT BLOCK GRANTS

Purchases made under this contract may be partially or fully funded with federal grant funds. Funding for this work may include Federal Funding sources, including Community Development Block Grant (CDBG) funds from the U.S. Department of Housing and Urban Development. When such funding is provided, Offeror shall comply with all terms, conditions and requirements enumerated by the grant funding source, as well as requirements of the State statutes for which the contract is utilized, whichever is the more restrictive requirement. When using Federal Funding, Offeror shall comply with all wage and latest reporting provisions of the Federal Davis-Bacon Act. HUD-4010 Labor Provisions also applies to this contract.

Does offeror agree? YES _____ Initials of Authorized Representative of offeror

Offeror agrees to comply with all federal, state, and local laws, rules, regulations and ordinances, as applicable. It is further acknowledged that offeror certifies compliance with all provisions, laws, acts, regulations, etc. as specifically noted above.

Offeror's Name: Flowbird America Inc.

Address, City, State, and Zip Code:

40 Twosome drive #7 08057

Phone Number: 856-234-8000 Fax Number: _____

Printed Name and Title of Authorized Representative:
Ronald Kroes, CFO

Email Address:
ronald.kroes@flowbird.group

Signature of Authorized Representative: _____ Date: July 17, 2024

FEMA AND ADDITIONAL FEDERAL FUNDING SPECIAL CONDITIONS

Awarded Supplier(s) (also referred to as Contractors) may need to respond to events and losses where products and services are needed for the immediate and initial response to emergency situations such as, but not limited to, water damage, fire damage, vandalism cleanup, biohazard cleanup, sewage decontamination, deodorization, and/or wind damage during a disaster or emergency situation. By submitting a proposal, the Supplier is accepted these FEMA and Additional Federal Funding Special Conditions required by the Federal Emergency Management Agency (FEMA) and other federal entities.

"Contract" in the below pages under FEMA AND ADDITIONAL FEDERAL FUNDING SPECIAL CONDITIONS is also referred to and defined as the "Master Agreement".

"Contractor" in the below pages under FEMA AND ADDITIONAL FEDERAL FUNDING SPECIAL CONDITIONS is also referred to and defined as "Supplier" or "Awarded Supplier".

Conflicts of Interest

No employee, officer, or agent may participate in the selection, award, or administration of a contract supported by a FEMA award if he or she has a real or apparent conflict of interest. Such a conflict would arise when the employee, officer, or agent, any member of his or her immediate family, his or her partner, or an organization which employs or is about to employ any of these parties, has a financial or other interest in or a tangible personal benefit from a firm considered for award. 2 C.F.R. § 200.318(c)(1); See also Standard Form 424D, ¶ 7; Standard Form 424B, ¶ 3. i. FEMA considers a "financial interest" to be the potential for gain or loss to the employee, officer, or agent, any member of his or her immediate family, his or her partner, or an organization which employs or is about to employ any of these parties as a result of the particular procurement. The prohibited financial interest may arise from ownership of certain financial instruments or investments such as stock, bonds, or real estate, or from a salary, indebtedness, job offer, or similar interest that might be affected by the particular procurement. ii. FEMA considers an "apparent" conflict of interest to exist where an actual conflict does not exist, but where a reasonable person with knowledge of the relevant facts would question the impartiality of the employee, officer, or agent participating in the procurement. c. Gifts. The officers, employees, and agents of the Participating Public Agency nor the Participating Public Agency ("NFE") must neither solicit nor accept gratuities, favors, or anything of monetary value from contractors or parties to subcontracts. However, NFE's may set standards for situations in which the financial interest is de minimus, not substantial, or the gift is an unsolicited item of nominal value. 2 C.F.R. § 200.318(c)(1). d. Violations. The NFE's written standards of conduct must provide for disciplinary actions to be applied for violations of such standards by officers, employees, or agents of the NFE. 2 C.F.R. § 200.318(c)(1). For example, the penalty for a NFE's employee may be dismissal, and the penalty for a contractor might be the termination of the contract.

Contractor Integrity

A contractor must have a satisfactory record of integrity and business ethics. Contractors that are debarred or suspended, as described in and subject to the debarment and suspension regulations implementing Executive Order 12549, *Debarment and Suspension* (1986) and Executive Order 12689, *Debarment and Suspension* (1989) at 2 C.F.R. Part 180 and the Department of Homeland Security's regulations at 2 C.F.R. Part 3000 (Non-procurement Debarment and Suspension), must be rejected and cannot receive contract awards at any level.

Notice of Legal Matters Affecting the Federal Government

In the event FTA or DOT funding is used by Participating Public Agency, Contractor agrees to:

1) The Contractor agrees that if a current or prospective legal matter that may affect the Federal Government emerges, the Contractor shall promptly notify the Participating Public Agency of the legal matter in accordance with 2 C.F.R. §§ 180.220 and 1200.220.

2) The types of legal matters that require notification include, but are not limited to, a major dispute, breach, default, litigation, or naming the Federal Government as a party to litigation or a legal disagreement in any forum for any reason.

3) The Contractor further agrees to include the above clause in each subcontract, at every tier, financed in whole or in part with Federal assistance provided by the FTA.

Public Policy

A contractor must comply with the public policies of the Federal Government and state, local government, or tribal government. This includes, among other things, past and current compliance with the:
a. Equal opportunity and nondiscrimination laws
b. Five affirmative steps described at 2 C.F.R. § 200.321(b) for all subcontracting under contracts supported by FEMA financial assistance; and FEMA Procurement Guidance June 21, 2016 Page IV- 7
c. Applicable prevailing wage laws, regulations, and executive orders

Affirmative Steps

For any subcontracting opportunities, Contractor must take the following Affirmative steps:

1. Placing qualified small and minority businesses and women's business enterprises on solicitation lists;
2. Assuring that small and minority businesses, and women's business enterprises are solicited whenever they are potential sources;
3. Dividing total requirements, when economically feasible, into smaller tasks or quantities to permit maximum participation by small and minority businesses, and women's business enterprises;
4. Establishing delivery schedules, where the requirement permits, which encourage participation by small and minority businesses, and women's business enterprises; and
5. Using the services and assistance, as appropriate, of such organizations as the Small Business Administration and the Minority Business Development Agency of the Department of Commerce.

Prevailing Wage Requirements

When applicable, the awarded Contractor (s) and any and all subcontractor(s) agree to comply with all laws regarding prevailing wage rates including the Davis-Bacon Act, applicable to this solicitation and/or Participating Public Agencies. The Participating Public Agency shall notify the Contractor of the applicable pricing/prevailing wage rates and must apply any local wage rates requested. The Contractor and any subcontractor(s) shall comply with the prevailing wage rates set by the Participating Public Agency.

Federal Requirements

If products and services are issued in response to an emergency or disaster recovery the items below, located in this FEMA Special Conditions section of the Federal Funds Certifications, are activated and required when federal funding may be utilized.

2 C.F.R. § 200.326 and 2 C.F.R. Part 200, Appendix II, Required Contract Clauses

1. **CONTRACT REMEDIES**
   Contracts for more than the federal simplified acquisition threshold (SAT), the dollar amount below which an NFE may purchase property or services using small purchase methods, currently set at $250,000 for procurements made on or after June 20, 2018,4 must address administrative, contractual, or legal remedies in instances where contractors violate or breach contract terms and must provide for sanctions and penalties as appropriate.

1.1 Applicability
This contract provision is required for contracts over the SAT, currently set at $250,000 for procurements made on or after June 20, 2018. Although not required for contracts at or below the SAT, FEMA suggests including a remedies provision.

1.2 Additional Considerations
For FEMA's Assistance to Firefighters Grant (AFG) Program, recipients must include a penalty clause in all contracts for any AFG-funded vehicle, regardless of dollar amount. In that situation, the contract must include a clause addressing that non-delivery by the contract's specified date or other vendor nonperformance will require a penalty of no less than $100 per day until such time that the vehicle, compliant with the terms of the contract, has been accepted by the recipient. This penalty clause should, however, account for force majeure or acts of God. AFG recipients should refer to the applicable year's Notice of Funding Opportunity (NOFO) for additional information, which can be accessed at FEMA.gov.

2. TERMINATION FOR CAUSE AND CONVENIENCE

a. Standard. All contracts in excess of $10,000 must address termination for cause and for convenience by the non-Federal entity, including the manner by which it will be effected and the basis for settlement. See 2 C.F.R. Part 200, Appendix II(B).

b. Applicability. This requirement applies to all FEMA grant and cooperative agreement programs.

3. EQUAL EMPLOYMENT OPPORTUNITY

When applicable:

a. Standard. Except as otherwise provided under 41 C.F.R. Part 60, all contracts that meet the definition of "federally assisted construction contract" in 41 C.F.R. § 60-1.3 must include the equal opportunity clause provided under 41 C.F.R. § 60- 1.4(b), in accordance with Executive Order 11246, *Equal Employment Opportunity* (30 Fed. Reg. 12319, 12935, 3 C.F.R. Part, 1964-1965 Comp., p. 339), as amended by Executive Order 11375, *Amending Executive Order 11246 Relating to Equal Employment Opportunity*, and implementing regulations at 41 C.F.R. Part 60 (Office of Federal Contract Compliance Programs, Equal Employment Opportunity, Department of Labor). See 2 C.F.R. Part 200, Appendix II(C).

b. Key Definitions.

i. Federally Assisted Construction Contract. The regulation at 41 C.F.R. § 60-1.3 defines a "federally assisted construction contract" as any agreement or modification thereof between any applicant and a person for construction work which is paid for in whole or in part with funds obtained from the Government or borrowed on the credit of the Government pursuant to any Federal program involving a grant, contract, loan, insurance, or guarantee, or undertaken pursuant to any Federal program involving such grant, contract, loan, insurance, or guarantee, or any application or modification thereof approved by the Government for a grant, contract,

loan, insurance, or guarantee under which the applicant itself participates in the construction work.

ii. Construction Work. The regulation at 41 C.F.R. § 60-1.3 defines "construction work" as the construction, rehabilitation, alteration, conversion, extension, demolition or repair of buildings, highways, or other changes or improvements to real property, including facilities providing utility services. The term also includes the supervision, inspection, and other onsite functions incidental to the actual construction.

c. Applicability. This requirement applies to all FEMA grant and cooperative agreement programs.

d. Required Language. The regulation at 41 C.F.R. Part 60-1.4(b) requires the insertion of the following contract clause.

During the performance of this contract, the contractor agrees as follows:

(1) The contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, sexual orientation, gender identity, or national origin. The contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment without regard to their race, color, religion, sex, sexual orientation, gender identity, or national origin. Such action shall include, but not be limited to the following:

Employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided setting forth the provisions of this nondiscrimination clause.

(2) The contractor will, in all solicitations or advertisements for employees placed by or on behalf of the contractor, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, sexual orientation, gender identity, or national origin.

(3) The contractor will not discharge or in any other manner discriminate against any employee or applicant for employment because such employee or applicant has inquired about, discussed, or disclosed the compensation of the employee or applicant or another employee or applicant. This provision shall not apply to instances in which an employee who has access to the compensation information of other employees or applicants as a part of such employee's essential job functions discloses the compensation of such other employees or applicants to individuals who do not otherwise have access to such information, unless such disclosure is in response to a formal complaint or charge, in furtherance of an investigation, proceeding, hearing, or action, including an investigation conducted by the employer, or is consistent with the contractor's legal duty to furnish information.

(4) The contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice to be provided advising the said labor union or workers' representatives of the contractor's commitments under this section and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

(5) The contractor will comply with all provisions of Executive Order 11246 of September

24, 1965, and of the rules, regulations, and relevant orders of the Secretary of Labor.

(6) The contractor will furnish all information and reports required by Executive Order 11246 of September 24, 1965, and by rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his books, records, and accounts by the administering agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.

(7) In the event of the contractor's noncompliance with the nondiscrimination clauses of this contract or with any of the said rules, regulations, or orders, this contract may be canceled, terminated, or suspended in whole or in part and the contractor may be declared ineligible for further Government contracts or federally assisted construction contracts in accordance with procedures authorized in Executive Order 11246 of September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order 11246 of September 24, 1965, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.

(8) The contractor will include the portion of the sentence immediately preceding paragraph (1) and the provisions of paragraphs (1) through (8) in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to section 204 of Executive Order 11246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor. The contractor will take such action with respect to any subcontract or purchase order as the administering agency may direct as a means of enforcing such provisions, including sanctions for noncompliance:

Provided, however, that in the event a contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the administering agency, the contractor may request the United States to enter into such litigation to protect the interests of the United States.

The applicant further agrees that it will be bound by the above equal opportunity clause with respect to its own employment practices when it participates in federally assisted construction work: *Provided,* That if the applicant so participating is a State or local government, the above equal opportunity clause is not applicable to any agency, instrumentality or subdivision of such government which does not participate in work on or under the contract.

The applicant agrees that it will assist and cooperate actively with the administering agency and the Secretary of Labor in obtaining the compliance of contractors and subcontractors with the equal opportunity clause and the rules, regulations, and relevant orders of the Secretary of Labor, that it will furnish the administering agency and the Secretary of Labor such information as they may require for the supervision of such compliance, and that it will otherwise assist the administering agency in the discharge of the agency's primary responsibility for securing compliance.

The applicant further agrees that it will refrain from entering into any contract or contract modification subject to Executive Order 11246 of September 24, 1965, with a contractor debarred from, or who has not demonstrated eligibility for, Government contracts and federally assisted construction contracts pursuant to the Executive Order and will carry out such sanctions and penalties for violation of the equal opportunity clause as may be imposed upon contractors and subcontractors by the administering agency or the Secretary of Labor pursuant to Part II, Subpart D of the Executive Order. In addition, the applicant agrees that if it fails or refuses to comply with these undertakings, the administering agency may take any or all of the following actions: Cancel, terminate, or

suspend in whole or in part this grant (contract, loan, insurance, guarantee); refrain from extending any further assistance to the applicant under the program with respect to which the failure or refund occurred until satisfactory assurance of future compliance has been received from such applicant; and refer the case to the Department of Justice for appropriate legal proceedings.

4. DAVIS-BACON ACT

a. Standard. All prime construction contracts in excess of $2,000 awarded by non- Federal entities must include a provision for compliance with the Davis-Bacon Act (40 U.S.C. §§ 3141-3144 and 3146-3148) as supplemented by Department of Labor regulations at 29 C.F.R. Part 5 (Labor Standards Provisions Applicable to Contracts Covering Federally Financed and Assisted Construction). See 2 C.F.R. Part 200, Appendix II(D). In accordance with the statute, contractors must be required to pay wages to laborers and mechanics at a rate not less than the prevailing wages specified in a wage determination made by the Secretary of Labor. In addition, contractors must be required to pay wages not less than once a week.

b. Applicability. The Davis-Bacon Act applies to the Emergency Management Preparedness Grant Program, Homeland Security Grant Program, Nonprofit Security Grant Program, Tribal Homeland Security Grant Program, Port Security Grant Program, and Transit Security Grant Program.

c. Requirements. If applicable, the non-federal entity must do the following:

i. The non-Federal entity must place a copy of the current prevailing wage determination issued by the Department of Labor in each solicitation. The decision to award a contract or subcontract must be conditioned upon the acceptance of the wage determination. The non-Federal entity must report all suspected or reported violations to the Federal awarding agency.

ii. Additionally, pursuant 2 C.F.R. Part 200, Appendix II(D), contracts subject to the Davis-Bacon Act, must also include a provision for compliance with the Copeland "Anti-Kickback" Act (40 U.S.C. § 3145), as supplemented by Department of Labor regulations at 29 C.F.R. Part 3 (Contractors and Subcontractors on Public Building or Public Work Financed in Whole or in Part by Loans or Grants from the United States). The Copeland Anti- Kickback Act provides that each contractor or subrecipient must be prohibited from inducing, by any means, any person employed in the construction, completion, or repair of public work, to give up any part of the compensation to which he or she is otherwise entitled. The non-Federal entity must report all suspected or reported violations to FEMA.

iii. Include a provision for compliance with the Davis-Bacon Act (40 U.S.C. 3141-3144, and 3146-3148) as supplemented by Department of Labor regulations (29 CFR Part 5, "Labor Standards Provisions Applicable to Contracts Covering Federally Financed and Assisted Construction").

Suggested Language. The following provides a sample contract clause:

Compliance with the Davis-Bacon Act.

a. All transactions regarding this contract shall be done in compliance with the Davis-Bacon Act (40 U.S.C. 3141- 3144, and

3146-3148) and the requirements of 29 C.F.R. pt. 5 as may be applicable. The contractor shall comply with 40 U.S.C. 3141-3144, and 3146-3148 and the requirements of 29 C.F.R. pt. 5 as applicable.

b. Contractors are required to pay wages to laborers and mechanics at a rate not less than the prevailing wages specified in a wage determination made by the Secretary of Labor.

c. Additionally, contractors are required to pay wages not less than once a week.

5. COPELAND ANTI-KICKBACK ACT

a. Standard. Recipient and subrecipient contracts must include a provision for compliance with the Copeland "Anti-Kickback" Act (40 U.S.C. 3145), as supplemented by Department of Labor regulations (29 CFR Part 3, "Contractors and Subcontractors on Public Building or Public Work Financed in Whole or in Part by Loans or Grants from the United States").

b. Applicability. This requirement applies to all contracts for construction or repair work above $2,000 in situations where the Davis-Bacon Act also applies. It DOES NOT apply to the FEMA Public Assistance Program.

c. Requirements. If applicable, the non-federal entity must include a provision for compliance with the Copeland "Anti-Kickback" Act (40 U.S.C. § 3145), as supplemented by Department of Labor regulations at 29 C.F.R. Part 3 (Contractors and Subcontractors on Public Building or Public Work Financed in Whole or in Part by Loans or Grants from the United States). Each contractor or subrecipient must be prohibited from inducing, by any means, any person employed in the construction, completion, or repair of public work, to give up any part of the compensation to which he or she is otherwise entitled. The non-Federal entity must report all suspected or reported violations to FEMA. Additionally, in accordance with the regulation, each contractor and subcontractor must furnish each week a statement with respect to the wages paid each of its employees engaged in work covered by the Copeland Anti-Kickback Act and the Davis Bacon Act during the preceding weekly payroll period. The report shall be delivered by the contractor or subcontractor, within seven days after the regular payment date of the payroll period, to a representative of a Federal or State agency in charge at the site of the building or work.

Sample Language. The following provides a sample contract clause:

Compliance with the Copeland "Anti-Kickback" Act.

a. Contractor. The contractor shall comply with 18 U.S.C. §874, 40 U.S.C. § 3145, and the requirements of 29 C.F.R. pt. 3 as may be applicable, which are incorporated by reference into this contract.

b. Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clause above and such other clauses as FEMA may by appropriate instructions require, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all of these contract clauses.

c. Breach. A breach of the contract clauses above may be grounds for termination of the contract, and for debarment as a contractor and subcontractor as provided in 29 C.F.R. §5.12."

6. CONTRACT WORK HOURS AND SAFETY STANDARDSACT

a. Standard. Where applicable (see 40 U.S.C. §§ 3701-3708), all contracts awarded by the non-Federal entity in excess of $100,000 that involve the employment of mechanics or laborers must include a provision for compliance with 40 U.S.C. §§ 3702 and 3704, as supplemented by Department of Labor regulations at 29 C.F.R. Part 5. See 2 C.F.R. Part 200, Appendix II(E). Under 40 U.S.C. § 3702, each contractor must be required to compute the wages of every mechanic and laborer on the basis of a standard work week of 40 hours. Work in excess of the standard work week is permissible provided that the worker is compensated at a rate of not less than one and a half times the basic rate of pay for all hours worked in excess of 40 hours in the work week. Further, no laborer or mechanic must be required to work in surroundings or under working conditions which are unsanitary, hazardous, or dangerous.

b. Applicability. This requirement applies to all FEMA contracts awarded by the non- federal entity in excess of $100,000 under grant and cooperative agreement programs that involve the employment of mechanics or laborers. It is applicable to construction work. These requirements do not apply to the purchase of supplies or materials or articles ordinarily available on the open market, or contracts for transportation or transmission of intelligence.

c. Suggested Language. The regulation at 29 C.F.R. § 5.5(b) provides contract clause language concerning compliance with the Contract Work Hours and Safety Standards Act. FEMA suggests including the following contract clause:

Compliance with the Contract Work Hours and Safety Standards Act.

(1) *Overtime requirements.* No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in suchworkweek.

(2) *Violation; liability for unpaid wages; liquidated damages.* In the event of any violation of the clause set forth in paragraph (b)(1) of this section the contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph (b)(1) of this section, in the sum of
$27 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph (b)(1) of this section.

(3) *Withholding for unpaid wages and liquidated damages.* The Federal agency or

loan/grant recipient shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph (b)(2) of this section.

(4) *Subcontracts.* The contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraph (b)(1) through (4) of this section and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs (b)(1) through (4) of this section.

7. RIGHTS TO INVENTIONS MADE UNDER A CONTRACT OR AGREEMENT

a. Standard. If the FEMA award meets the definition of "funding agreement" under 37C.F.R. § 401.2(a) and the non-Federal entity wishes to enter into a contract with a small business firm or nonprofit organization regarding the substitution of parties, assignment or performance of experimental, developmental, or research work under that "funding agreement," the non- Federal entity must comply with the requirements of 37 C.F.R. Part 401 (Rights to Inventions Made by Nonprofit Organizations and Small Business Firms Under Government Grants, Contracts and Cooperative Agreements), and any implementing regulations issued by FEMA. See 2 C.F.R. Part 200, Appendix II(F).

b. Applicability. This requirement applies to "*funding agreements*," but it DOES NOT apply to the Public Assistance, Hazard Mitigation Grant Program, Fire Management Assistance Grant Program, Crisis Counseling Assistance and Training Grant Program, Disaster Case Management Grant Program, and Federal Assistance to Individuals and Households – Other Needs Assistance Grant Program, as FEMA awards under these programs do not meet the definition of "funding agreement."

c. Funding Agreements Definition. The regulation at 37 C.F.R. § 401.2(a) defines "funding agreement" as any contract, grant, or cooperative agreement entered into between any Federal agency, other than the Tennessee Valley Authority, and any contractor for the performance of experimental, developmental, or research work funded in whole or in part by the Federal government. This term also includes any assignment, substitution of parties, or subcontract of any type entered into for the performance of experimental, developmental, or research work under a funding agreement as defined in the first sentence of this paragraph.

8. CLEAN AIR ACT AND THE FEDERAL WATER POLLUTION CONTROL ACT

a. Standard. If applicable, contracts must contain a provision that requires the contractor to agree to comply with all applicable standards, orders, or regulations issued pursuant to the Clean Air Act (42 U.S.C. §§ 7401-7671q.) and the Federal Water Pollution Control Act as amended (33 U.S.C. §§ 1251-1387). Violations must be reported to FEMA and the Regional Office of the Environmental Protection Agency. See 2 C.F.R. Part 200, Appendix II(G).

b. Applicability. This requirement applies to contracts awarded by a non-federal entity of amounts in excess of $150,000 under a federal grant.

c. Suggested Language. The following provides a sample contract clause.

Clean Air Act

1. The contractor agrees to comply with all applicable standards, orders or regulations issued pursuant to the Clean Air Act, as amended, 42 U.S.C. § 7401 et seq.

2. The contractor agrees to report each violation to the Participating Public Agency and understands and agrees that the Participating Public Agency will, in turn, report each violation as required to assure notification to the Federal Emergency Management Agency, and the appropriate Environmental Protection Agency Regional Office.

3. The contractor agrees to include these requirements in each subcontract exceeding $150,000 financed in whole or in part with Federal assistance provided by FEMA.

Federal Water Pollution Control Act

1. The contractor agrees to comply with all applicable standards, orders, or regulations issued pursuant to the Federal Water Pollution Control Act, as amended, 33 U.S.C. 1251 et seq.

2. The contractor agrees to report each violation to the Participating Public Agency and understands and agrees that the Participating Public Agency will, in turn, report each violation as required to assure notification to the Federal Emergency Management Agency, and the appropriate Environmental Protection Agency Regional Office.

3. The contractor agrees to include these requirements in each subcontract exceeding $150,000 financed in whole or in part with Federal assistance provided by FEMA.

9. DEBARMENT AND SUSPENSION

a. Standard. Non-Federal entities and contractors are subject to the debarment and suspension regulations implementing Executive Order 12549, *Debarment and Suspension* (1986) and Executive Order 12689, *Debarment and Suspension* (1989) at 2 C.F.R. Part 180 and the Department of Homeland Security's regulations at 2 C.F.R. Part 3000 (Non-procurement Debarment and Suspension).

b. Applicability. This requirement applies to all FEMA grant and cooperative agreement programs.

c. Requirements.

i. These regulations restrict awards, subawards, and contracts with certain parties that are debarred, suspended, or otherwise excluded from or ineligible for participation in Federal assistance programs and activities. See 2 C.F.R. Part 200, Appendix II(H); and 2 C.F.R. § 200.213. A contract award must not be made to parties listed in the SAM Exclusions. SAM Exclusions is the list maintained by the General Services Administration that contains the names of parties debarred, suspended, or otherwise excluded by agencies, as well as parties declared ineligible under statutory or regulatory authority other than Executive Order 12549. SAM exclusions can be accessed at www.sam.gov. See 2 C.F.R. § 180.530.

ii. In general, an "excluded" party cannot receive a Federal grant award or a contract within the meaning of a "covered transaction," to include subawards and subcontracts. This includes parties that receive Federal funding indirectly, such as contractors to recipients and subrecipients. The key to the exclusion is whether there is a "covered transaction," which is any non-procurement transaction (unless excepted) at either a "primary" or "secondary" tier. Although "covered transactions" do not include contracts awarded by the Federal Government for purposes of the non-procurement common rule and DHS's implementing regulations, it does include some contracts awarded by recipients and subrecipients.

iii. Specifically, a covered transaction includes the following contracts for goods or services:

1. The contract is awarded by a recipient or subrecipient in the amount of at least $25,000.

2. The contract requires the approval of FEMA, regardless of amount.

3. The contract is for federally-required audit services.

4. A subcontract is also a covered transaction if it is awarded by the contractor of a recipient or subrecipient and requires either the approval of FEMA or is in excess of $25,000.

d. Suggested Language. The following provides a debarment and suspension clause. It incorporates an optional method of verifying that contractors are not excluded or disqualified.

Suspension and Debarment

(1) This contract is a covered transaction for purposes of 2 C.F.R. pt. 180 and 2 C.F.R. pt. 3000. As such, the contractor is required to verify that none of the contractor's principals (defined at 2 C.F.R. § 180.995) or its affiliates (defined at 2 C.F.R. § 180.905) are excluded (defined at 2 C.F.R. § 180.940) or disqualified (defined at 2 C.F.R. § 180.935).

(2) The contractor must comply with 2 C.F.R. pt. 180, subpart C and 2 C.F.R. pt. 3000, subpart C, and must include a requirement to comply with these regulations in any lower tier covered transaction it enters into.

(3) This certification is a material representation of fact relied upon by the Participating Public Agency. If it is later determined that the contractor did not comply with 2

C.F.R. pt. 180, subpart C and 2 C.F.R. pt. 3000, subpart C, in addition to remedies available to the Participating Public Agency, the Federal Government may pursue available remedies, including but not limited to suspension and/or debarment.

(4) The bidder or proposer agrees to comply with the requirements of 2 C.F.R. pt. 180, subpart C and 2 C.F.R. pt. 3000, subpart C while this offer is valid and throughout the period of any contract that may arise from this offer. The bidder or proposer further agrees to include a provision requiring such compliance in its lower tier covered transactions.

10. BYRD ANTI-LOBBYING AMENDMENT

a. Standard. Each tier certifies to the tier above that it will not and has not used Federal appropriated funds to pay any person or organization for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, officer or employee of Congress, or an employee of a Member of Congress in connection with obtaining any Federal contract, grant or any other award covered by 31 U.S.C. § 1352. FEMA's regulation at 44 C.F.R. Part 18 implements the requirements of 31 U.S.C. § 1352 and provides, in Appendix A to Part 18, a copy of the certification that is required to be completed by each entity as described in 31 U.S.C. § 1352. Each tier must also disclose any lobbying with non-Federal funds that takes place in connection with obtaining any Federal award. Such disclosures are forwarded from tier to tier up to the Federal awarding agency.

b. Applicability. This requirement applies to all FEMA grant and cooperative agreement programs. Contractors that apply or bid for a contract of $100,000 or more under a federal grant must file the required certification. See 2 C.F.R. Part 200, Appendix II(I); 31 U.S.C. § 1352; and 44 C.F.R. Part 18.

c. Suggested Language.

Byrd Anti-Lobbying Amendment, 31 U.S.C. § 1352 (as amended)

Contractors who apply or bid for an award of $100,000 or more shall file the required certification. Each tier certifies to the tier above that it will not and has not used Federal appropriated funds to pay any person or organization for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, officer or employee of Congress, or an employee of a Member of Congress in connection with obtaining any Federal contract, grant, or any other award covered by 31 U.S.C. § 1352. Each tier shall also disclose any lobbying with non-Federal funds that takes place in connection with obtaining any Federal award. Such disclosures are forwarded from tier to tier up to the recipient who in turn will forward the certification(s) to the awarding agency.

d. Required Certification. If applicable, contractors must sign and submit to the non-federal entity the following certification.

APPENDIX A, 44 C.F.R. PART 18 – CERTIFICATION REGARDING LOBBYING

Certification for Contracts, Grants, Loans, and Cooperative Agreements

The undersigned certifies, to the best of his or her knowledge and belief, that:

1. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

2. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

3. The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by section 1352, title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

The Contractor, Flowbird America, certifies or affirms the truthfulness and accuracy of each statement of its certification and disclosure, if any. In addition, the Contractor understands and agrees that the provisions of 31 U.S.C. Chap. 38, Administrative Remedies for False Claims and Statements, apply to this certification and disclosure, if any.

Signature of Contractor's Authorized Official

Ronald Kroes, CFO

Name and Title of Contractor's Authorized Official

July 17, 2024

Date

11. PROCUREMENT OF RECOVERED MATERIALS

a. Standard. A non-Federal entity that is a state agency or agency of a political subdivision of a state and its contractors must comply with Section 6002 of the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act. See 2 C.F.R. Part 200, Appendix II(J); and 2 C.F.R. §200.322.

b. Applicability. This requirement applies to all contracts awarded by a non- federal entity under FEMA grant and cooperative agreement programs.

c. Requirements. The requirements of Section 6002 include procuring only items designated in guidelines of the EPA at 40 C.F.R. Part 247 that contain the highest percentage of recovered materials practicable, consistent with maintaining a satisfactory level of competition, where the purchase price of the item exceeds
$10,000 or the value of the quantity acquired by the preceding fiscal year exceeded $10,000; procuring solid waste management services in a manner that maximizes energy and resource recovery; and establishing an affirmative procurement program for procurement of recovered materials identified in the EPA guidelines.

d. Suggested Language.

i. In the performance of this contract, the Contractor shall make maximum use of products containing recovered materials that are EPA-designated items unless the product cannot be acquired—

1. Competitively within a timeframe providing for compliance with the contract performance schedule;
2. Meeting contract performance requirements; or
3. At a reasonable price.

ii. Information about this requirement, along with the list of EPA- designated items, is available at EPA's Comprehensive Procurement Guidelines web site, https://www.epa.gov/smm/comprehensive-procurement-guideline-cpg-program.

iii. The Contractor also agrees to comply with all other applicable requirements of Section 6002 of the Solid Waste Disposal Act."

12. DOMESTIC PREFERENCES FOR PROCUREMENTS

As appropriate, and to the extent consistent with law, CONTRACTOR should, to the greatest extent practicable under a federal award, provide a preference for the purchase, acquisition, or use of goods, products or materials produced in the United States. This includes, but is not limited to, iron, aluminum, steel, cement, and other manufactured products.

Applicability For purchases in support of FEMA declarations and awards issued on or after November 12, 2020, all FEMA recipients and subrecipients are required to include in all contracts and purchase orders for work or products a contract provision encouraging domestic preference for procurements.

Domestic Preference for Procurements As appropriate, and to the extent consistent with law, the contractor should, to the greatest extent practicable, provide a preference for the purchase, acquisition, or use of goods, products, or materials produced in the United States. This includes, but is not limited to iron, aluminum, steel, cement, and other manufactured products. For purposes of this clause: Produced in the United States means, for iron and steel products, that all manufacturing processes, from the initial melting stage through the application of coatings, occurred in the United States. Manufactured products mean items and construction materials composed in whole or in part of non-ferrous metals such as aluminum; plastics and polymer-based products such as polyvinyl chloride pipe; aggregates such as concrete; glass, including optical fiber; and lumber."

13. ACCESS TO RECORDS

a. Standard. All recipients, subrecipients, successors, transferees, and assignees must acknowledge and agree to comply with applicable provisions governing DHS access to records, accounts, documents, information, facilities, and staff. Recipients must give DHS/FEMA access to, and the right to examine and copy, records, accounts, and other documents and sources of information related to the federal financial assistance award and permit access to facilities, personnel, and other individuals and information as may be necessary, as required by DHS regulations *and* other applicable laws or program guidance. See DHS Standard Terms and Conditions: Version 8.1 (2018). Additionally, Section 1225 of the Disaster Recovery Reform Act of 2018 prohibits FEMA from providing reimbursement to any state, local, tribal, or territorial government, or private non-profit for activities made pursuant to a contract that purports to prohibit audits or internal reviews by the FEMA administrator or Comptroller General.

Access to Records. The following access to records requirements apply to this contract:

i. The Contractor agrees to provide Participating Public Agency, the FEMA Administrator, the Comptroller General of the United States, or any of their authorized representatives access to any books, documents, papers, and records of the Contractor which are directly pertinent to this contract for the purposes of making audits, examinations, excerpts, and transcriptions.

ii. The Contractor agrees to permit any of the foregoing parties to reproduce by any means whatsoever or to copy excerpts and transcriptions as reasonably needed.

iii. The Contractor agrees to provide the FEMA Administrator or his authorized representatives access to construction or other work sites pertaining to the work being completed under the contract.

iv. In compliance with the Disaster Recovery Act of 2018, the Participating Public Agency and the Contractor acknowledge and agree that no language in this contract is intended to prohibit audits or internal reviews by the FEMA Administrator or the Comptroller General of the United States.

14. CHANGES

a. Standard. To be eligible for FEMA assistance under the non-Federal entity's FEMA grant or cooperative agreement, the cost of the change, modification, change order, or constructive change must be allowable, allocable, within the scope of its grant or cooperative agreement, and reasonable for the completion of project scope.

b. Applicability. FEMA recommends, therefore, that a non-Federal entity include a changes clause in its contract that describes how, if at all, changes can be made by either party to alter the method, price, or schedule of the work without breaching the contract. The language of the clause may differ depending on the nature of the contract and the end-item procured.

15. DHS SEAL, LOGO, AND FLAGS

a. Standard. Recipients must obtain permission prior to using the DHS seal(s), logos, crests, or reproductions of flags or likenesses of DHS agency officials. See DHS Standard Terms and Conditions: Version 8.1 (2018).

b. Applicability. FEMA recommends that all non-Federal entities place in their contracts a provision that a contractor shall not use the DHS seal(s), logos, crests, or reproductions of flags or likenesses of DHS agency officials without specific FEMA pre-approval.

c. "The contractor shall not use the DHS seal(s), logos, crests, or reproductions of flags or likenesses of DHS agency officials without specific FEMA pre-approval.

16. COMPLIANCE WITH FEDERAL LAW, REGULATIONS, AND EXECUTIVE ORDERS

a. Standard. The recipient and its contractors are required to comply with all Federal laws, regulations, and executive orders.

b. Applicability. FEMA recommends that all non-Federal entities place into their contracts an acknowledgement that FEMA financial assistance will be used to fund the contract along with the requirement that the contractor will comply with all applicable Federal law, regulations, executive orders, and FEMA policies, procedures, and directives.

c. "This is an acknowledgement that FEMA financial assistance will be used to fund all or a portion of the contract. The contractor will comply with all applicable Federal law, regulations, executive orders, FEMA policies, procedures, and directives."

17. NO OBLIGATION BY FEDERAL GOVERNMENT

a. Standard. FEMA is not a party to any transaction between the recipient and its contractor. FEMA is not subject to any obligations or liable to any party for any matter relating to the contract.

b. Applicability. FEMA recommends that the non-Federal entity include a provision in its contract that states that the Federal Government is not a party to the contract and is not subject to any obligations or liabilities to the non-Federal entity, contractor, or any other party pertaining to any matter resulting from the contract.

c. "The Federal Government is not a party to this contract and is not subject to any obligations or liabilities to the non-Federal entity, contractor, or any other party pertaining to any matter resulting from the contract."

18. PROGRAM FRAUD AND FALSE OR FRAUDULENT STATEMENTS OR RELATED ACTS

a. Standard. Recipients must comply with the requirements of The False Claims Act (31 U.S.C. §§ 3729-3733) which prohibits the submission of false or

fraudulent claims for payment to the federal government. See DHS Standard Terms and Conditions: Version 8.1 (2018); and 31 U.S.C. §§ 3801-3812, which details the administrative remedies for false claims and statements made. The non-Federal entity must include a provision in its contract that the contractor acknowledges that 31 U.S.C. Chap. 38 (Administrative Remedies for False Claims and Statements) applies to its actions pertaining to the contract.

b. Applicability. FEMA recommends that the non-Federal entity include a provision in its contract that the contractor acknowledges that 31 U.S.C. Chap. 38 (Administrative Remedies for False Claims and Statements) applies to its actions pertaining to the contract.

c. "The Contractor acknowledges that 31 U.S.C. Chap. 38 (Administrative Remedies for False Claims and Statements) applies to the Contractor's actions pertaining to this contract."

d. In the event FTA or DOT funding is used by a Participating Public Agency, Contractor further acknowledges U.S. DOT regulations, "Program Fraud Civil Remedies," 49 CFR Part 31, and apply to its actions pertaining to this Contract. Upon execution of the underlying Contract, Contractor certifies or affirms the truthfulness and accuracy of any statement it has made, it makes, it may make, or causes to me made, pertaining to the underlying Contract or the FTA assisted project for which this Contract Work is being performed.

In addition to other penalties that may be applicable, Contractor further acknowledges that if it makes, or causes to be made, a false, fictitious, or fraudulent claim, statement, submission, or certification, the Federal Government reserves the right to impose the penalties of the Program Fraud Civil Remedies Act of 1986 on Contractor to the extent the Federal Government deems appropriate.

Contractor also acknowledges that if it makes, or causes to me made, a false, fictitious, or fraudulent claim, statement, submission, or certification to the Federal Government under a contract connected with a project that is financed in whole or in part with Federal assistance originally awarded by FTA

under the authority of 49 U.S.C. § 5307, the Government reserves the right to impose the penalties of 18 U.S.C. § 1001 and 49 U.S.C. § 5307 (n)(1) on the Contractor, to the extent the Federal Government deems appropriate.

Contractor agrees to include the above clauses in each subcontract financed in whole or in part with Federal assistance provided by FTA. It is further agreed that the clauses shall not be modified, except to identify the subcontractor who will be subject to the provisions.

Offeror agrees to comply with all terms and conditions outlined in the FEMA Special Conditions section of this solicitation.

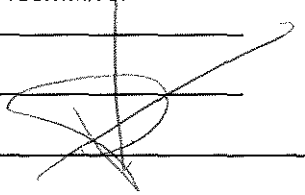
Offeror's Name: Flowbird America Inc.

Address, City, State, and Zip Code:
40 Twosome Drive, Suite 7, Moorestown, NJ 08057

Phone Number: 856 234 8000 Fax Number: _____

Printed Name and Title of Authorized Representative:
Ronald Kroes, CFO

Email Address: ronald.kroes@flowbird.group

Signature of Authorized Representative: 

Date: July 17, 2024

FEDERAL TRANSIT ADMINISTRATION (FTA) AND DEPARTMENT OF TRANSPORTATION (DOT) SPECIAL CONDITIONS (Version May 4, 2023)

Awarded Supplier(s) (also referred to as Contractors) may be asked to provide products and services to agencies following Federal Transit Administration and/or Department of Transportation requirements. By submitting a response, the Supplier is accepting these FTA and DOT Special Conditions.

NO GOVERNMENT OBLIGATION TO THIRD PARTIES

These requirements do not apply to micro-purchases ($10,000 or less, except for construction contracts over $2,000).

(1) The Participating Public Agency and contractor/vendor acknowledge and agree that, notwithstanding any concurrence by the Federal Government in or approval of the solicitation or award of the underlying contract, absent the express written consent by the Federal Government, the Federal Government is not a party to this contract and shall not be subject to any obligations or liabilities to the purchaser, contractor, or any other party (whether or not a party to that contract) pertaining to any matter resulting from the underlying contract.

(2) The contractor agrees to include the above clause in each subcontract financed in whole or in part with Federal assistance provided by FTA. It is further agreed that the clause shall not be modified, except to identify the subcontractor who will be subject to its provisions.

PROGRAM FRAUD AND FALSE OR FRAUDULENT STATEMENTS OR RELATED ACTS

These requirements do not apply to micro-purchases ($10,000 or less, except for construction contracts over $2,000)

(1) The contractor acknowledges that the provisions of the Program Fraud Civil Remedies Act of 1986, as amended, 31 U.S.C. 3801 et seq. and U.S. DOT regulations, "Program Fraud Civil Remedies, "49 CFR Part 31, apply to its actions pertaining to this Project. Upon execution of the underlying contract, the contractor certifies or affirms the truthfulness and accuracy of any statement it has made, it makes, it may make, or causes to be made, pertaining to the underlying contract or the FTA assisted project for which this contract work is being performed. In addition to other penalties that may be applicable, the contractor further acknowledges that if it makes, or causes to be made, a false, fictitious, or fraudulent claim, statement, submission, or certification, the Federal Government reserves the right to impose the penalties of the Program Fraud Civil Remedies Act of 1986 on the contractor to the extent the Federal Government deems appropriate.

(2) The contractor also acknowledges that if it makes, or causes to be made, a false, fictitious, or fraudulent claim, statement, submission, or certification to the Federal Government under a contract connected with a project that is financed in whole or in part with Federal assistance originally awarded by FTA under the authority of 49 U.S.C. 5307, the Government reserves the right to impose the penalties of 18 U.S.C. 1001 and 49 U.S.C. § 5323(l) on the contractor, to the extent the Federal Government deems appropriate.

(3) The contractor agrees to include the above two clauses in each subcontract financed in whole or in part with Federal assistance provided by FTA. It is further agreed that the clauses shall not be modified, except to identify the subcontractor who will be subject to the provisions.

ACCESS TO RECORDS AND REPORTS

(1) Record Retention. The Contractor will retain, and will require its subcontractors of all tiers to retain, complete and readily accessible records related in whole or in part to the contract, including, but not limited to, data, documents, reports, statistics, sub-agreements, leases, subcontracts, arrangements, other third party agreements of any type, and supporting materials related to those records.

(2) Retention Period. The Contractor agrees to comply with the record retention requirements in accordance with 2 C.F.R. § 200.333. The Contractor shall maintain all books, records, accounts and reports required under this Contract for a period of at not less than three (3) years after the date of termination or expiration of this Contract, except in the event of litigation or settlement of claims arising from the performance of this Contract, in which case records shall be maintained until the disposition of all such litigation, appeals, claims or exceptions related thereto.

(3) Access to Records. The Contractor agrees to provide sufficient access to FTA and its contractors to inspect and audit records and information related to performance of this contract as reasonably may be required.

(4) Access to the Sites of Performance. The Contractor agrees to permit FTA and its contractors access to the sites of performance under this contract as reasonably may be required.

FEDERAL CHANGES

(1) Contractor shall at all times comply with all applicable FTA regulations, policies, procedures and directives, including without limitation those listed directly or by reference in the Master Agreement between Purchaser and FTA,

as they may be amended or promulgated from time to time during the term of this contract. Contractor's failure to so comply shall constitute a material breach of this Contract.

Contractor agrees to:

a) Maintain all books, records, accounts and reports required under this Contract for a period of not less than three (3) years after the date of termination or expiration of this Contract or any extensions thereof except in the event of litigation or settlement of claims arising from the performance of this Contract, in which case Contractor agrees to maintain same until Public Agency, the FTA Administrator, the Comptroller General, or any of their duly authorized representatives, have disposed of all such litigation, appeals, claims or exceptions related thereto.

b) Permit any of the foregoing parties to inspect all work, materials, payrolls, and other data and records with regard to the Project, and to audit the books, records, and accounts with regard to the Project and to reproduce by any means whatsoever or to copy excerpts and transcriptions as reasonably needed for the purpose of audit and examination.

FTA does not require the inclusion of these requirements of Article 1.01 in subcontracts. Reference 49 CFR 18.39 (a)(11).

CIVIL RIGHTS / TITLE VI REQUIREMENTS

The Participating Public Agency is an Equal Opportunity Employer. As such, the Participating Public Agency agrees to comply with all applicable Federal civil rights laws and implementing regulations. Apart from inconsistent requirements imposed by Federal laws or regulations, the Participating Public Agency agrees to comply with the requirements of 49 U.S.C. § 5323(h) (3) by not using any Federal assistance awarded by FTA to support procurements using exclusionary or discriminatory specifications.

Under this Agreement, the Contractor shall at all times comply with the following requirements and shall include these requirements in each subcontract entered into as part thereof.

(1) Nondiscrimination – In accordance with Title VI of the Civil Rights Act, as amended, 42 U.S.C. 20000d, section 303 of the Age Discrimination Act of 1975, as amended, 42 U.S.C. 6102, section 202 of the Americans with disabilities Act of 1990, 42 U.S.C. 12132, and Federal transit law at 49 U.S.C. 5332, the contractor agrees that it will not discriminate against any employee or applicant for employment because of race, color, creed, national origin, sex, age, or disability. In addition, the contractor agrees to comply with applicable Federal implementing regulations and other implementing requirements FTA may issue.

(2) Equal Employment Opportunity – The following equal employment opportunity requirements apply to the underlying contract:

(a) **Race, Color, Creed, National Origin, Sex.** In accordance with Title VII of the Civil Rights Act, as amended, 42 U.S.C. § 2000e et seq., and Federal transit laws at 49 U.S.C. § 5332, the Contractor agrees to comply with all applicable equal employment opportunity requirements of U.S. Department of Labor (U.S. DOL) regulations, "Office of Federal Contract Compliance Programs, Equal Employment Opportunity, Department of Labor," 41 C.F.R. chapter 60, and Executive Order No. 11246, "Equal Employment Opportunity in Federal Employment," September 24, 1965, 42 U.S.C. § 2000e note, as amended by any later Executive Order that amends or supersedes it, referenced in 42 U.S.C. § 2000e note. The Contractor agrees to take affirmative action to ensure that applicants are employed, and that employees are treated during employment, without regard to their race, color, religion, national origin, or sex (including sexual orientation and gender identity). Such action shall include, but not be limited to, the following: employment, promotion, demotion or transfer, recruitment or recruitment advertising, layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. In addition, the Contractor agrees to comply with any implementing requirements FTA may issue.

(b) **Age** - In accordance with the Age Discrimination in Employment Act, 29 U.S.C. §§ 621-634, U.S. Equal Employment Opportunity Commission (U.S. EEOC) regulations, "Age Discrimination in Employment Act," 29 C.F.R. part 1625, the Age Discrimination Act of 1975, as amended, 42 U.S.C. § 6101 et seq., U.S. Health and Human Services regulations, "Nondiscrimination on the Basis of Age in Programs or Activities Receiving Federal Financial Assistance," 45 C.F.R. part 90, and Federal transit law at 49 U.S.C. § 5332, the Contractor agrees to refrain from discrimination against present and prospective employees for reason of age. In addition, the Contractor agrees to comply with any implementing requirements FTA may issue.

(c) **Disabilities** - In accordance with section 504 of the Rehabilitation Act of 1973, as amended, 29 U.S.C. § 794, the Americans with Disabilities Act of 1990, as amended, 42 U.S.C. § 12101 et seq., the Architectural Barriers Act of 1968, as amended, 42 U.S.C. §4151 et seq., and Federal transit law at 49 U.S.C. § 5332, the Contractor agrees that it will not discriminate against individuals on the basis of disability. In addition, the Contractor agrees to comply with any implementing requirements FTA may issue.

(3) The contractor also agrees to include these requirements in each subcontract financed whole or in part with Federal assistance provided by FTA, modified only if necessary to identify the affected parties.

INCORPORATION OF FTA 4220.1F TERMS

(1) The preceding provisions include, in part, certain Standard Terms and Conditions required by DOT, whether or not expressly set forth in the preceding contract provisions. All contractual provisions required by DOT, as set forth in FTA Circular 4220.1F, dated November 1, 2008, are hereby incorporated by reference. Anything to the contrary herein notwithstanding, all FTA-mandated terms shall be deemed to control in the event of a conflict with other provisions contained in this Agreement. The contractor shall not perform any act, fail to perform any act, or refuse to comply with any Participating Public Agency request, which would cause the Participating Public Agency to be in violation of the FTA terms and conditions.
(2) Flow Down – The incorporation of FTA terms has unlimited flow down.

DISADVANTAGED BUSINESS ENTERPRISE (DBE)

The contractor, subrecipient or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The contractor shall carry out applicable requirements of 49 C.F.R. part 26 in the award and administration of DOT-assisted contracts. Failure by the contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the recipient deems appropriate, which may include, but is not limited to:

1) Withholding monthly progress payments;

2) Assessing sanctions;

3) Liquidated damages; and/or

4) Disqualifying the contractor from future bidding as non-responsible. 49 C.F.R. § 26.13(b).

5) Non-Discrimination Assurances. Contractor or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this Contract. Contractor shall carry out all applicable requirements of 49 CFR Part 26 in the award and administration of DOT-assisted contracts. Failure by Contractor to carry out these requirements is a material breach of this Contract, which may result in the termination of this Contract or other such remedy as public agency deems appropriate. Each subcontract Contractor signs with a subcontractor must include the assurance in this paragraph. (See 49 CFR 26.13(b)).

6) Prompt Payment. Contractor is required to pay each subcontractor performing Work under this prime Contract for satisfactory performance of that work no later than thirty (30) days after Contractor's receipt of payment for that Work from public agency. In addition, Contractor is required to return any retainage payments to those subcontractors within thirty (30) days after the subcontractor's work related to this Contract is satisfactorily completed and any liens have been secured. Any delay or postponement of payment from the above time frames may occur only for good cause following written approval of public agency. This clause applies to both DBE and non-DBE subcontractors. Contractor must promptly notify public agency whenever a DBE subcontractor performing Work related to this Contract is terminated or fails to complete its Work, and must make good faith efforts to engage another DBE subcontractor to perform at least the same amount of work. Contractor may not terminate any DBE subcontractor and perform that Work through its own forces, or those of an affiliate, without prior written consent of Participating Public Agency.

7) DBE Program. In connection with the performance of this Contract, Contractor will cooperate with public agency in meeting its commitments and goals to ensure that DBEs shall have the maximum practicable opportunity to compete for subcontract work, regardless of whether a contract goal is set for this Contract. Contractor agrees to use good faith efforts to carry out a policy in the award of its subcontracts, agent agreements, and procurement contracts which will, to the fullest extent, utilize DBEs consistent with the efficient performance of the Contract.

ENERGY CONSERVATION REQUIREMENTS

Contractor agrees to comply with mandatory standards and policies relating to energy efficiency which are contained in the State energy conservation plans issued under the Energy Policy and Conservation Act, as amended, 42 U.S.C. Sections 6321 et seq. and 41 CFR Part 301-10.

INCORPORATION OF FEDERAL TRANSIT ADMINISTRATION (FTA) TERMS

1) The preceding provisions include, in part, certain Standard Terms and Conditions required by DOT, whether or not expressly set forth in the preceding contract provisions. All contractual provisions required by DOT, as set forth in FTA Circular 4220.1F, dated November 1, 2008, are hereby incorporated by reference. Anything to the contrary herein notwithstanding, all FTA-mandated terms shall be deemed to control in the event of a conflict with other provisions contained in this Agreement. The contractor shall not perform any act, fail to perform any act, or refuse to comply with any Participating Public Agency request, which would cause the Participating Public Agency to be in violation of the FTA terms and conditions.

2) Flow Down – The incorporation of FTA terms has unlimited flow down.

SUSPENSION AND DEBARMENT

The Contractor shall comply and facilitate compliance with U.S. DOT regulations, "Nonprocurement Suspension and Debarment," 2 C.F.R. part 1200, which adopts and supplements the U.S. Office of Management and Budget (U.S. OMB) "Guidelines to Agencies on Government Wide Debarment and Suspension (Nonprocurement)," 2 C.F.R. part 180. These provisions apply to each contract at any tier of $25,000 or more, and to each contract at any tier for a federally required audit (irrespective of the contract amount), and to each contract at any tier that must be approved by an FTA official irrespective of the contract amount. As such, the Contractor shall verify that its principals, affiliates, and subcontractors are eligible to participate in this federally funded contract and are not presently declared by any Federal department or agency to be:

a) Debarred from participation in any federally assisted Award;
b) Suspended from participation in any federally assisted Award;
c) Proposed for debarment from participation in any federally assisted Award;
d) Declared ineligible to participate in any federally assisted Award;
e) Voluntarily excluded from participation in any federally assisted Award; or
f) Disqualified from participation in ay federally assisted Award.

By signing and submitting its bid or proposal, the bidder or proposer certifies as follows:
The certification in this clause is a material representation of fact relied upon by the AGENCY. If it is later determined by the AGENCY that the bidder or proposer knowingly rendered an erroneous certification, in addition to remedies available to the AGENCY, the Federal Government may pursue available remedies, including but not limited to suspension and/or debarment. The bidder or proposer agrees to comply with the requirements of 2 C.F.R. part 180, subpart C, as supplemented by 2 C.F.R. part 1200, while this offer is valid and throughout the period of any contract that may arise from this offer. The bidder or proposer further agrees to include a provision requiring such compliance in its lower tier covered transactions.

NO FEDERAL GOVERNMENT OBLIGATIONS TO THIRD PARTIES

Agency and Contractor acknowledge and agree that, absent the Federal Government's express written consent and notwithstanding any concurrence by the Federal Government in or approval of the solicitation or award of the underlying Contract, the Federal Government is not a party to this Contract and shall not be subject to any obligations or liabilities to agency, Contractor, or any other party (whether or not a party to that contract) pertaining to any matter resulting from the underlying Contract.

Contractor agrees to include the above clause in each subcontract financed in whole or in part with federal assistance provided by the FTA. It is further agreed that the clause shall not be modified, except to identify the subcontractor who will be subject to its provisions.

CARGO PREFERENCE REQUIREMENTS

Use of United States-Flag Vessels. The contractor agrees:

1) To use privately owned United States-Flag commercial vessels to ship at least 50 percent of the gross tonnage (computed separately for dry bulk carriers, dry cargo liners, and tankers) involved, whenever shipping any equipment, material, or commodities pursuant to the underlying contract to the extent such vessels are available at fair and reasonable rates for United States-Flag commercial vessels.

2) To furnish within 20 working days following the date of loading for shipments originating within the United States or within 30 days following the date of loading for shipments originating outside the United States, a legible copy of a rated, "on-board" commercial ocean bill-of-lading in English for each shipment of cargo described in the preceding paragraph to the Division of National Cargo, Office of Market Development,

Maritime Administration, Washington D.C. 20590 and the FTA recipient (through the contractor in the case of a subcontractor's bill-of lading).

3) To include these requirements in all subcontracts issued pursuant to the contract when the subcontract may involve the transport of equipment, materials, or commodities by ocean vessel.

FLY AMERICA

Fly America Requirements:

1) Definitions. As used in this clause- "International air transportation" means transportation by air between a place in the United States and a place outside the United States or between two places both of which are outside the United States. "United States" means the 50 States, the District of Columbia, and outlying areas. "U.S.-flag air carrier" means an air carrier holding a certificate under 49 U.S.C. Chapter 411.

2) When Federal funds are used to fund travel, Section 5 of the International Air Transportation Fair Competitive Practices Act of 1974 (49 U.S.C. 40118) (Fly America Act) requires contractors, recipients, and others use U.S.-flag air carriers for U.S. Government-financed international air transportation of personnel (and their personal effects) or property, to the extent that service by those carriers is available. It requires the Comptroller General of the United States, in the absence of satisfactory proof of the necessity for foreign-flag air transportation, to disallow expenditures from funds, appropriated or otherwise established for the account of the United States, for international air transportation secured aboard a foreign-flag air carrier if a U.S.-flag air carrier is available to provide such services.

3) If available, the contractor, in performing work under this contract, shall use U.S.-flag carriers for international air transportation of personnel (and their personal effects) or property.

4) In the event that the contractor selects a carrier other than a U.S.-flag air carrier for international air transportation, the contractor shall include a statement on vouchers involving such transportation essentially as follows:

Statement of Unavailability of U.S.-Flag Air Carriers

International air transportation of persons (and their personal effects) or property by U.S.-flag air carrier was not available or it was necessary to use foreign-flag air carrier service for the following reasons. See FAR § 47.403.

Stated Reason(s):_____

_____

_____

5) The contractor shall include the substance of this clause, including this paragraph, in each subcontract or purchase under this contract that may involve international air transportation.

RECYCLED PRODUCTS

1) The Contractor agrees to provide a preference for those products and services that conserve natural resources, protect the environment, and are energy efficient by complying with and facilitating compliance with Section 6002 of the Resource Conservation and Recovery Act, as amended, 42 U.S.C. § 6962, and U.S. Environmental Protection Agency (U.S. EPA), "Comprehensive Procurement Guideline for Products Containing Recovered Materials," 40 C.F.R. part 247.

CONFORMANCE WITH ITS NATIONAL ARCHITECTURE

When applicable:

1) Contractor shall conform, to the extent applicable, to the National Intelligent Transportation Standards architecture as required by SAFETEA-LU Section 5307(c), 23 U.S.C. Section 512 and as amended by MAP-21 23 U.S.C. § 517(d), note and follow the provisions of FTA Notice, "FTA National Architecture Policy on

Transit Projects," 66 Fed. Reg.1455 et seq., January 8, 2001, and any other implementing directives FTA may issue at a later date, except to the extent FTA determines otherwise in writing.

ADA ACCESS

1) In accordance with section 504 of the Rehabilitation Act of 1973, as amended, 29 U.S.C. § 794, the Americans with Disabilities Act of 1990, as amended, 42 U.S.C. § 12101 et seq., the Architectural Barriers Act of 1968, as amended, 42 U.S.C. § 4151 et seq., and Federal transit law at 49 U.S.C. § 5332, the Contractor agrees that it will not discriminate against individuals on the basis of disability. In addition, the Contractor agrees to comply with any implementing requirements FTA may issue.

SAFE OPERATION OF MOTOR VEHICLES

1) *Seat Belt Use* - The Contractor is encouraged to adopt and promote on-the-job seat belt use policies and programs for its employees and other personnel that operate company-owned vehicles, company-rented vehicles, or personally operated vehicles. The terms "company-owned" and "company-leased" refer to vehicles owned or leased either by the Contractor or Participating Public Agency.

2) *Distracted Driver* - The Contractor agrees to adopt and enforce workplace safety policies to decrease crashes caused by distracted drivers, including policies to ban text messaging while using an electronic device supplied by an employer, and driving a vehicle the driver owns or rents, a vehicle Contactor owns, leases, or rents, or a privately-owned vehicle when on official business in connection with the work performed under this agreement.

PROMPT PAYMENT

1) The Prime Contractor shall pay any Subcontractor for work that has been satisfactorily performed no later than thirty (30) days from the date of the Prime Contractor's receipt of each payment made by the Participating Public Agency. Additionally, within thirty (30) days of satisfactory completion of all work required of the Subcontractor, the Prime Contractor shall release any retainage payments withheld to the Subcontractor.

FTA PROTEST NOTIFICATION

A protestant must exhaust all Participating Public Agency Procurement administrative procedures and remedies before pursuing a protest with the FTA.

1) Any and all protests shall be in writing and shall be filed with the Purchasing Manager with the Participating Public Agency. A protest relating to the process for determining the most responsive and responsible contractor shall be filed within five (5) business days after the protestor knows or should have known the basis of the determination. The Contract Officer shall respond to a protest within fourteen (14) calendar days after the receipt of the protest. The Purchasing Manager may grant the Contract Officer an extension for the response if warranted. A request for reconsideration of any and all determinations by the Contract Officer shall be filed with the Purchasing Manager within seven (7) calendar days after the receipt of the determination.

2) A protest shall include:

    a. The name, address, and telephone number, including FAX number if available, of the protestor;

    b. The signature of the protestor or authorized representative;

    c. Identification of the contract/solicitation;

    d. A detailed statement of the legal and/or factual grounds of protest including copies and/or citations of relevant documents, and;

    e. The form of relief requested.

3) If any of the above information is omitted or incomplete, then the Protestor shall be notified, in writing, within two (2) calendar days after that determination, and the Protestor shall have two (2) calendar days in which to remedy the specified problem.

4) The Participating Public Agency will not make award prior to the resolution of a protest, or open bids prior to resolution of a protest filed before bid opening unless the Purchasing Manager determines in writing that it is in the best interests of the Participating Public Agency or in keeping with item 7 of this procedure to do otherwise. Potential contractors will be advised of a pending protest if the protest is filed before award.

5) The Purchasing Manager may allow for an informal conference on the merits of a protest with all interested parties allowed to attend. Interested parties include all bidding contractors, and may also include a subcontractor or supplier provided they have a substantial economic interest in a portion of the IFB or RFP.

6) The Purchasing Manager shall respond "in writing", in detail, to each substantial issue raised in the protest. The Purchasing Manager has the sole authority to make determinations for the Participating Public Agency, and a determination shall be considered final when it is labeled as such. A request for reconsideration will be allowed by the Purchasing Manager if he determines that data has become available that was not previously known, or that there has been an error of law or regulation.

7) The Participating Public Agency may proceed with procurement when a protest is pending if the Participating Public Agency determines that:

   a. The items to be procured are urgently required;

   b. Delivery or performance will be unduly delayed by failure to make the award promptly; or

   c. Failure to make award will otherwise cause undue harm to the grantee for the Federal Government.

8) FTA will only entertain a protest that alleges:

   a. The Participating Public Agency failed to have or to adhere to its protest procedures, or failed to review a complaint or protest; or

   b. Violations of Federal law or regulation.

9) A protest to FTA must be filed in accordance with FTA Circular 4220.1F, available from the Contract Officer. Specifically, protestors shall file a protest with FTA Region 9 or FTA Headquarters Office no later than five (5) days after a final decision is rendered under the Participating Public Agency's protest procedure. In instances where the protestor alleges that the Participating Public Agency failed to make a final determination on the protest, protestors shall file a protest with FTA not later than five (5) calendar days after the protester knew or should have known of the grantee's failure to render a final determination on the protest.

   A protest filed with FTA shall:

   a. Include the name and address of the protestor.

   b. Identify the grantee, project number, and the number of the contract solicitation.

   c. Contain a statement of the grounds for protest and any supporting documentation. This should detail the alleged failure to have or adhere to protest procedures, failure to review a complaint or protest; or Violation of Federal law or regulation.

      Include a copy of the local protest filed with the grantee and a copy of the grantee's decision, if any.

DOC #1

STATEMENT OF OWNERSHIP DISCLOSURE

N.J.S.A. 52:25-24.2 (P.L. 1977, c.33, as amended by P.L. 2016, c.43)

This statement shall be completed, certified to, and included with all bid and proposal submissions. Failure to submit the required information is cause for automatic rejection of the bid or proposal.

Name of Organization: Flowbird America Inc.

Organization Address: 40 Twosome Drive, Moorestown, NJ 08057 **Part I**

Check the box that represents the type of business organization:

☐ Sole Proprietorship (skip Parts II and III, execute certification in Part IV)

☐ Non-Profit Corporation (skip Parts II and III, execute certification in Part IV)

☑ For-Profit Corporation (any type) ☐ Limited Liability Company (LLC)

☐ Partnership ☐ Limited Partnership ☐ Limited Liability Partnership (LLP)

☐ Other (be specific): _____

Part II

☑ The list below contains the names and addresses of all stockholders in the corporation who own 10 percent or more of its stock, of any class, or of all individual partners in the partnership who own a 10 percent or greater interest therein, or of all members in the limited liability company who own a 10 percent or greater interest therein, as the case may be. (**COMPLETE THE LIST BELOW IN THIS SECTION**)

OR

☐ No one stockholder in the corporation owns 10 percent or more of its stock, of any class, or no individual partner in the partnership owns a 10 percent or greater interest therein, or no member in the limited liability company owns a 10 percent or greater interest therein, as the case may be. (**SKIP TO PART IV**)

(Please attach additional sheets if more space is needed):

Name of Individual or Business Entity	Home Address (for Individuals) or Business Address
Flowbird SAS	2 ter Rue du Château, 92200 Neuilly-sur-Seine, France

Part III DISCLOSURE OF 10% OR GREATER OWNERSHIP IN THE STOCKHOLDERS, PARTNERS OR LLC MEMBERS LISTED IN PART II

If a bidder has a direct or indirect parent entity which is publicly traded, and any person holds a 10 percent or greater beneficial interest in the publicly traded parent entity as of the last annual federal Security and Exchange Commission (SEC) or foreign equivalent filing, ownership disclosure can be met by providing links to the website(s) containing the last annual filing(s) with the federal Securities and Exchange Commission (or foreign equivalent) that contain the name and address of each person holding a 10% or greater beneficial interest in the publicly traded parent entity, along with the relevant page numbers of the filing(s) that contain the information on each such person. **Attach additional sheets if more space is needed.**

Website (URL) containing the last annual SEC (or foreign equivalent) filing	Page #'s
N/A	

Please list the names and addresses of each stockholder, partner or member owning a 10 percent or greater interest in any corresponding corporation, partnership and/or limited liability company (LLC) listed in Part II **other than for any publicly traded parent entities referenced above**. The disclosure shall be continued until names and addresses of every noncorporate stockholder, and individual partner, and member exceeding the 10 percent ownership criteria established pursuant to N.J.S.A. 52:25-24.2 has been listed. **Attach additional sheets if more space is needed.**

Stockholder/Partner/Member and Corresponding Entity Listed in Part II	Home Address (for Individuals) or Business Address
N/A	

Part IV Certification

I, being duly sworn upon my oath, hereby represent that the foregoing information and any attachments thereto to the best of my knowledge are true and complete. I acknowledge: that I am authorized to execute this certification on behalf of the bidder/proposer; that the ***<name of contracting unit>*** is relying on the information contained herein and that I am under a continuing obligation from the date of this certification through the completion of any contracts with ***<type of contracting unit>*** to notify the ***<type of contracting unit>*** in writing of any changes to the information contained herein; that I am aware that it is a criminal offense to make a false statement or misrepresentation in this certification, and if I do so, I am subject to criminal prosecution under the law and that it will constitute a material breach of my agreement(s) with the, permitting the ***<type of contracting unit>*** to declare any contract(s) resulting from this certification void and unenforceable.

Full Name (Print):	Ronald Kroes	Title:	CFO
Signature:		Date:	July 18, 2024

NON-COLLUSION AFFIDAVIT

State of New Jersey
County of ss:
___Burlington_____

I, _____Ronald Kroes_____ residing in _____Voorhees_____
(name of affiant) (name of municipality)
in the County of _____Camden_____ and State of ___New Jersey_____of full age, being duly sworn according to law on my oath depose and say that:

I am __Chief Financial Officer_____ of the firm of _____Flowbird America Inc._
_____ (title or position) (name of firm)

the bidder making this Proposal for the bid entitled ___RFP for Parking Meters, Software, Systems and

Related Products and Services, Solicitation # 24-S835___, and that I executed the said proposal with
(title of bid proposal)
full authority to do so that said bidder has not, directly or indirectly entered into any agreement, participated in any collusion, or otherwise taken any action in restraint of free, competitive bidding in connection with the above named project; and that all statements contained in said proposal and in this affidavit are true and correct, and made with full knowledge that the _____corporation_____relies upon the truth of the statements contained in said Proposal
(name of contracting unit)
and in the statements contained in this affidavit in awarding the contract for the said project.

I further warrant that no person or selling agency has been employed or retained to solicit or secure such contract upon an agreement or understanding for a commission, percentage, brokerage, or contingent fee, except bona fide employees or bona fide established commercial or selling agencies maintained by _____Omnia._____.

Subscribed and sworn to

before me this day

_____
Signature

July 16, 2024

____Ronald Kroes, CFO_____
(Type or print name of affiant under signature)

_____
Notary public of

My Commission expires _____

(Seal)

DEBORAH CARIDEO
Notary Public, State of New Jersey
Comm. # 50203817
My Commission Expires 10/31/2027

DOC #3

AFFIRMATIVE ACTION AFFIDAVIT
(P.L. 1975, C.127)

Company Name: Flowbird America Inc.

Street: 40 Twosome Drive

City, State, Zip Code: Moorestown, NJ 08057

Proposal Certification:

Indicate below company's compliance with New Jersey Affirmative Action regulations. Company's proposal will be accepted even if company is not in compliance at this time. No contract and/or purchase order may be issued, however, until all Affirmative Action requirements are met.

Required Affirmative Action Evidence:

Procurement, Professional & Service Contracts (Exhibit A)

Vendors must submit with proposal:

1. A photocopy of a valid letter that the contractor is operating under an existing Federally approved or sanctioned affirmative action program (good for one year from the date of the letter);

   OR

2. A photocopy of a Certificate of Employee Information Report approval, issued in accordance with N.J.A.C. 17:27-4;

   OR

3. A photocopy of an Employee Information Report (Form AA302) provided by the Division of Contract Compliance and Equal Employment Opportunity in Public Contracts and distributed to the public agency to be completed by the contractor in accordance with N.J.A.C. 17:27-4.

Public Work – Over $50,000 Total Project Cost:

A. No approved Federal or New Jersey Affirmative Action Plan. We will complete Report Form AA201. A project contract ID number will be assigned to your firm upon receipt of the completed Initial Project Workforce Report (AA201) for this contract.

B. Approved Federal or New Jersey Plan – certificate enclosed

I further certify that the statements and information contained herein, are complete and correct to the best of my knowledge and belief.

July 18, 2024
Date

CFO
Authorized Signature and Title

Form AA302
Rev. 02/22

STATE OF NEW JERSEY

Division of Purchase & Property
Contract Compliance Audit Unit
EEO Monitoring Program

CONFORMED 11/6/2024

EMPLOYEE INFORMATION REPORT

IMPORTANT-READ INSTRUCTIONS CAREFULLY BEFORE COMPLETING FORM. FAILURE TO PROPERLY COMPLETE THE ENTIRE FORM AND TO SUBMIT THE REQUIRED $150.00 FEE MAY DELAY ISSUANCE OF YOUR CERTIFICATE. DO NOT SUBMIT EEO-1 REPORT FOR SECTION B, ITEM 11. For Instructions on completing the form, go to: https://www.nj.gov/treasury/contract_compliance/documents/pdf/forms/aa302ins.pdf

SECTION A - COMPANY IDENTIFICATION

1. FID. NO. OR SOCIAL SECURITY: 01-0778174

2. TYPE OF BUSINESS: ☑ 1. MFG ☑ 2. SERVICE ☐ 3. WHOLESALE ☐ 4. RETAIL ☐ 5. OTHER

3. TOTAL NO. EMPLOYEES IN THE ENTIRE COMPANY: 58

4. COMPANY NAME: Flowbird America Inc

COMPANY E-MAIL:

5. STREET: 40 Twosome Dr., Suite 7 | CITY: Moorestown | COUNTY: Burlington | STATE: NJ | ZIP CODE: 08057

6. NAME OF PARENT OR AFFILIATED COMPANY (IF NONE, SO INDICATE) | CITY | STATE | ZIP CODE

7. CHECK ONE: IS THE COMPANY: ☑ SINGLE-ESTABLISHMENT EMPLOYER ☐ MULTI-ESTABLISHMENT EMPLOYER

8. IF MULTI-ESTABLISHMENT EMPLOYER, STATE THE NUMBER OF ESTABLISHMENTS IN NJ

9. TOTAL NUMBER OF EMPLOYEES AT ESTABLISHMENT WHICH HAS BEEN AWARDED THE CONTRACT

10. PUBLIC AGENCY AWARDING CONTRACT | CITY | COUNTY | STATE | ZIP CODE

Official Use Only	DATE RECEIVED	INAUG.DATE	ASSIGNED CERTIFICATION NUMBER

SECTION B - EMPLOYMENT DATA

11. Report all permanent, temporary and part-time employees ON YOUR OWN PAYROLL. Enter the appropriate figures on all lines and in all columns. Where there are no employees in a particular category, enter a zero. Include ALL employees, not just those in minority/non-minority categories, in columns 1, 2, & 3. *DO NOT SUBMIT AN EEO-1 REPORT.*

JOB CATEGORIES	ALL EMPLOYEES	PERMANENT MINORITY/NON-MINORITY EMPLOYEE BREAKDOWN												
	COL. 1	COL. 2	COL. 3	********* MALE*********						********FEMALE*********					
	Total	Male	Female												
	(Cols.2 &3)			BLACK	HISPANIC	AMER INDIAN	ASIAN	NON MIN	2 OR MORE RACES	BLACK	HISPANIC	AMER INDIAN	ASIAN	NON MIN	2 OR MORE RACES
Officials/ Managers	13	12	1	1	11	0	0	0	0	0	0	0	0	1	0
Professionals	28	20	8	2	2	0	2	13	1	0	0	0	1	7	0
Technicians	4	4	0	1	2	0	1	0	0	0	0	0	0	0	0
Sales Workers	4	4	0	0	1	0	0	3	0	0	0	0	0	0	0
Office & Clerical	4	0	4	0	0	0	0	0	0	0	0	0	0	4	0
Craftworkers (Skilled)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Operatives (Semi-skilled)	3	3	0	0	1	0	0	2	0	0	0	0	0	0	0
Laborers (Unskilled)	1	1	0	0	0	0	0	1	0	0	0	0	0	0	0
Service Workers	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	58	44	13	4	17	0	3	19	1	0	0	0	1	12	0
Total employment From previous Report (if any)															
	The data below shall NOT be included in the figures for the appropriate categories above.														
Temporary & Part-Time Employees	3	2	1	0	1	0	0	1	0	0	0	0	0	1	0

12. HOW WAS INFORMATION AS TO RACE OR ETHNIC GROUP IN SECTION B OBTAINED?
☐ 1. Visual Survey ☑ 2. Employment Record ☐ 3. Other (Specify)

13. DATES OF PAYROLL PERIOD USED
From: 6/23/2024 To: 07/06/2024

14. IS THIS THE FIRST Employee Information Report Submitted?
1. YES ☐ 2. NO ☑

15. IF NO, DATE LAST REPORT SUBMITTED
MO. 05 DAY 10 YEAR 2024

SECTION C - SIGNATURE AND IDENTIFICATION

16. NAME OF PERSON COMPLETING FORM (Print or Type)	SIGNATURE	TITLE	DATE
Kim Jantz		Human Resources Mgr	MO 7 DAY 16 YEAR 2024

17. ADDRESS NO. & STREET	CITY	COUNTY	STATE	ZIP CODE	PHONE (AREA CODE, NO.,EXTENSION)
40 Twosome Dr., Suite 7	Moorestown	Burlington	NJ	08057	(727)335-3328 - -

DOC #4, continued

C. 271 POLITICAL CONTRIBUTION DISCLOSURE FORM

Contractor Instructions

Business entities (contractors) receiving contracts from a public agency that are NOT awarded pursuant to a "fair and open" process (defined at N.J.S.A. 19:44A-20.7) are subject to the provisions of P.L. 2005, c. 271, s.2 (N.J.S.A. 19:44A-20.26). This law provides that 10 days prior to the award of such a contract, the contractor shall disclose contributions to:

- any State, county, or municipal committee of a political party
- any legislative leadership committee*
- any continuing political committee (a.k.a., political action committee)
- any candidate committee of a candidate for, or holder of, an elective office:
    - of the public entity awarding the contract
    - of that county in which that public entity is located
    - of another public entity within that county
    - or of a legislative district in which that public entity is located or, when the public entity is a county, of any legislative district which includes all or part of the county

The disclosure must list reportable contributions to any of the committees that exceed $300 per election cycle that were made during the 12 months prior to award of the contract. See N.J.S.A. 19:44A-8 and 19:44A-16 for more details on reportable contributions.

N.J.S.A. 19:44A-20.26 itemizes the parties from whom contributions must be disclosed when a business entity is not a natural person. This includes the following:

- individuals with an "interest" ownership or control of more than 10% of the profits or assets of a business entity or 10% of the stock in the case of a business entity that is a corporation for profit
- all principals, partners, officers, or directors of the business entity or their spouses
- any subsidiaries directly or indirectly controlled by the business entity
- IRS Code Section 527 New Jersey based organizations, directly or indirectly controlled by the business entity and filing as continuing political committees, (PACs).

When the business entity is a natural person, "a contribution by that person's spouse or child, residing therewith, shall be deemed to be a contribution by the business entity." [N.J.S.A. 19:44A-20.26(b)] The contributor must be listed on the disclosure.

Any business entity that fails to comply with the disclosure provisions shall be subject to a fine imposed by ELEC in an amount to be determined by the Commission which may be based upon the amount that the business entity failed to report.

The enclosed list of agencies is provided to assist the contractor in identifying those public agencies whose elected official and/or candidate campaign committees are affected by the disclosure requirement. It is the contractor's responsibility to identify the specific committees to which contributions may have been made and need to be disclosed. The disclosed information may exceed the minimum requirement.

The enclosed form, a content-consistent facsimile, or an electronic data file containing the required details (along with a signed cover sheet) may be used as the contractor's submission and is disclosable to the public under the Open Public Records Act.

The contractor must also complete the attached Stockholder Disclosure Certification. This will assist the agency in meeting its obligations under the law. **NOTE: This section does not apply to Board of Education contracts.**

* N.J.S.A. 19:44A-3(s): "The term "legislative leadership committee" means a committee established, authorized to be established, or designated by the President of the Senate, the Minority Leader of the Senate, the Speaker of the General Assembly or the Minority Leader of the General Assembly pursuant to section 16 of P.L.1993, c.65 (C.19:44A-10.1) for the purpose of receiving contributions and making expenditures."

DOC #4, continued

C. 271 POLITICAL CONTRIBUTION DISCLOSURE FORM

Required Pursuant to N.J.S.A. 19:44A-20.26

This form or its permitted facsimile must be submitted to the local unit no later than 10 days prior to the award of the contract.

Part I – Vendor Information

Vendor Name:	Flowbird America Inc.		
Address:	40 Twosome Drive		
City:	Moorestown	State: NJ	Zip: 08057

The undersigned being authorized to certify, hereby certifies that the submission provided herein represents compliance with the provisions of N.J.S.A. 19:44A-20.26 and as represented by the Instructions accompanying this form.

Signature	Printed Name	Title
	Ronald Kroes	CFO

Part II – Contribution Disclosure

Disclosure requirement: Pursuant to N.J.S.A. 19:44A-20.26 this disclosure must include all reportable political contributions (more than $300 per election cycle) over the 12 months prior to submission to the committees of the government entities listed on the form provided by the local unit.

☐ Check here if disclosure is provided in electronic form

Contributor Name	Recipient Name	Date	Dollar Amount
			$
N/a			

☐ Check here if the information is continued on subsequent page(s)

DOC #4, continued

List of Agencies with Elected Officials Required for Political Contribution Disclosure
N.J.S.A. 19:44A-20.26

County Name:
State: Governor, and Legislative Leadership Committees
Legislative District #s:
State Senator and two members of the General Assembly per district.

County:

Freeholders	County Clerk	Sheriff
{County Executive}	Surrogate	

Municipalities (Mayor and members of governing body, regardless of title):

USERS SHOULD CREATE THEIR OWN FORM, OR DOWNLOAD FROM THE PAY TO PLAY SECTION OF THE DLGS WEBSITE A COUNTY-BASED, CUSTOMIZABLE FORM.

DOC #5

STOCKHOLDER DISCLOSURE CERTIFICATION

Name of Business:

☑ I certify that the list below contains the names and home addresses of all stockholders holding 10% or more of the issued and outstanding stock of the undersigned.

OR

☑ I certify that no one stockholder owns 10% or more of the issued and outstanding stock of the undersigned.

Check the box that represents the type of business organization:

☐ Partnership ☑ Corporation ☐ Sole Proprietorship

☐ Limited Partnership ☐ Limited Liability Corporation ☐ Limited Liability Partnership

☐ Subchapter S Corporation

Sign and notarize the form below, and, if necessary, complete the stockholder list below.

Stockholders:

Name: Home Address:	Flowbird SAS 2 ter Rue du Château, 92200 Neuilly-sur-Seine, France	Name: Home Address:
Name: Home Address:		Name: Home Address:
Name: Home Address:		Name: Home Address:

Subscribed and sworn before me this 16 day of July, 24.

(Notary Public)

My Commission expires:

DEBORAH CARIDEO
Notary Public, State of New Jersey
Comm. # 50203817
My Commission Expires 10/31/2027

(Affiant)

Ronald Kroes, CFO
(Print name & title of affiant)

(Corporate Seal)

DOC #6

DISCLOSURE OF INVESTMENT ACTIVITIES IN IRAN FORM

STATE OF NEW JERSEY
DEPARTMENT OF THE TREASURY - DIVISION OF PURCHASE AND PROPERTY
33 WEST STATE STREET, P.O. BOX 230 TRENTON, NEW JERSEY 08625-0230

BID SOLICITATION # AND TITLE: ____Solicitation # 24-S835 Parking Meters, Software, Systems, and Related Products and Services_____ **VENDOR NAME:** _____**Flowbird America Inc.**

Pursuant to N.J.S.A. 52:32-57, et seq. (P.L. 2012, c.25 and P.L. 2021, c.4) any person or entity that submits a bid or proposal or otherwise proposes to enter into or renew a contract must certify that neither the person nor entity, nor any of its parents, subsidiaries, or affiliates, is identified on the New Jersey Department of the Treasury's Chapter 25 List as a person or entity engaged in investment activities in Iran. The Chapter 25 list is found on the Division's website at https://www.state.nj.us/treasury/purchase/pdf/Chapter25List.pdf. Vendors/Bidders must review this list prior to completing the below certification. If the Director of the Division of Purchase and Property finds a person or entity to be in violation of the law, s/he shall take action as may be appropriate and provided by law, rule or contract, including but not limited to, imposing sanctions, seeking compliance, recovering damages, declaring the party in default and seeking debarment or suspension of the party.

CHECK THE APPROPRIATE BOX

☑ I certify, pursuant to N.J.S.A. 52:32-57, et seq. (P.L. 2012, c.25 and P.L. 2021, c.4), that neither the Vendor/Bidder listed above nor any of its parents, subsidiaries, or affiliates is listed on the New Jersey Department of the Treasury's Chapter 25 List of entities determined to be engaged in prohibited activities in Iran.

OR

☐ I am unable to certify as above because the Vendor/Bidder and/or one or more of its parents, subsidiaries, or affiliates is listed on the New Jersey Department of the Treasury's Chapter 25 List. I will provide a detailed, accurate and precise description of the activities of the Vendor/Bidder, or one of its parents, subsidiaries or affiliates, has engaged in regarding investment activities in Iran by completing the information requested below.

Entity Engaged in Investment Activities
Relationship to Vendor/ Bidder
Description of Activities
____N/A_____

Duration of Engagement
Anticipated Cessation Date
**Attach Additional Sheets If Necessary.*

CERTIFICATION

I, the undersigned, certify that I am authorized to execute this certification on behalf of the Vendor, that the foregoing information and any attachments hereto, to the best of my knowledge are true and complete. I acknowledge that the State of New Jersey is relying on the information contained herein, and that the Vendor is under a continuing obligation from the date of this certification through the completion of any contract(s) with the State to notify the State in writing of any changes to the information contained herein; that I am aware that it is a criminal offense to make a false statement or misrepresentation in this certification. If I do so, I may be subject to criminal prosecution under the law, and it will constitute a material breach of my contract(s) with the State, permitting the State to declare any contract(s) resulting from this certification void and unenforceable.

_____ ____July 18, 2024_____
Signature Date

_____Ronald Kroes, CFO_____
Print Name and Title

DPP Rev. 12.13.2021

DOC #7

CERTIFICATION OF NON-INVOLVEMENT IN PROHIBITED ACTIVITIES IN RUSSIA OR BELARUS

Pursuant to N.J.S.A. 52:32-60.1, et seq. (L. 2022, c. 3) any person or entity (hereinafter "Vendor[i]") that seeks to enter into or renew a contract with a State agency for the provision of goods or services, or the purchase of bonds or other obligations, must complete the certification below indicating whether or not the Vendor is identified on the Office of Foreign Assets Control (OFAC) Specially Designated Nationals and Blocked Persons list, available here: https://sanctionssearch.ofac.treas.gov/. If the Department of the Treasury finds that a Vendor has made a certification in violation of the law, it shall take any action as may be appropriate and provided by law, rule or contract, including but not limited to, imposing sanctions, seeking compliance, recovering damages, declaring the party in default and seeking debarment or suspension of the party.

I, the undersigned, certify that I have read the definition of "Vendor" below, and have reviewed the Office of Foreign Assets Control (OFAC) Specially Designated Nationals and Blocked Persons list, and having done so certify:

(Check the Appropriate Box)

☑ A. That the Vendor is not identified on the OFAC Specially Designated Nationals and Blocked Persons list on account of activity related to Russia and/or Belarus.

OR

☐ B. That I am unable to certify as to "A" above, because the Vendor is identified on the OFAC Specially Designated Nationals and Blocked Persons list on account of activity related to Russia and/or Belarus.

OR

☐ C. That I am unable to certify as to "A" above, because the Vendor is identified on the OFAC Specially Designated Nationals and Blocked Persons list. However, the Vendor is engaged in activity related to Russia and/or Belarus consistent with federal law, regulation, license or exemption. A detailed description of how the Vendor's activity related to Russia and/or Belarus is consistent with federal law is set forth below.

(Attach Additional Sheets If Necessary.)

Signature of Vendor's Authorized Representative	July 18, 2024 Date
Ronald Kroes, CFO Print Name and Title of Vendor's Authorized Representative	01-0778174 Vendor's FEIN
Flowbird America Inc. Vendor's Name	856-234-8000 Vendor's Phone Number
40 Twosome Drive Vendor's Address (Street Address)	N/A Vendor's Fax Number
Moorestown, NJ 08057 Vendor's Address (City/State/Zip Code)	ronald.kroes@flowbird.group Vendor's Email Address

[i] Vendor means: (1) A natural person, corporation, company, limited partnership, limited liability partnership, limited liability company, business association, sole proprietorship, joint venture, partnership, society, trust, or any other nongovernmental entity, organization, or group; (2) Any governmental entity or instrumentality of a government, including a multilateral development institution, as defined in Section 1701(c)(3) of the International Financial Institutions Act, 22 U.S.C. 262r(c)(3); or (3) Any parent, successor, subunit, direct or indirect subsidiary, or any entity under common ownership or control with, any entity described in paragraph (1) or (2). NJ Rev. 1.22.2024

CONFORMED 11/6/2024

STATE OF NEW JERSEY

BUSINESS REGISTRATION CERTIFICATE

DEPARTMENT OF TREASURY
DIVISION OF REVENUE
PO BOX 252
TRENTON, N J 08646-0252

TAXPAYER NAME:

FLOWBIRD AMERICA INC.

ADDRESS:

40 TWOSOME DR UNIT 7
MOORESTOWN NJ 08057-1369

EFFECTIVE DATE:

09/24/03

TRADE NAME:

SEQUENCE NUMBER:

1016588

ISSUANCE DATE:

06/05/24

James J. Fusaro

Director
New Jersey Division of Revenue

FORM-BRC

This Certificate is NOT assignable or transferable. It must be conspicuously displayed at above address.

DOC #9

EEOAA EVIDENCE

Equal Employment Opportunity/Affirmative Action
Goods, Professional Services & General Service Projects

EEO/AA Evidence

Vendors are required to submit evidence of compliance with N.J.S.A. 10:5-31 et seq. and N.J.A.C. 17:27 in order to be considered a responsible vendor.

One of the following must be included with submission:

- Copy of Letter of Federal Approval
- Certificate of Employee Information Report
- Fully Executed Form AA302
- Fully Executed EEO-1 Report

See the guidelines at:
https://www.state.nj.us/treasury/contract_compliance/documents/pdf/guidelines/pa.pdf
for further information.

I certify that my bid package includes the required evidence per the above list and State website.

Name: ___Ronald Kroes_____ Title: __CFO_____

Signature: _____ Date: ___July 18, 2024___

DOC #10

MACBRIDE-PRINCIPLES

STATE OF NEW JERSEY
DEPARTMENT OF THE TREASURY - DIVISION OF PURCHASE
AND PROPERTY 33 WEST STATE STREET, P.O. BOX 230 TRENTON,
NEW JERSEY 08625-0230

BID SOLICITATION # AND TITLE: __Solicitation # 24-S835 Parking Meters, Software, Systems, and Related Products and Services_____ **VENDOR NAME:** _____Flowbird America Inc. _____

Pursuant to Public Law 1995, c. 134, a responsible Vendor/Bidder is required to provide a certification in compliance with the MacBride Principles and Northern Ireland Act of 1989. Pursuant to N.J.S.A. 52:34-12.2, Vendor/Bidder must complete the certification below by checking one of the two options listed below and signing where indicated. If a Vendor/Bidder that would otherwise be awarded a purchase, contract or agreement does not complete the certification, then the Director may determine, in accordance with applicable law and rules, that it is in the best interest of the State to award the purchase, contract or agreement to another Vendor/ Bidder that has completed the certification and has submitted a bid within five (5) percent of the most advantageous bid. If the Director finds contractors to be in violation of the principles that are the subject of this law, he/she shall take such action as may be appropriate and provided by law, rule or contract, including but not limited to, imposing sanctions, seeking compliance, recovering damages, declaring the party in default and seeking debarment or suspension of the party.

I, the undersigned, on behalf the Vendor/Bidder, certify pursuant to N.J.S.A. 52:34-12.2 that:

CHECK THE APPROPRIATE BOX

☑ The Vendor/Bidder has no business operations in Northern Ireland; or

OR

☐ The Vendor/Bidder will take lawful steps in good faith to conduct any business operations it has in Northern Ireland in accordance with the MacBride principles of nondiscrimination in employment as set forth in section 2 of P.L. 1987, c. 177 (N.J.S.A. 52:18A-89.5) and in conformance with the United Kingdom's Fair Employment (Northern Ireland) Act of 1989, and permit independent monitoring of its compliance with those principles.

CERTIFICATION

I, the undersigned, certify that I am authorized to execute this certification on behalf of the Vendor, that the foregoing information and any attachments hereto, to the best of my knowledge are true and complete. I acknowledge that the State of New Jersey is relying on the information contained herein, and that the Vendor is under a continuing obligation from the date of this certification through the completion of any contract(s) with the State to notify the State in writing of any changes to the information contained herein; that I am aware that it is a criminal offense to make a false statement or misrepresentation in this certification. If I do so, I may be subject to criminal prosecution under the law, and it will constitute a material breach of my contract(s) with the State, permitting the State to declare any contract(s) resulting from this certification void and unenforceable.

Signature — Date: July 18, 2024

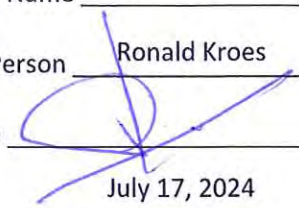
Ronald Kroes, CFO
Print Name and Title

RECEIPT OF QUESTION & ANSWER ACKNOWLEDGEMENT

Offeror shall acknowledge this Question & Answer document by signing below and include in their proposal response.

Company Name Flowbird America Inc.

Contact Person Ronald Kroes

Signature 

Date July 17, 2024

REQUEST FOR PROPOSAL (RFP) FOR PARKING METERS, SOFTWARE, SYSTEMS AND RELATED PRODUCTS AND SERVICES

SOLICITATION NUMBER
RFP 24-S835

PUBLICATION DATE
Tuesday, June 4, 2024

QUESTIONS SUBMITTED BY
Tuesday, June 25, 2024, 2:00pm CT

SUBMITTAL DUE DATE AND TIME:
Thursday, July 18, 2024, 2:00pm CT

Competitive solicitation by Region 14 Education Service Center
on behalf of itself and other government agencies
and made available through OMNIA Partners, Public Sector, Inc.

NOTICE TO SUPPLIER: When partnering with OMNIA Partners, Region 14 uses Bonfire (https://omniapartners.bonfirehub.com) to advertise solicitations, manage supplier questions, receive submittals and manage submittal evaluations. Questions regarding this solicitation must be submitted through Bonfire using the Ask a Question button and should be submitted before the questions due date time stated herein. Answers to questions will be posted in Bonfire approximately one week prior to the submittal due date and time.

Public Opening: Submittals will remain sealed by Bonfire until the submittal due date and time specified herein. Submittals received outside of Bonfire will not be accepted. At the due date and time listed, or modified via addenda, submittals will be opened, read aloud publicly and suppliers' names recorded via the virtual meeting below.

Meeting URL: https://omniapartners.zoom.us/j/87290814476
Call In #: 346-248-7799
Meeting ID: 872 9081 4476

I. INTRODUCTION

It is the intention of Region 14 Education Service Center (herein "Region 14 ESC") to establish a contract for Parking Meters, Software, Systems and Related Products and Services for use by Region 14 ESC and other public agencies supported under this contract.

Region 14 ESC aims to achieve the following objectives through this RFP.

- Provide a comprehensive competitively solicited contract offering products and services to public agencies;
- Achieve cost savings for public agencies and suppliers through a single competitive solicitation process that eliminates the need for multiple proposals;
- Combine the purchasing power of public agencies to achieve cost effective pricing;
- Reduce the administrative and overhead costs of public agencies and suppliers through best in class purchasing procedures.

Region 14 Education Service Center ("Region 14 ESC")

Region14 ESC schools are called Rural West Texas Schools that serve over 50,000 students in 42 school districts located in 13 counties which make up Region 14. Services are delivered to more than 3,900 professional educators and over 200 administrators who impact the lives of all of our children on 160 campus sites. There are seven institutions for higher learning including 3 universities, 3 colleges, and 1 technical college in Region 14.

National Contract

Region 14 ESC, as the Principal Procurement Agency, defined in APPENDIX B, has partnered with OMNIA Partners, Public Sector, Inc., a Delaware corporation ("**OMNIA Partners**") to make the resultant contract (also known as the "**Master Agreement**" in materials distributed by OMNIA Partners) from this solicitation available to other public agencies nationally, including state and local governmental entities, public and private primary, secondary and higher education entities, non-profit entities, and agencies for the public benefit ("**Public Agencies**"), through OMNIA Partners' cooperative purchasing program. Region 14 ESC is acting as the contracting agency for any other Public Agency that elects to utilize the resulting Master Agreement. Use of the Master Agreement by any Public Agency is preceded by their registration with OMNIA Partners (a "**Participating Public Agency**") and by using the Master Agreement, any such Participating Public Agency agrees that it is registered with OMNIA Partners, whether pursuant to the terms of a Master Intergovernmental Cooperative Purchasing Agreement, a form of which is attached hereto on APPENDIX B, or as otherwise agreed to. APPENDIX B contains additional information about OMNIA Partners and the cooperative purchasing program.

OMNIA Partners is the largest and most experienced purchasing organization for public and private sector procurement. Through the economies of scale created by OMNIA Partners' public sector subsidiaries and affiliates, our participants have access to competitively solicited and publicly awarded cooperative agreements. For all public sector contracts, the lead agency contracting process continues to be the foundation on which we were established. OMNIA Partners is proud to offer more value and resources to state and local government, higher education, K-12 education and non-profits.

OMNIA Partners provides shared services and supply chain optimization to government, education and the private sector. With corporate, pricing and sales commitments from the Supplier, OMNIA Partners provides marketing and administrative support for the Supplier that directly promotes the Supplier's products and services to Participating Public Agencies through multiple channels, each designed to promote specific products and services to Public Agencies on a national basis. Participating Public Agencies benefit from pricing based on aggregate spend and the convenience of a contract that has already been advertised and publicly competed. The Supplier benefits from a contract that generally allows Participating Public Agencies to directly purchase goods and services without the Supplier's need to respond to additional competitive solicitations. As such, the Supplier must be able to accommodate a nationwide demand for services and to fulfill obligations as a nationwide Supplier and respond to the OMNIA Partners documents (APPENDIX B).

While no minimum volume is guaranteed to the Supplier, the estimated annual volume of Parking Related Products, Systems, and Services purchased under the Master Agreement through OMNIA Partners is approximately $100M. This projection is based on the current annual volumes among the Region 14 ESC, other Participating Public Agencies anticipated to utilize the resulting Master Agreement to be made available to them through OMNIA Partners, and volume growth into other Public Agencies through a coordinated marketing approach between the Supplier and OMNIA Partners.

II. SCOPE

A. Purpose

The objective of the Parking Meters, Software, Systems and Related Products and Services is to provide comprehensive parking services for public sector agencies. The awarded supplier(s) will work with Participating Public Agencies to help determine all the services required; awarded supplier(s) may also provide any applicable products as requested by Participating Public Agencies. The intent of the anticipated resulting contracts of this solicitation is to generate more comprehensive parking solution contracts replacing the need for later re-solicitations of other Region 14 ESC parking solutions including: Integrated Parking Management System; Parking Access Revenue Control System; Parking and Mobility Consulting; Parking Enforcement Software and Equipment; Parking Meters; Parking, Transportation, and Mobility Services; Self-Enforcing Parking Meters; and Smart Parking Displays. Both current and new parking related suppliers are strongly encouraged to submit.

Although this section reflects the needs and requirements of Region 14 ESC, OMNIA Partners Participating Public Agencies may have different requirements. OMNIA Partners Participating Public Agencies may sign a supplemental or usage agreement with the awarded supplier(s) substantially based on the terms and conditions of the Region 14 ESC Master Agreement. Participating Public Agencies may elect to negotiate certain terms to conform to their purchasing and contracting requirements.

Should an awarded supplier utilize subcontractors, distributors, dealers, or other affiliate, Participating Public Agencies may choose to issue work directly to the subcontractor, distributor, dealer, or other affiliate if allowed by the awarded Supplier and Participating Public Agency. While the Offeror does need to submit a list of their initial subcontractors, distributors, dealers, or other affiliates, Region 14 ESC does not need to approve changes and updates to awarded Supplier's approved subcontractor, distributor, dealer, and other affiliates list unless requested or required by the awarded Supplier; however, awarded Supplier's should maintain their own list of subcontractors, distributors, dealers, or other affiliates that the awarded Supplier has approved for Participating Public Agencies to review.

B. Parking Related Products, Systems and Services

The description of scope is broken into sections to help delineate the various Parking Meters, Software, Systems and Related Products and Services requested. Offerors are not limited to any one section and should describe their ability to provide all of the parking related items that their business currently offers. Proposals should be detailed with respect to the products, systems and/or services that the Offeror has expertise in providing. Offerors are encouraged to provide a complete product and service offering or balance of line.

- For all products, software, systems, and services, Offerors shall provide new equipment, parts, accessories, materials and products that are of good quality and free of defects and provide pricing structures for each of these items as indicated in Section V. Evaluation.

1. Products

a. The following is a list of suggested products that could be included; this list is not meant to be exhaustive, and Offerors may provide other products as applicable.

   i. Handheld Enforcement Computers
   ii. Parking Meters
      - Single, multi-space and/or self-enforcing parking meters and systems.
      - Meters should have the capability to be configured for different rates, such as: period of the year or week, special events, hour, location, min/max periods allowed, and progressive or regressive costs for a unit of parking time that increases or decreases.
   iii. Smart Parking Displays
   iv. Mobile Parking Application (app)
      - At a minimum, the app must have industry-level standards to encrypt and secure credit card and other personal data.
   v. Citation Paper Stock and Envelopes
   vi. Miscellaneous Related Products for Parking Enforcement and Other Products Lines

2. Software and Systems

a. The following is a list of suggested Parking Related Systems that could be included; this list is not meant to be exhaustive, and Offerors may provide other systems as applicable.

   i. Enforcement and/or Parking Meter Software Systems
   ii. Parking and/or Meter Management Systems
      - Inventory management systems
      - Permit management systems
   iii. Parking Access Revenue Control Systems (PARCS)
   iv. Mobile and/or Web-based Payment Systems
      - Mobile Payment through an Interactive Voice Response (IVR) system.
      - Web-based Payment through a designated website.
      - At a minimum, either payment system must have industry-level standards to encrypt and secure credit card and other personal data.

3. Services

a. The following is a list of suggested parking related services that could be included; this list is not meant to be exhaustive, and Offerors may provide other services as applicable.

   i. Parking and Mobility Consulting
   ii. Parking Management Services
   iii. Mobility and Transportation Services
   iv. Vehicle Sensing Solutions
   v. Staffing Services

- Staffing services, associated with the management and maintenance of parking facilities.
- Additional services that could be provided, such as parking lot cleaning, vehicle disinfection, and other parking related services.

vi. Miscellaneous Related Services for Parking Solutions

- Permitting Services
- Booting and Towing of Vehicles
- Special Event Parking

Special Offers and Comprehensive Offering

Awarded Supplier(s) may conduct sales promotions involving price reductions for a specified lesser period, in addition to decreasing prices for the balance of the Master Agreement term due to a change in market conditions. Awarded Supplier(s) may offer Participating Agencies competitive pricing which is lower than the not-to-exceed price set forth herein at any time during the Master Agreement term and such lower pricing shall not be applied as a global price reduction under the Master Agreement.

Each Offeror awarded an item under this solicitation may offer their complete product and service offering/a balance of line for Parking Related Products, Systems and Services. Pricing for awarded Supplier's complete product offering/balance of line items will be determined by a percentage discount off the offeror's price list. The pricing percentage discount offered must be entered in the Pricing Section in the Offeror's response. Region 14 ESC reserves the right to accept or reject any or all balance of line items offered. A successful Offeror will not be awarded items that are awarded as an item to another vendor as part of this solicitation.

III. INSTRUCTIONS TO SUPPLIERS

1. Submission of Response.

- Responses shall be received electronically no later than the submittal due date and time via Bonfire at https://omniapartners.bonfirehub.com/.
- Bonfire will not accept any responses after the specified due date and time.
- Only responses received via Bonfire will be accepted. Faxed or mailed responses will not be accepted.
- Responses may be submitted on any or all items, unless stated otherwise. Region 14 ESC reserves the right to reject or accept any response.
- Proposals may be rejected for failure to comply with the requirements set forth in this solicitation.

2. Required Proposal Format. Responses shall be submitted electronically via Bonfire. Separate files should be used to separate the proposal into sections, as identified below. Suppliers failing to organize in the manner listed may be considered non-responsive and may not be evaluated. It's recommended that all sections, except for Section 2 (Pricing), be submitted in Portable Document Format (PDF). Pricing may be submitted separately in an alternate format (e.g. xlsx, xls, csv).

Sections:

Section 1 – Signature Form
Section 2 – Pricing
Section 3 – Ability to Perform, including response to the national program (Appendix B)
Section 4 – References and Experience
Section 5 – Value Added Products and Services
Section 6 – Required Documents

3. Additional Agreements. If a supplier requires an additional agreement, a copy of the proposed agreement must be included with the proposal.

4. Deviations and Exceptions. Deviations or exceptions stipulated in a supplier's response may result in disqualification. It is the intent of Region 14 ESC to award a supplier's complete line of products and/or services, when possible. A response to the solicitation is an offer to contract with Region 14 ESC based upon the contract provisions contained in this solicitation, including but not limited to, the specifications, scope of work and any terms and conditions. Suppliers who wish to propose modifications to the contract provisions must clearly identify the proposed deviations and any proposed substitute language. The provisions of the solicitation cannot be modified without the express written approval of Region 14 ESC. If contract provisions are not expressly approved in writing by Region 14 ESC, the contract provisions contained in the solicitation shall prevail.

5. Disclosures.

- Supplier affirms that he/she has not given, offered to give, nor intends to give at any time hereafter any economic opportunity, future employment, gift, loan, gratuity, special discount, trip, favor or service to a public servant in connection with this contract.

- The supplier affirms that, to the best of his/her knowledge, the offer has been arrived at independently, and is submitted without collusion with anyone to obtain information or gain

any favoritism that would in any way limit competition or give an unfair advantage over other suppliers in the award of this contract.

6. Withdrawal of Response. After submittal due date and time, withdrawal of a response will not be allowed for a period of 120 days. Pricing will remain firm for 120 days from submittal.

7. Open Records Policy. Region 14 ESC is a governmental entity. Responses submitted are subject to release as public information after contracts are executed. If a supplier believes that its response, or parts of its response, may be exempted from disclosure, the supplier must specify page-by-page and line-by-line the parts of the response, which it believes, are exempt. In addition, the supplier must specify which exception(s) are applicable and provide detailed reasons to substantiate the exception(s).

The determination of whether information is confidential and not subject to disclosure is the duty of the Office of Attorney General (OAG). Region 14 ESC must provide the OAG sufficient information to render an opinion and therefore, vague and general claims to confidentiality by the supplier are not acceptable. Region 14 ESC must comply with the opinions of the OAG. Region14 ESC assumes no responsibility for asserting legal arguments on behalf of any supplier. Supplier is advised to consult with their legal counsel concerning disclosure issues resulting from this procurement process and to take precautions to safeguard trade secrets and other proprietary information.

8. Multiple Awards. Multiple contracts may be awarded as a result of the solicitation. Multiple awards will ensure that any resulting contracts fulfill current and future requirements of the diverse and large number of participating public agencies.

9. Protest. A protest of an award or proposed award must be filed in writing within ten (10) days from the date of the official award notification and must be received by 5:00 pm Central Time. Protests shall be filed with Region 14 ESC and shall include the following:

- Name, address and telephone number of protester;
- Original signature of protester or its representative;
- Identification of the solicitation by RFP number;
- Detailed statement of legal and factual grounds including copies of relevant documents and the form of relief requested.

Any protest review and action shall be considered final with no further formalities being considered.

IV. Region 14 – TERMS AND CONDITIONS, as modified

Assignment. Supplier may not assign its rights, proceeds from or receivables in transactions resulting from this Agreement or obligations under this contract without the prior written permission of Region 14 ESC. Region 14 ESC will not unreasonably withhold or delay approval for a requested assignment. Notwithstanding anything herein, no permission is required in the event Supplier elects to assign proceeds from or receivables in transactions resulting from this Agreement.

Audit Rights. Supplier shall, at its sole expense, maintain appropriate due diligence of all purchases made by Region 14 ESC and any entity that utilizes this contract. Region 14 ESC reserves the right to audit the accounting for a period of four (4) years from the time such purchases are made. This audit right shall survive termination of this Agreement for a period of one (1) year from the effective date of termination. Region 14 ESC shall have the authority to conduct random audits of supplier's pricing at Region 14 ESC's sole cost and expense. Notwithstanding the foregoing, in the event that Region 14 ESC is made aware of any pricing being offered that is materially inconsistent with the pricing under this agreement, Region 14 ESC shall have the ability to conduct an extensive audit of supplier's pricing at supplier's sole cost and expense. Before initiating such an audit, Region 14 ESC shall notify the Supplier of the issues that trigger the intent to conduct an intensive audit, and reasonably work with the Supplier to address the issues to remove the need for an extensive audit. Region 14 ESC may conduct the audit internally or may engage a third-party auditing firm. In the event of an audit, the requested materials shall be provided in the format and at the location designated by Region 14 ESC.

Construction. Supplier shall perform services in a good and workmanlike manner and in accordance with industry standards for the service provided.

Excluded Damages. Notwithstanding anything else in the Region 14 ESC Master Agreement or contract with Participating Public Agency, including all exhibits, attachments, and amendments or modifications or related agreements, in no event shall the Supplier be liable to Region 14 ESC or any Participating Public Agency, for consequential, special, indirect, incidental, punitive or exemplary damages, costs, expenses, or losses, or for any lost profits, loss of revenue, loss of income, or loss of savings or opportunity, or loss of clientele, in connection with performance of the Master Agreement or relevant contract or with respect to Supplier goods, services or operations. The provisions of this paragraph shall apply regardless of the form of action, damage, claim, liability, cost, expense, or loss asserted, whether in contract, statute, rule, regulation or tort (including but not limited to negligence) or otherwise, and shall survive contract termination or expiration.

Force Majeure. If by reason of Force Majeure, either party hereto shall be rendered unable wholly or in part to carry out its obligations under this Agreement then such party shall give notice and full particulars of Force Majeure in writing to the other party within a reasonable time after occurrence of the event or cause relied upon, and the obligation of the party giving such notice, so far as it is affected by such Force Majeure, shall be suspended during the continuance of the inability then claimed, except as hereinafter provided, but for no longer period, and such party shall endeavor to remove or overcome such inability with all reasonable dispatch.

The term Force Majeure as employed herein, shall mean acts of God, strikes, lockouts, or other industrial disturbances, act of public enemy, orders and regulation of any kind of government of the United States or any civil or military authority; insurrections; riots; epidemics; pandemic;

landslides; lightning; earthquake; fires; hurricanes; storms; floods; washouts; droughts; arrests; restraint of government and people; civil disturbances; explosions, breakage or accidents to machinery, pipelines or canals, or other causes not reasonably within the control of the party claiming such inability. It is understood and agreed that the settlement of strikes and lockouts shall be entirely within the discretion of the party having the difficulty, and that the above requirement that any Force Majeure shall be remedied with all reasonable dispatch shall not require the settlement of strikes and lockouts by acceding to the demands of the opposing party or parties when such settlement is unfavorable in the judgment of the party having the difficulty.

Franchise Tax. The supplier hereby certifies that he/she is not currently delinquent in the payment of any franchise taxes.

Funding. A contract for the acquisition, including lease, of real or personal property is a commitment of the entity's current revenue only. Each payment obligation created by this contract is conditioned upon the availability of city, county, state and federal funds that are appropriated or allocated for the payment of such an obligation. If funds are not allocated by an entity and available for the continued purchase of the services and/or materials provided under this contract, this contract may be terminated at the end of the period for which funds are available. The entity will endeavor to notify the supplier in the event that continued service will or may be affected by non-appropriation. No penalty shall accrue to the entity in the event this provision is exercised, and the entity shall not be obligated or liable for any future payments due or for any damages as a result of termination under this paragraph.

Indemnity. The awarded supplier shall protect, indemnify, and hold harmless Region 14 ESC and its participants, administrators, employees and agents against all claims, damages, losses and expenses arising out of or resulting from the actions of the supplier, supplier employees or supplier subcontractors in the preparation of the solicitation and the later execution of the contract.

Insurance. Certificates of insurance shall be delivered to a public agency requesting them prior to commencement of work. The insurance company shall be licensed in the applicable state in which work is being conducted. The awarded supplier shall give the participating entity a minimum of ten (10) days' notice prior to any modifications or cancellation of policies. The awarded supplier shall require all subcontractors performing any work to maintain coverage as specified by Participating Public Agency.

Invoices. Invoices shall be payable within 30 days of receipt by, as applicable, Region 14 ESC or Participating Public Agency.

Legal Obligations. It is the supplier's responsibility to be aware of and comply with all local, state, and federal laws governing the sale of products/services identified in this RFP and any awarded contract and shall comply with all while fulfilling the RFP. Applicable laws and regulation must be followed even if not specifically identified herein.

Non-Exclusive Contract. This contract is for the sole convenience of Region 14 ESC, which may obtain like goods or services from other sources.

Permits. Knowing and abiding by the permit laws in each state is the sole responsibility of the supplier.

Price Increases. Should it become necessary, price increase requests may be submitted at any point during the term of the contract and must be approved by Region 14 ESC in writing. Included with the request must be documentation and/or formal cost justification for these changes. Requests will be formally reviewed, and if justified in the sole opinion of Region 14 ESC, the change will be approved. If the pricing is based on a discount structure, as long as the discount percentage remains the same, the awarded supplier(s) do not need to submit a price increase request.

Products. Supplier shall provide equipment, materials and products that are new unless otherwise specified, of good quality and free of defects.

Products and Services Additions. New products and/or services may be added to the contract at any time during the term by Region 14 ESC's written approval, to the extent that those products and/or services are within the scope of this RFP.

Safety. Suppliers performing services shall comply with occupational safety and health rules and regulations. All suppliers and subcontractors shall be held responsible for the safety of their employees and any conditions that may cause injury or damage to persons or property.

Tax Exempt Status. Knowing the tax laws in each state is the sole responsibility of the supplier.

Term and Renewal. The contract term is for three (3) years. The contract may be renewed for up to two (2) additional one-year terms or any combination of time not to exceed 2 years. Any job, work, or purchase orders as well as any maintenance, service, or supplemental agreements, and any work proposals job orders (collectively referred to as "Supplemental Agreements and Orders"), may be issued for up to (5) years under this contract so long as the effective date of the maintenance/service/supplement agreement is prior to the expiration of the contract. Any Supplemental Agreements and Orders executed against the Master Agreement(s) during the effective term may survive beyond the expiration of the Master Agreement(s) as established and agreed to by the Supplier and Participating Public Agency.

Termination. This contract may be terminated at any time by mutual written consent, or by Region 14 ESC, with or without cause, upon giving thirty (30) days written notice. Region 14, at its convenience, by written notice, may terminate this contract, in whole or in part. If this contract is terminated, Region 14 ESC shall be liable only for payment under the payment provisions of this contract for services rendered and accepted material received by Region 14 ESC before the effective date of termination. Region 14 ESC reserves the right to terminate the whole or any part of this Contract due to the failure of the supplier to carry out any term or condition of the contract. Region 14 will issue a written ten (10) day notice of default to the supplier for acting or failing to act as specified in any of the following: in the opinion of Region 14 ESC, the supplier provides personnel that do not meet the requirements of the contract; In the opinion of Region 14 ESC, the supplier fails to perform adequately the stipulations, conditions or services/specifications required in this contract; in the opinion of Region 14 ESC, the supplier attempts to impose personnel,

materials, products or workmanship of an unacceptable quality; the supplier fails to furnish the required service and/or product within the time stipulated in the contract; in the opinion of Region 14 ESC, the supplier fails to make progress in the performance of the requirements of the contract; the supplier gives Region 14 ESC a positive indication that the supplier will not or cannot perform to the requirements of the contract.

Waiver. Any waiver of any provision of this contract shall be in writing and shall be signed by the duly authorized agent of Region 14 ESC. The waiver by either party of any term or condition of this contract shall not be deemed to constitute waiver thereof nor a waiver of any further or additional right that such party may hold under this contract.

V. EVALUATION

Region 14 ESC will evaluate proposals in accordance with the criteria outlined in the solicitation subject to, the relevant statutes, ordinances, rules, and regulations that govern its procurement practices. Award(s) will be made to the prospective supplier(s) whose response is determined to be the most advantageous.

Supplier's proposal should include the following for Region 14 ESC's evaluation:

A. Availability of Products and Pricing (40 points)

1. Describe how the Supplier ensures the availability and timely fulfillment of parking related products, software, systems, and services.
2. Describe the Suppliers pricing structures for products, systems, services, labor, warranties, etc. Price lists provided will be used to establish both the extent of a supplier's product lines, services, warranties, etc. available from the supplier and the pricing per item.
    a. Any discounts proposed shall remain the same throughout the term of the contract and at all renewal options. At a minimum, the Contractor must hold the proposed price list firm for the first 12 months after the contract award.
    b. Pricing may be based on a discount from a manufacturers or other price list or catalog, fixed pricing, unit pricing, or set labor and hourly rates. When applicable, multiple percentage discounts are acceptable if, where different discounts apply, the different percentages are specified. Electronic Catalog and/or price lists should accompany the proposal and additional pricing and/or discounts may be included. Suppliers may elect to limit their proposals to any category or categories.
        - Example pricing structures:
            - Price lists:
                - Product name and part number (include both manufacturer part number and Offeror part number if different from manufacturers)
                - Description
                - List Price (submit as a discount off MSRP, cost plus, etc.)
            - Percent Discount to Region 14 ESC and Participating Public Agencies.
            - Hourly rates
            - National co-efficient for standard and non-standard hours when a unit price book is being utilized.
    c. If products and services are provided in a situation where an agency is eligible for federal funding, supplier is subject to and must comply with all federal requirements applicable to the funding including, but not limited to the FEMA and Additional Federal Funding Special Conditions section located in the Federal Funds Certifications Exhibit.
    d. Indicate the payment types accepted and if credit cards are assessed a convenience fee.
3. Propose the frequency of updates to the supplier's pricing structure. Describe any proposed indices to guide price adjustments. If offering a catalog contract with discounts by category, while changes in individual pricing may change, the category discounts should not change over the term of the contract.
4. Describe, if any, any additional accessories, sizing options as applicable to the product, system, and/or service offering being provided. An example for handheld enforcement computers is providing a description of any additional accessories available such as charging devices, carrying options, cases, spare/replacement parts, etc.

5. Describe, if any, any minimum purchase quantities as applicable to the product, systems, and/or services being offered. An example for citation paper stock and envelopes would be minimum purchase quantities and specifications for ordering custom paper and envelopes.
6. Describe any shipping charges. All deliveries shall be freight prepaid, F.O.B. destination and shall be included in all pricing offered unless otherwise clearly stated in writing.
7. Describe any delivery or installation services provided by Offeror and how these services are priced. Include any fees such as setup/cleaning, design/layout, special orders, etc. Supplier may enter into additional negotiations with a purchasing agency for additional delivery or installation charges based on onerous conditions. Additional delivery and/or installation charges may only be charged if mutually agreed upon by the purchasing agency and Supplier.
8. Describe if distributors/dealers/resellers/subsidiaries/partners ("affiliates") will be used to fulfill the contract. Submit a list of those affiliates authorized to sell under the proposed contract.
    a. Where and how does Offeror propose to maintain an authorized affiliate list so it may be accessed by Participating Agencies? How often does the supplier propose to update the affiliate list? Confirm the Offeror reviews the financial health, debarment status and overall general capacity of authorized affiliates.
    b. Purchase orders and payment can only be made to the awarded supplier, or an approved affiliate and pricing must be less than or equal to the pricing stated herein. Offerors who use authorized affiliates are responsible for ensuring authorized affiliates are performing in accordance with the contract.
9. Describe any special offers, promotions, additional discounts or rebates offered. Additional discount or rebates may be offered for large quantity purchases, single ship to location programs, growth, annual spend, guaranteed quantity, etc.
10. Describe how customers verify they are receiving the correct contract pricing.
11. Describe supplier's invoicing process. Include payment terms and acceptable methods of payments. Suppliers shall describe any associated fees pertaining to credit cards/p-cards.
12. Describe how future product introductions will be priced and align with contracting pricing proposed.
13. Provide any additional information relevant to this section.

B. Ability to Perform (30 points)

1. Describe the Suppliers ability meet the requirements of a National Cooperative Contract.
    a. Include a detailed response to Appendix B, Exhibit A, OMNIA Partners Response for National Cooperative Contract. Responses should highlight experience, demonstrate a strong national presence, describe how supplier will educate its national sales force about the contract, describe how products and services will be distributed nationwide, include a plan for marketing the products and services nationwide, and describe how volume will be tracked and reported to OMNIA Partners.
    b. The successful Supplier will be required to sign Appendix B, Exhibit B, OMNIA Partners Administration Agreement prior to contract award. Suppliers should have any reviews required to sign the document prior to submitting a response. Supplier's response should include any proposed exceptions to OMNIA Partners Administration Agreement.
    c. Include completed Appendix B, Exhibits F. Federal Funds Certifications and G. New Jersey Business Compliance.
2. Describe Supplier's contract implementation/customer transition plan and provide a timeline.
3. Provide available ordering methods (online ordering, order tracking, search options, order history, etc.).

4. Provide a website link to review website ease of use, availability, and capabilities related to ordering, returns and reporting. Describe the website's capabilities and functionality.
5. Describe Supplier's history of meeting shipping and delivery timelines. What is the Supplier's average Fill Rate and On-time delivery rate? Emergency orders?
6. Describe Supplier's return and restocking policy, including any fees.
7. Describe Supplier's ability to meet service and warranty needs. Proposal should address life expectancy of equipment under normal use; applicable warranty and/or guarantees of equipment and installations including any conditions and response time for repair and/or replacement of any components during the warranty period; availability of replacement parts; and detailed information as to proposed return policy on all equipment.
8. Describe any extended warranty programs or service maintenance programs.
9. The Supplier shall provide timely and accurate technical advice and sales support. The Supplier shall respond to such requests within one (1) working day after receipt of the request. Describe Supplier's customer service/problem resolution process and ability to meet the one working day response time. Include hours of operation, number of services, etc.
10. Describe the financial condition of Supplier.
11. Describe the Supplier's safety record.
12. Describe technology used to support the contract.
13. Describe the Supplier's product, software, systems, and/or services performing capability as it is applicable to their product, system, and service offering. Information to provide may include:
    - Handheld Enforcement Computers:
        - Provide specifics on the type of handheld equipment and its features, printers, backend software needed, and if the device allows for License Plate Recognition.
        - Describe how digital evidence is captured and stored.
        - Provide an overview of the citation process and how tickets or warnings are issued.
        - Describe the training required for use of equipment.

    - Parking Meters:
        - For single, multi-space and/or self-enforcing parking meters and systems, describe all features included.
        - Describe the parking meter displays, including the ease of use and ability to accommodate English and Spanish speaking customers, programmability for customization (no parking zones, special events, ability to restrict payment or change pricing), damage resistance and protection from elements.
        - Describe parking meters capability to be configured for different rates, such as: period of the year or week, special events, hour, location, min/max periods allowed, and progressive or regressive costs for a unit of parking time that increases or decreases.
        - Describe the payment types accepted by the meter, ability for patrons to extend meter times, and the security mechanisms (alarm and alerts, tamper resistant, protection of customer information and payments).
        - Provide an overview for the notification capabilities, such as the issuance of violations/summons and a maintenance of the meter.

- Describe the reporting capabilities- payment receipts, hours of operation, revenue for paid parking time (by day, week, and meter), number of violations, status of summons issued, equipment malfunctions, occupancy, and turnover data.
- Provide a description of any additional meter mechanisms and/or accessories available.
- Describe the training required for use of equipment.

- Smart Parking Displays:
  - Describe the types of smart parking displays for parking patrons- such as, wall displays, banners, kiosks, web-based full matrix displays, illuminated and/or un-illuminated display formats.
  - Describe the services- permitting, installation, maintenance, copy design, messaging sales, billing, and collections.
  - List all categories along with manufacturer you are responding with and the display sizes/format available.

- Mobile Parking Application (app):
  - Describe the smart phone mobile app features and how users access the platform.
  - Describe what devices is the app compatible with (Android, iOS, etc.).
  - Describe the payment methods accepted and if it allows patrons to extend parking time limits.
  - Describe the apps standards for encryption, credit card security, and other personal data.

- Enforcement and/or Parking Meter Software Systems:
  - Provide an overview of the software system, how it is hosted, how upgrades are deployed, notification capabilities, software's authentication methods, and what systems/software it's compatible with. List any partnership companies or third-party software and/or hardware that is required to run the base-solution.
  - Describe how the software is compliant with any applicable federal, state county, and/or local laws, including Department of Motor Vehicles (DMV), National Law Enforcement Telecommunications System (NLETs) and/or other law enforcement databases.
  - Describe how digital evidence is captured and stored and if additional applications or are devices required.
  - Describe how parking violation summons are generated and issued, if citations are editable after issuance, and if there is an appeals/hearing process.
  - Describe the collection process, payment plans, late fees and how extensions are addressed. Include what payment types are accepted.
  - Describe how violations are tracked and how historical data is obtained. Provide a sample of a standard or custom report, these may be mark as "confidential".

- Parking and/or Meter Management Systems

- Ability to manage the inventory of the parking system, such as meters, blocks, and zones.
- Digital virtual permit management system for monthly, residential, visitor, event, and other parking related permits.
- Integration with all major meter equipment, ticket software applications and sensor technology providers.
- Ability to provide an administrator portal to manage user accounts and process payments.
- Reporting functionality to track accounts, transactions, and performance metrics.

- Parking Access Revenue Control Systems (PARCS)
    - Describe the parking access revenue control products available, such as: PARCS Hardware and Software, Barcode Readers, Radio Frequency Identification system (RFID), License Plate Recognition systems, Automatic Vehicle Identification systems, Interactive Voice Response (IVR), Valet Integration, and automated gate manufacturer automations.
    - Describe the parking access revenue control services available, such as: installation, validations, e-reservations, online reporting, warranty, cloud-based solutions, and Payment Card Industry (PCI) Data Security Standard compliance.

- Mobile and/or Web-based Payment Systems
    - Mobile Payment through an Interactive Voice Response (IVR) system. Describe how a user accesses the platform and the step-by-step process to secure parking and extend times, if needed.
    - Web-based Payment through a designated website. Describe how a user accesses the platform and the step-by-step process to secure parking and extend times, if needed.
    - Describe how either payment system meets industry-level standards to encrypt and secure credit card and other personal data.

- Parking and Mobility Consulting
    - Describe consulting expertise such as: urban planning, technology, policy audit and creation, financial analysis, audits, adaptive reuse plans, green planning, ADA compliance, curb management, parking case studies, and various parking methods (on-street, garages, surface lots, etc.).

- Parking Management Services
    - Describe the complete range of services for the management of physical property and daily operation of parking facilities, including regulatory compliance, access and egress systems, revenue collection, payment processing and maintenance and/or service programs.

- Mobility and Transportation Services

- Describe the components of mobility management programs including types of transportation offered, vehicle acquisition, vehicle maintenance, and driver minimum qualifications.

- Vehicle Sensing Solutions
  - Describe vehicle sensing services, such as License Plate Recognition, Electronic chalking, etc.

- Staffing Services
  - Describe staffing services, the hiring process, and include all related job descriptions associated with the management and maintenance of parking facilities.
  - Describe and additional services that could be provided, such as parking lot cleaning, vehicle disinfection, and other parking related services.

14. Provide any additional information relevant to this section.

C. References and Experience (20 points)

1. Provide a brief history of the supplier, including year it was established and corporate office location.
2. Describe supplier's reputation in the marketplace.
3. Describe supplier's reputation of products and services in the marketplace.
4. Describe the experience and qualification of key employees.
5. Describe supplier's experience working with the government sector.
6. Describe any social diversity initiatives.
7. Describe past litigation, bankruptcy, reorganization, state investigations of entity or current officers and directors.
8. Provide a minimum of 5 customer references relating to the products and services within this RFP. Include entity name, contact name and title, contact phone and email, city, state, years serviced, description of services and annual volume.
9. Provide any additional information relevant to this section.

D. Value Added Products/Services (10 points)

1. Provide any additional information related to products and services supplier proposes to enhance and add value to the contract.
2. Provide any additional equipment offerings: Used, Parts, Accessories, Service and Repair, Trade-Ins, may be included by providing a pricing structure for each of these items.
3. Describe any equipment reconditioning and recertification offerings.

E. Clarifications/Discussions. Region 14 ESC may request additional information or clarification from any of the suppliers after review of the proposals received for the sole purpose of eliminating minor irregularities, informalities, or apparent clerical mistakes in the proposal. Clarification does not give supplier an opportunity to revise or modify its proposal, except to the extent that correction of apparent clerical mistakes results in a revision. After the initial receipt of proposals, Region 14 ESC reserves the right to conduct discussions with those supplier's whose proposals are determined to be reasonably susceptible of being selected for award. Region 14 ESC will not assist supplier in bringing its proposal up to the level of other proposals through clarifications or discussions. Region 14 ESC will not indicate to supplier a

cost or price that it must meet to obtain further consideration, nor will it provide any information about other suppliers' proposals or prices.

F. Competitive Range or Shortlist. It may be necessary for Region 14 ESC to establish a competitive range or shortlist. Responses not in the competitive range or shortlist do not receive further award consideration. Region 14 ESC may determine establishing a competitive range or shortlist is not necessary. Inclusion in the competitive range or shortlist does not constitute a contract award. Should a competitive range or shortlist be used, further evaluation and scoring to determine contract award will be used.

G. Oral Presentations/Interviews. Region 14 ESC reserves the right to conduct interviews or demonstrations with some or all of the suppliers at any point during the evaluation process. However, Region 14 ESC may determine that interviews are not necessary. In the event interviews are conducted, information provided during the interview process shall be taken into consideration when evaluating the stated criteria. Region 14 ESC shall not reimburse the supplier for costs associated with the interview process.

H. Contract Negotiations. Exclusive or concurrent negotiations may be conducted with responsible supplier(s) for the purpose of altering or otherwise changing the conditions, terms and price of the proposed contract unless prohibited. Suppliers shall be accorded fair and equal treatment in conducting negotiations and there shall be no disclosure of any information derived from proposals submitted by competing suppliers. Exclusive or concurrent negotiations shall not constitute a contract award nor shall it confer any property rights to the successful supplier. In the event Region 14 ESC deems that negotiations are not progressing; Region 14 ESC may formally terminate these negotiations and may enter into subsequent concurrent or exclusive negotiation with the next most qualified supplier(s).

I. Past Performance. Past performance is relevant information regarding a supplier's actions under previously awarded contracts; including the administrative aspects of performance; the supplier's history of reasonable and cooperative behavior and commitment to customer satisfaction; and generally, the supplier's businesslike concern for the interests of the customer. Past performance will be considered in the evaluation of the responses.

VI. SIGNATURE FORM

A response to this solicitation is an offer to contract with Region 14 ESC based upon the terms, conditions, scope of work, and specifications contained in this request. A solicitation does not become a contract until it is accepted by Region 14 ESC. The prospective supplier must submit a signed Signature Form with the response thus, eliminating the need for a formal signing process. A contract award letter issued by Region 14 ESC is the counter-signature document establishing acceptance of the contract.

The undersigned hereby proposes and agrees to furnish goods and/or services in strict compliance with the terms, specifications and conditions at the prices proposed within response unless conspicuously noted by the supplier following the requirements of Deviations and Exceptions section in the Instructions to Suppliers. The undersigned further certifies that he/she is an officer of the company and has authority to negotiate and bind the company named below and has not prepared this response in collusion with any other supplier and that the contents of this proposal as to prices, terms or conditions of this response have not been communicated by the undersigned nor by any employee or agent to any person engaged in this type of business prior to the official opening of this proposal.

Prices are guaranteed for **120 days**.

_____
Company Name

_____
Address

_____
City State Zip

_____ _____
Telephone Number Fax Number

_____
Email Address

_____ _____
Printed Name Position

_____
Authorized Signature

Appendix A – Required Documents

1. Antitrust Certification Statement (Tex. Government Code § 2155.005)
2. Implementation of House Bill 1295 Certificate of Interested Parties (Form 1295)
3. Texas Government Code 2270 Verification Form
4. Any additional agreements supplier will require Participating Agencies to sign

Appendix A, Doc #1

ANTITRUST CERTIFICATION STATEMENTS
(Tex. Government Code § 2155.005)
Attorney General Form

I affirm under penalty of perjury of the laws of the State of Texas that:

1. I am duly authorized to execute this Contract on my own behalf or on behalf of the company, corporation, firm, partnership or individual (Company) listed below;

2. In connection with this proposal, neither I nor any representative of the Company has violated any provision of the Texas Free Enterprise and Antitrust Act, Tex. Bus. & Comm. Code Chapter 15;

3. In connection with this proposal, neither I nor any representative of the Company has violated any federal antitrust law; and

4. Neither I nor any representative of the Company has directly or indirectly communicated any of the contents of this proposal to a competitor of the Company or any other company, corporation, firm, partnership or individual engaged in the same line of business as the Company.

Company _____

_____

_____

Address _____

_____

_____

Phone _____

Fax _____

Contact

_____
Signature

_____
Printed Name

_____
Position with Company

Official Authorizing Proposal

_____
Signature

_____
Printed Name

_____
Position with Company

Appendix A, DOC # 2

Implementation of House Bill 1295

Certificate of Interested Parties (Form 1295):

In 2015, the Texas Legislature adopted House Bill 1295, which added section 2252.908 of the Government Code. The law states that a governmental entity or state agency may not enter into certain contracts with a business entity unless the business entity submits a disclosure of interested parties to the governmental entity or state agency at the time the business entity submits the signed contract to the governmental entity or state agency. The law applies only to a contract of a governmental entity or state agency that either (1) requires an action or vote by the governing body of the entity or agency before the contract may be signed or (2) has a value of at least $1 million. The disclosure requirement applies to a contract entered into on or after January 1, 2016.

The Texas Ethics Commission was required to adopt rules necessary to implement that law, prescribe the disclosure of interested parties form, and post a copy of the form on the commission's website. The commission adopted the Certificate of Interested Parties form (Form 1295) on October 5, 2015. The commission also adopted new rules (Chapter 46) on November 30, 2015, to implement the law. The commission does not have any additional authority to enforce or interpret House Bill 1295.

Filing Process:

Staring on January 1, 2016, the commission made available on its website a new filing application that must be used to file Form 1295. A business entity must use the application to enter the required information on Form 1295 and print a copy of the completed form, which will include a certification of filing that will contain a unique certification number. An authorized agent of the business entity must sign the printed copy of the form. The completed Form 1295 with the certification of filing must be filed with the governmental body or state agency with which the business entity is entering into the contract.

The governmental entity or state agency must notify the commission, using the commission's filing application, of the receipt of the filed Form 1295 with the certification of filing not later than the 30th day after the date the contract binds all parties to the contract. This process is known as acknowledging the certificate. The commission will post the acknowledged Form 1295 to its website within seven business days after receiving notice from the governmental entity or state agency. The posted acknowledged form does not contain the declaration of signature information provided by the business.

A certificate will stay in the pending state until it is acknowledged by the governmental agency. Only acknowledged certificates are posted to the commission's website.

Electronic Filing Application:
https://www.ethics.state.tx.us/whatsnew/elf_info_form1295.htm

Frequently Asked Questions:
https://www.ethics.state.tx.us/resources/FAQs/FAQ_Form1295.php

Changes to Form 1295: https://www.ethics.state.tx.us/data/filinginfo/1295Changes.pdf

Appendix A, DOC # 3

Texas Government Code 2270 Verification Form

House Bill 89 (85R Legislative Session), which adds Chapter 2270 to the Texas Government Code, provides that a governmental entity may not enter into a contract with a company without verification that the contracting vendor does not and will not boycott Israel during the term of the contract.

Furthermore, Senate Bill 252 (85R Legislative Session), which amends Chapter 2252 of the Texas Government Code to add Subchapter F, prohibits contracting with a company engaged in business with Iran, Sudan or a foreign terrorist organization identified on a list prepared by the Texas Comptroller.

I, _____, as an authorized representative of

_____, a contractor engaged by
Insert Name of Company

Region 14 Education Service Center, 1850 Highway 351, Abilene, Texas 79601, verify by this writing that the above-named company affirms that it (1) does not boycott Israel; and (2) will not boycott Israel during the term of this contract, or any contract with the above-named Texas governmental entity in the future.

Also, our company is not listed on and we do not do business with companies that are on the Texas Comptroller of Public Accounts list of Designated Foreign Terrorists Organizations found at https://comptroller.texas.gov/purchasing/docs/foreign-terrorist.pdf.

I further affirm that if our company's position on this issue is reversed and this affirmation is no longer valid, that the above-named Texas governmental entity will be notified in writing within one (1) business day and we understand that our company's failure to affirm and comply with the requirements of Texas Government Code 2270 et seq. shall be grounds for immediate contract termination without penalty to the above-named Texas governmental entity.

I swear and affirm that the above is true and correct.

_____ _____
Signature of Named Authorized Company Representative Date

Appendix B – OMNIA Partners Exhibits

Requirements for National Cooperative Contract To Be Administered by OMNIA Partners

The following documents are used in evaluating and administering national cooperative contracts and are included for Supplier's review and response.

Exhibit A – Response for National Cooperative Contract- as modified

Exhibit B – Administration Agreement, *Example*

Exhibit C – Master Intergovernmental Cooperative Purchasing Agreement, *Example*

Exhibit D – Principal Procurement Agency Certificate, *Example*

Exhibit E – Contract Sales Reporting Template

Exhibit F – Federal Funds Certifications

Exhibit G – New Jersey Business Compliance

Exhibit H – Advertising Compliance Requirement

Exhibit A – as modified
Response for National Cooperative Contract

1.0 Scope of National Cooperative Contract

Capitalized terms not otherwise defined herein shall have the meanings given to them in the Master Agreement or in the Administration Agreement between Supplier and OMNIA Partners.

1.1 Requirement

Region 14 ESC (hereinafter defined and referred to as "**Principal Procurement Agency**"), on behalf of itself and OMNIA Partners, Public Sector, Inc., a Delaware corporation ("**OMNIA Partners**"), is requesting proposals for Parking Meters, Software, Systems and Related Products and Services. The intent of this Request for Proposal is any contract between Principal Procurement Agency and Supplier resulting from this Request for Proposal ("**Master Agreement**") be made available to other public agencies nationally, including state and local governmental entities, public and private primary, secondary and higher education entities, non-profit entities, and agencies for the public benefit ("**Public Agencies**"), through OMNIA Partners' cooperative purchasing program. The Principal Procurement Agency has executed a Principal Procurement Agency Certificate with OMNIA Partners, an example of which is included as Exhibit D, and has agreed to pursue the Master Agreement. Use of the Master Agreement by any Public Agency is preceded by their registration with OMNIA Partners as a Participating Public Agency in OMNIA Partners' cooperative purchasing program. Registration with OMNIA Partners as a Participating Public Agency is accomplished by Public Agencies entering into a Master Intergovernmental Cooperative Purchasing Agreement, an example of which is attached as Exhibit C, and by using the Master Agreement, any such Participating Public Agency agrees that it is registered with OMNIA Partners, whether pursuant to the terms of the Master Intergovernmental Purchasing Cooperative Agreement or as otherwise agreed to. The terms and pricing established in the resulting Master Agreement between the Supplier and the Principal Procurement Agency will be the same as that available to Participating Public Agencies through OMNIA Partners. For avoidance of doubt, and irrespective of any registration, any pre-existing customer of a Supplier will not be subject to the Master Agreement in connection with any existing, renewal or new contracts or transactions with Supplier, unless pre-existing customer transitions to the Master Agreement and it is agreed to by Supplier in writing.

All transactions, purchase orders, invoices, payments etc., will occur directly between the Supplier and each Participating Public Agency individually, and neither OMNIA Partners, any Principal Procurement Agency nor any Participating Public Agency, including their respective agents, directors, employees or representatives, shall be liable to Supplier for any acts, liabilities, damages, etc., incurred by any other Participating Public Agency. Supplier is responsible for knowing the tax laws in each state.

This Exhibit A defines the expectations for qualifying Suppliers based on OMNIA Partners' requirements to market the resulting Master Agreement nationally to Public Agencies. Each section in this Exhibit A refers to the capabilities, requirements, obligations, and prohibitions of competing Suppliers on a national level in order to serve Participating Public Agencies through OMNIA Partners.

These requirements are incorporated into and are considered an integral part of this RFP. OMNIA Partners reserves the right to determine whether to make the Master Agreement awarded by the Principal Procurement Agency available to Participating Public Agencies, in its sole and absolute discretion, and any party submitting a response to this RFP acknowledges that any award by the Principal Procurement Agency does not obligate OMNIA Partners to make the Master Agreement available to Participating Procurement Agencies.

1.2 Marketing, Sales and Administrative Support

During the term of the Master Agreement OMNIA Partners intends to provide marketing, sales, partnership development and administrative support for Supplier pursuant to this section that directly promotes the Supplier's products and services to Participating Public Agencies through the channels below, each designed to promote specific products and services to Public Agencies on a national basis.

OMNIA Partners will assign the Supplier a Director of Partner Development who will serve as the main point of contact for the Supplier and will be responsible for managing the overall relationship between the Supplier and OMNIA Partners. The Director of Partner Development will work with the Supplier to develop a comprehensive strategy to promote the Master Agreement and will connect the Supplier with appropriate stakeholders within OMNIA Partners including, Sales, Marketing, Contracting, Training, and Operations & Support.

The OMNIA Partners marketing team will work in conjunction with Supplier to promote the Master Agreement to both existing Participating Public Agencies and prospective Public Agencies through channels that may include:

A. Marketing collateral (print, electronic, email, presentations)

B. Website

C. Trade shows/conferences/meetings

D. Advertising

E. Social Media

The OMNIA Partners sales teams will work in conjunction with Supplier to promote the Master Agreement to both existing Participating Public Agencies and prospective Public Agencies through initiatives that may include:

A. Individual sales calls

B. Joint sales calls

C. Communications/customer service

D. Training sessions for Public Agency teams

E. Training sessions for Supplier teams

The OMNIA Partners contracting teams will work in conjunction with Supplier to promote the Master Agreement to both existing Participating Public Agencies and prospective Public Agencies through:

A. Serving as the subject matter expert for questions regarding joint powers authority and state statutes and regulations for cooperative purchasing

B. Training sessions for Public Agency teams

C. Training sessions for Supplier teams

D. Regular business reviews to monitor program success

E. General contract administration

Notwithstanding anything in the Master Agreement, the RFP or any attachments, exhibits or contract documents, OMNIA Partners acknowledges that Supplier maintains its own national sales and marketing forces, which are and shall remain Supplier's primary channel for marketing and sales to Public Agencies. The Master Agreement provides a secondary channel for cooperative purchases where this may be desirable. Supplier's entry into this or any agreement with Principal Procurement Agency or OMNIA Partners does not confer and shall not be construed to provide any exclusivity with respect to marketing or sales of Supplier goods and services to Public Agencies, which further acknowledges that this and any other agreements made between Supplier and OMNIA Partners is intended for limited purpose. OMNIA Partners and Supplier will mutually agree to a marketing plan upon award.

Suppliers are required to pay an Administrative Fee of the Contract Sales under the Master Agreement and Guaranteed Contract Sales under this Request for Proposal. Supplier will be required to execute the OMNIA Partners Administration Agreement (Exhibit B). At Supplier's option, Suppliers may pay additional fees beyond administrative fees, such as technology fees, to OMNIA Partners and/or a third party for additional support and/or access to OMNIA Partners' technology platform.

1.3 Estimated Volume

The dollar volume purchased under the Master Agreement is estimated to be approximately $100 million. While no minimum volume is guaranteed to Supplier, the estimated annual volume is projected based on the current annual volumes among the Principal Procurement Agency, other Participating Public Agencies that are anticipated to utilize the resulting Master Agreement to be made available to them through OMNIA Partners, and volume growth into other Public Agencies through a coordinated marketing approach between Supplier and OMNIA Partners.

1.4 Award Basis

The basis of any contract award resulting from this RFP made by Principal Procurement Agency will, at OMNIA Partners' option, be the basis of award on a national level through OMNIA Partners. If multiple Suppliers are awarded by Principal Procurement Agency under the Master Agreement, those same Suppliers will be required to extend the Master Agreement to Participating Public Agencies through OMNIA Partners. Utilization of the Master Agreement by Participating Public Agencies will be at the discretion of the individual Participating Public Agency. Certain terms of the Master Agreement specifically applicable to the Principal Procurement Agency (e.g., governing law) are subject to modification for each Participating Public Agency as Supplier and such Participating Public Agency may agree without being in conflict with the Master Agreement as a condition of the Participating Agency's purchase and not a modification of the Master Agreement applicable to all Participating Agencies. Participating Agencies may request to enter into a separate supplemental agreement to further define the level of service requirements over and above the minimum defined in the Master Agreement (e.g., governing law, invoice requirements, order requirements, specialized delivery, diversity requirements such as minority and woman owned businesses, historically underutilized business, etc.) ("Supplemental Agreement"). It shall be the responsibility of the Supplier to comply, when applicable, with the prevailing wage legislation in effect in the jurisdiction of the Participating Agency. It shall further be the responsibility of the Supplier to monitor the prevailing wage rates as established by the appropriate department of labor for any increase in rates during the term of the Master Agreement and adjust wage rates accordingly. In instances where supplemental terms and conditions create additional risk and cost for Supplier, Supplier and Participating Public Agency may negotiate additional pricing above and beyond the stated contract not-to-exceed pricing so long as the added price is commensurate with the additional cost incurred by the Supplier. Any supplemental agreement developed as a result of the Master Agreement is exclusively between the Participating Agency and the Supplier (Contract Sales are reported to OMNIA Partners).

All signed Supplemental Agreements and purchase orders issued and accepted by the Supplier may survive expiration or termination of the Master Agreement. Participating Agencies' purchase orders may exceed the term of the Master Agreement if the purchase order is issued prior to the expiration of the Master Agreement. Supplier is responsible for reporting all sales and paying the applicable Administrative Fee for sales that use the Master Agreement as the basis for the purchase order, even though Master Agreement may have expired.

1.5 Objectives of Cooperative Program

This RFP is intended to achieve the following objectives regarding availability through OMNIA Partners' cooperative program:

A. Provide a comprehensive competitively solicited and awarded national agreement offering the Products covered by this solicitation to Participating Public Agencies;

B. Establish the Master Agreement as one the Supplier's go to market strategy to Public Agencies nationwide;

C. Achieve cost savings for Supplier and Public Agencies through a single solicitation process that will reduce the Supplier's need to respond to multiple solicitations and Public Agencies need to conduct their own solicitation process;

D. Combine the aggregate purchasing volumes of Participating Public Agencies to achieve cost effective pricing.

2.0 REPRESENTATIONS AND COVENANTS

As a condition to Supplier entering into the Master Agreement, which would be available to all Public Agencies, Supplier must make certain representations, warranties and covenants to both the Principal Procurement Agency and OMNIA Partners designed to ensure the success of the Master Agreement for all Participating Public Agencies as well as the Supplier.

2.1 Corporate Commitment

Supplier commits that (1) the Master Agreement has received all necessary corporate authorizations and support of the Supplier's executive management, (2) the Master Agreement is one of the Supplier's "go to market" strategy for Public Agencies, (3) the Master Agreement will be promoted to all Public Agencies, including any existing customers, and Supplier will transition existing customers, upon their request, to the Master Agreement, and (4) that the Supplier has read and agrees to the terms and conditions of the Administration Agreement with OMNIA Partners and will execute such agreement concurrent with and as a condition of its execution of the Master Agreement with the Principal Procurement Agency. Supplier will identify a contact within the RFP response that will be responsible for the overall management of the Master Agreement.

2.2 Pricing Commitment

Supplier commits the not-to-exceed pricing provided under the Master Agreement pricing may provide the greatest value to Public Agencies nationwide and further commits that if a Participating Public Agency is eligible for lower pricing through a national, state, regional or local or cooperative contract, the Supplier may match such lower pricing to that Participating Public Agency under the Master Agreement.

2.3 Sales Commitment

Supplier commits to aggressively market the Master Agreement as one of its go to market strategy in this defined sector and that its sales force will be trained, engaged and committed to offering the Master Agreement to Public Agencies through OMNIA Partners nationwide. Supplier commits that all Master Agreement sales will be accurately and timely reported to OMNIA Partners in accordance with the OMNIA Partners Administration Agreement. Supplier also commits its sales force will be compensated, including sales incentives, for sales to Public Agencies under the Master Agreement in a consistent or better manner compared to sales to Public Agencies if the Supplier were not awarded the Master Agreement.

3.0 SUPPLIER RESPONSE

Supplier must supply the following information for the Principal Procurement Agency to determine Supplier's qualifications to extend the resulting Master Agreement to Participating Public Agencies through OMNIA Partners.

3.1 Company

A. Brief history and description of Supplier to include experience providing similar products and services.

B. Total number and location of salespersons employed by Supplier.

C. Number and location of support centers (if applicable) and location of corporate office.

D. Annual sales for the three previous fiscal years.

   a. Submit FEIN and Dunn & Bradstreet report.

E. Describe any green or environmental initiatives or policies.

F. Describe any diversity programs or partners supplier does business with and how Participating Agencies may use diverse partners through the Master Agreement. Indicate how, if at all, pricing changes when using the diversity program. If there are any diversity programs, provide a list of diversity alliances and a copy of their certifications.

G. Indicate if supplier holds any of the below certifications in any classified areas and include proof of such certification in the response:

   a. Minority Women Business Enterprise

      ☐ Yes ☐ No

      If yes, list certifying agency: _____

   b. Small Business Enterprise (SBE) or Disadvantaged Business Enterprise (DBE)

      ☐ Yes ☐ No

      If yes, list certifying agency: _____

   c. Historically Underutilized Business (HUB)

      ☐ Yes ☐ No

      If yes, list certifying agency: _____

   d. Historically Underutilized Business Zone Enterprise (HUBZone)

      ☐ Yes ☐ No

      If yes, list certifying agency: _____

   e. Other recognized diversity certificate holder

      ☐ Yes ☐ No

      If yes, list certifying agency: _____

H. List any relationships with subcontractors or affiliates intended to be used when providing services and identify if subcontractors meet minority-owned standards. If any, list which certifications subcontractors hold and certifying agency.

I. Describe how supplier differentiates itself from its competitors.

J. Describe any present or past litigation, bankruptcy or reorganization involving supplier.

K. Felony Conviction Notice: Indicate if the supplier

   a. is a publicly held corporation and this reporting requirement is not applicable;

   b. is not owned or operated by anyone who has been convicted of a felony; or

   c. is owned or operated by and individual(s) who has been convicted of a felony and provide the names and convictions.

L. Describe any debarment or suspension actions taken against supplier

3.2 Distribution, Logistics

A. Each offeror awarded an item under this solicitation may offer their complete product and service offering/a balance of line. Describe the full line of products and services offered by supplier.

B. Describe how supplier proposes to distribute the products/service nationwide. Include any states where products and services will not be offered under the Master Agreement, including U.S. Territories and Outlying Areas.

C. Describe how Participating Agencies are ensured they will receive the Master Agreement pricing; include all distribution channels such as direct ordering, retail or in-store locations, through distributors, etc. Describe how Participating Agencies verify and audit pricing to ensure its compliance with the Master Agreement.

D. Identify all other companies that will be involved in processing, handling or shipping the products/service to the end user.

E. Provide the number, size and location of Supplier's distribution facilities, warehouses and retail network as applicable.

3.3 Marketing and Sales

A. Given the public nature of the solicitation and contract, OMNIA Partners makes solicitation and contract documentation, including pricing documents, available on its website so Participating Public Agencies may easily conduct their due diligence. Describe any portions of the response that should not be available on the website and why those portions should not be available.

B. Provide a detailed ninety-day plan beginning from award date of the Master Agreement describing the strategy to immediately implement the Master Agreement as one of the supplier's primary go to market strategy for Public Agencies to supplier's teams nationwide, to include, but not limited to:

i. Executive leadership endorsement and sponsorship of the award as the public sector go-to-market strategy within first 10 days

ii. Training and education of Supplier's national sales force with participation from the Supplier's executive leadership, along with the OMNIA Partners team within first 90 days

C. Provide a detailed ninety-day plan beginning from award date of the Master Agreement describing the strategy to market the Master Agreement to current Participating Public Agencies, existing Public Agency customers of Supplier, as well as to prospective Public Agencies nationwide immediately upon award, to include, but not limited to:

i. Creation and distribution of a co-branded press release to trade publications

ii. Announcement, Master Agreement details and contact information published on the Supplier's website within first 90 days

iii. Design, publication and distribution of co-branded marketing materials within first 90 days

iv. Commitment to attendance and participation with OMNIA Partners at national (i.e. NIGP Annual Forum, NPI Conference, etc.), regional (i.e. Regional NIGP Chapter Meetings, Regional Cooperative Summits, etc.) and supplier-specific trade shows, conferences and meetings throughout the term of the Master Agreement

v. Commitment to attend, exhibit and participate at the NIGP Annual Forum in an area reserved by OMNIA Partners for partner suppliers. Booth space will be purchased and staffed by Supplier. In addition, Supplier commits to provide reasonable assistance to the overall promotion and marketing efforts for the NIGP Annual Forum, as directed by OMNIA Partners.

vi. Design and publication of national and regional advertising in trade publications throughout the term of the Master Agreement

vii. Ongoing marketing and promotion of the Master Agreement throughout its term (case studies, collateral pieces, presentations, promotions, etc.)

viii. Dedicated OMNIA Partners internet web-based homepage on Supplier's website with:

- OMNIA Partners standard logo;
- Copy of original Request for Proposal;
- Copy of Master Agreement and amendments between Principal Procurement Agency and Supplier;
- Summary of Products and pricing;

- Marketing Materials
- Electronic link to OMNIA Partners' website including the online registration page;
- A dedicated toll-free number and email address for OMNIA Partners

D. Describe how Supplier will transition any existing Public Agency customers' accounts to the Master Agreement available nationally through OMNIA Partners. Include a list of current cooperative contracts (regional and national) Supplier holds and describe how the Master Agreement will be positioned among the other cooperative agreements.

E. Acknowledge Supplier agrees to provide its logo(s) to OMNIA Partners and agrees to provide permission for reproduction of such logo in marketing communications and promotions. Acknowledge that use of OMNIA Partners logo will require permission for reproduction, as well.

F. Confirm Supplier will be proactive in direct sales of Supplier's goods and services to Public Agencies nationwide and the timely follow up to leads established by OMNIA Partners. All sales materials are to use the OMNIA Partners logo. At a minimum, the Supplier's sales initiatives should communicate:

i. Master Agreement was competitively solicited and publicly awarded by a Principal Procurement Agency
ii. Best government pricing
iii. No cost to participate
iv. Non-exclusive

G. Confirm Supplier will train its national sales force on the Master Agreement. At a minimum, sales training should include:

i. Key features of Master Agreement
ii. Working knowledge of the solicitation process
iii. Awareness of the range of Public Agencies that can utilize the Master Agreement through OMNIA Partners
iv. Knowledge of benefits of the use of cooperative contracts

H. Provide the name, title, email and phone number for the person(s), who will be responsible for:

i. Executive Support
ii. Marketing
iii. Sales
iv. Sales Support
v. Financial Reporting
vi. Accounts Payable

vii. Contracts

I. Describe in detail how Supplier's national sales force is structured, including contact information for the highest-level executive in charge of the sales team.

I. Explain in detail how the sales teams will work with the OMNIA Partners team to implement, grow and service the national program.

J. Explain in detail how Supplier will manage the overall national program throughout the term of the Master Agreement, including ongoing coordination of marketing and sales efforts, timely new Participating Public Agency account set-up, timely contract administration, etc.

K. State the amount of Supplier's Public Agency sales for the previous fiscal year. Provide a list of Supplier's top 10 Public Agency customers, the total purchases for each for the previous fiscal year along with a key contact for each.

L. Describe Supplier's information systems capabilities and limitations regarding order management through receipt of payment, including description of multiple platforms that may be used for any of these functions.

M. Provide the Contract Sales (as defined in Section 12 of the OMNIA Partners Administration Agreement) that Supplier will guarantee each year under the Master Agreement for the initial three years of the Master Agreement ("Guaranteed Contract Sales").

$_____.00 in year one
$_____.00 in year two
$_____.00 in year three

To the extent Supplier guarantees minimum Contract Sales, the Administrative Fee shall be calculated based on the greater of the actual Contract Sales and the Guaranteed Contract Sales.

N. Even though it is anticipated many Public Agencies will be able to utilize the Master Agreement without further formal solicitation, there may be circumstances where Public Agencies will issue their own solicitations. The following options are available when responding to a solicitation for Products covered under the Master Agreement.

i. Respond with Master Agreement pricing (Contract Sales reported to OMNIA Partners).

ii. If competitive conditions require pricing lower than the standard Master Agreement not-to-exceed pricing, Supplier may respond with lower pricing through the Master Agreement. If Supplier is awarded the contract, the sales are reported as Contract Sales to OMNIA Partners under the Master Agreement.

iii. Respond with pricing higher than Master Agreement only in the unlikely event that the Public Agency refuses to utilize Master Agreement (Contract Sales are not reported to OMNIA Partners).

iv. If alternative or multiple proposals are permitted, respond with pricing higher than Master Agreement, and include Master Agreement as the alternate or additional proposal.

Detail Supplier's strategies under these options when responding to a solicitation.

Exhibit B
Administration Agreement, Example

ADMINISTRATION AGREEMENT

THIS ADMINISTRATION AGREEMENT (this "**Agreement**") is made this ___ day of _____ 20__, between OMNIA Partners, Public Sector, Inc., a Delaware corporation ("**OMNIA Partners**"), and _____ ("**Supplier**").

RECITALS

WHEREAS, the _____ (the "**Principal Procurement Agency**") has entered into a Master Agreement effective _____, Agreement No_____, by and between the Principal Procurement Agency and Supplier, (as may be amended from time to time in accordance with the terms thereof, the "**Master Agreement**"), as attached hereto as Exhibit A and incorporated herein by reference as though fully set forth herein, for the purchase of _____ (the "**Product**");

WHEREAS, said Master Agreement provides that any or all public agencies, including state and local governmental entities, public and private primary, secondary and higher education entities, non-profit entities, and agencies for the public benefit (collectively, "**Public Agencies**"), that register (either via registration on the OMNIA Partners website or execution of a Master Intergovernmental Cooperative Purchasing Agreement, attached hereto as Exhibit B) (each, hereinafter referred to as a "**Participating Public Agency**") may purchase Product at prices stated in the Master Agreement;

WHEREAS, Participating Public Agencies may access the Master Agreement which is offered through OMNIA Partners to Public Agencies;

WHEREAS, OMNIA Partners serves as the cooperative contract administrator of the Master Agreement on behalf of Principal Procurement Agency;

WHEREAS, Principal Procurement Agency desires OMNIA Partners to proceed with administration of the Master Agreement; and

WHEREAS, OMNIA Partners and Supplier desire to enter into this Agreement to make available the Master Agreement to Participating Public Agencies and to set forth certain terms and conditions governing the relationship between OMNIA Partners and Supplier.

NOW, THEREFORE, in consideration of the payments to be made hereunder and the mutual covenants contained in this Agreement, OMNIA Partners and Supplier hereby agree as follows:

DEFINITIONS

1. Capitalized terms used in this Agreement and not otherwise defined herein shall have the meanings given to them in the Master Agreement.

TERMS AND CONDITIONS

2. The Master Agreement and the terms and conditions contained therein shall apply to this Agreement except as expressly changed or modified by this Agreement. Supplier acknowledges and agrees that the covenants and agreements of Supplier set forth in the solicitation and Supplier's response thereto resulting in the Master Agreement are incorporated herein and are an integral part hereof.

3. OMNIA Partners shall be afforded all of the rights, privileges and indemnifications afforded to Principal Procurement Agency by or from Supplier under the Master Agreement, and such rights, privileges and indemnifications shall accrue and apply with equal effect to OMNIA Partners, its agents, employees, directors, and representatives under this Agreement including, but not limited to, Supplier's obligation to obtain appropriate insurance.

4. OMNIA Partners shall perform all of its duties, responsibilities and obligations as the cooperative contract administrator of the Master Agreement on behalf of Principal Procurement Agency as set forth herein, and Supplier hereby acknowledges and agrees that all duties, responsibilities and obligations will be undertaken by OMNIA Partners solely in its capacity as the cooperative contract administrator under the Master Agreement.

5. With respect to any purchases by Principal Procurement Agency or any Participating Public Agency pursuant to the Master Agreement, OMNIA Partners shall not be: (i) construed as a dealer, re-marketer, representative, partner or agent of any type of the Supplier, Principal Procurement Agency or any Participating Public Agency; (ii) obligated, liable or responsible for any order for Product made by Principal Procurement Agency or any Participating Public Agency or any employee thereof under the Master Agreement or for any payment required to be made with respect to such order for Product; and (iii) obligated, liable or responsible for any failure by Principal Procurement Agency or any Participating Public Agency to comply with procedures or requirements of applicable law or the Master Agreement or to obtain the due authorization and approval necessary to purchase under the Master Agreement. OMNIA Partners makes no representation or guaranty with respect to any minimum purchases by Principal Procurement Agency or any Participating Public Agency or any employee thereof under this Agreement or the Master Agreement.

6. OMNIA Partners shall not be responsible for Supplier's performance under the Master Agreement, and Supplier shall hold OMNIA Partners harmless from any liability that may arise from the acts or omissions of Supplier in connection with the Master Agreement.

7. Supplier acknowledges that, in connection with its access to OMNIA Partners confidential information and/or supply of data to OMNIA Partners, when applicable, it has complied with and shall continue to comply with all laws, regulations and standards that may apply to Supplier, including, without limitation: (a) United States federal and state information security and privacy statutes, regulations and/or best practices, including, without limitation, the Gramm-Leach-Bliley Act, the Massachusetts Data Security Regulations (201 C.M.R. 17.00 et. seq.), the Nevada encryption statute (N.R.S. § 603A), the California data security law (Cal. Civil Code § 1798.80 et. seq.) and California Consumer Privacy Act (Cal. Civil Code § 1798.100 et. seq.); and (b) applicable industry and regulatory standards and best practices (collectively, "**Data Regulations**").

With regard to Personal Information that Supplier collects, receives, or otherwise processes under the Agreement or otherwise in connection with performance of the Agreement, Supplier agrees

that it will not: (i) sell, rent, release, disclose, disseminate, make available, transfer, or otherwise communicate orally, in writing, or by electronic or other means, such Personal Information to another business or third party for monetary or other valuable consideration; or (ii) retain, use, or disclose such Personal Information outside of the direct business relationship between Supplier and OMNIA Partners or for any purpose other than for the specific purpose of performance of the Agreement, including retaining, using, or disclosing such Personal Information for a commercial purpose other than for performance of the Agreement. By entering into the Agreement, Supplier certifies that it understands the specific restrictions contained in this Section 7 and will comply with them. For purposes hereof, "**Personal Information**" means information that identifies, relates to, describes, is reasonably capable of being associated with, or could reasonably be linked, directly or indirectly, with a particular consumer or household, and includes the specific elements of "personal information" as defined under Data Regulations, as defined herein. Supplier will reasonably assist OMNIA Partners in timely responding to any third party "request to know" or "request to delete" (as defined pursuant to Data Regulations) and will promptly provide OMNIA Partners with information reasonably necessary for OMNIA Partners to respond to such requests. Where Supplier collects Personal Information directly from Public Agencies or others on OMNIA Partners' behalf, Supplier will maintain records and the means necessary to enable OMNIA Partners to respond to such requests to know and requests to delete.

8. WITHOUT LIMITING THE GENERALITY OF THE FOREGOING, OMNIA PARTNERS EXPRESSLY DISCLAIMS ALL EXPRESS OR IMPLIED REPRESENTATIONS AND WARRANTIES REGARDING OMNIA PARTNERS' PERFORMANCE AS A COOPERATIVE CONTRACT ADMINISTRATOR OF THE MASTER AGREEMENT. OMNIA PARTNERS SHALL NOT BE LIABLE IN ANY WAY FOR ANY SPECIAL, INCIDENTAL, INDIRECT, CONSEQUENTIAL, EXEMPLARY, PUNITIVE, OR RELIANCE DAMAGES, EVEN IF OMNIA PARTNERS IS ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

TERM OF AGREEMENT; TERMINATION

9. This Agreement shall be in effect so long as the Master Agreement remains in effect, provided, however, that the provisions of Sections 3 – 8 and 11 – 22, hereof and the indemnifications afforded by the Supplier to OMNIA Partners in the Master Agreement, to the extent such provisions survive any expiration or termination of the Master Agreement, shall survive the expiration or termination of this Agreement.

NATIONAL PROMOTION

10. OMNIA Partners and Supplier shall publicize and promote the availability of the Master Agreement's products and services to Public Agencies and such agencies' employees. Supplier shall require each Public Agency to register its participation in the OMNIA Partners program by either registering on the OMNIA Partners website (www.omniapartners.com/publicsector) or executing a Master Intergovernmental Cooperative Purchasing Agreement prior to processing the Participating Public Agency's first sales order. Upon request, Supplier shall make available to interested Public Agencies a copy of the Master Agreement and such price lists or quotes as may be necessary for such Public Agencies to evaluate potential purchases.

11. Supplier shall provide such marketing and administrative support as set forth in the solicitation resulting in the Master Agreement, including assisting in development of marketing materials as reasonably requested by Principal Procurement Agency and OMNIA Partners. Supplier

shall be responsible for obtaining permission or license of use and payment of any license fees for all content and images Supplier provides to OMNIA Partners or posts on the OMNIA Partners website. Supplier shall indemnify, defend and hold harmless OMNIA Partners for use of all such content and images including copyright infringement claims. Supplier and OMNIA Partners each hereby grant to the other party a limited, revocable, non-transferable, non-sublicensable right to use such party's logo (each, the "**Logo**") solely for use in marketing the Master Agreement. Each party shall provide the other party with the standard terms of use of such party's Logo, and such party shall comply with such terms in all material respects. Both parties shall obtain approval from the other party prior to use of such party's Logo. Notwithstanding the foregoing, the parties understand and agree that except as provided herein neither party shall have any right, title or interest in the other party's Logo. Upon termination of this Agreement, each party shall immediately cease use of the other party's Logo.

ADMINISTRATIVE FEE, REPORTING & PAYMENT

12. An "Administrative Fee" shall be defined and due to OMNIA Partners from Supplier in the amount of ____ percent (___%) ("**Administrative Fee Percentage**") multiplied by the total purchase amount paid to Supplier, less refunds and credits on returns, for the sale of products and/or services to Principal Procurement Agency and Participating Public Agencies pursuant to the Master Agreement (as amended from time to time and including any renewal thereof) ("**Contract Sales**"). From time to time the parties may mutually agree in writing to a lower Administrative Fee Percentage for a specifically identified Participating Public Agency's Contract Sales.

13. Supplier shall provide OMNIA Partners with an electronic accounting report monthly, in the format prescribed by OMNIA Partners, summarizing all Contract Sales for each calendar month. The Contract Sales reporting format is provided as Exhibit C ("**Contract Sales Report**"), attached hereto and incorporated herein by reference. Contract Sales Reports for each calendar month shall be provided by Supplier to OMNIA Partners by the 10th day of the following month. Failure to provide a Contract Sales Report within the time and manner specified herein shall constitute a material breach of this Agreement and if not cured within thirty (30) days of written notice to Supplier shall be deemed a cause for termination of the Master Agreement, at Principal Procurement Agency's sole discretion, and/or this Agreement, at OMNIA Partners' sole discretion.

14. Administrative Fee payments are to be paid by Supplier to OMNIA Partners at the frequency and on the due date stated in Section 13, above, for Supplier's submission of corresponding Contract Sales Reports. Administrative Fee payments are to be made via Automated Clearing House (ACH) to the OMNIA Partners designated financial institution identified in Exhibit D. Failure to provide a payment of the Administrative Fee within the time and manner specified herein shall constitute a material breach of this Agreement and if not cured within thirty (30) days of written notice to Supplier shall be deemed a cause for termination of the Master Agreement, at Principal Procurement Agency's sole discretion, and/or this Agreement, at OMNIA Partners' sole discretion. All Administrative Fees not paid when due shall bear interest at a rate equal to the lesser of one and one-half percent (1 1/2%) per month or the maximum rate permitted by law until paid in full.

15. Supplier shall maintain an accounting of all purchases made by Participating Public Agencies under the Master Agreement. OMNIA Partners, or its designee, in OMNIA Partners' sole discretion, reserves the right to compare Participating Public Agency records with Contract Sales Reports submitted by Supplier for a period of four (4) years from the date OMNIA Partners receives such report. In addition, OMNIA Partners may engage a third party to conduct an independent audit of Supplier's monthly reports. In the event of such an audit, Supplier shall provide all materials

reasonably requested relating to such audit by OMNIA Partners at the location designated by OMNIA Partners. In the event an underreporting of Contract Sales and a resulting material underpayment of Administrative Fees is revealed, OMNIA Partners will notify the Supplier in writing. Supplier will have thirty (30) days from the date of such notice to resolve the discrepancy to OMNIA Partners' reasonable satisfaction, including payment of any Administrative Fees due and owing, together with interest thereon in accordance with Section 13, and reimbursement of OMNIA Partners' costs and expenses related to such audit.

GENERAL PROVISIONS

16. This Agreement, the Master Agreement and the exhibits referenced herein supersede any and all other agreements, either oral or in writing, between the parties hereto with respect to the subject matter hereto and no other agreement, statement, or promise relating to the subject matter of this Agreement which is not contained or incorporated herein shall be valid or binding. In the event of any conflict between the provisions of this Agreement and the Master Agreement, as between OMNIA Partners and Supplier, the provisions of this Agreement shall prevail.

17. If any action at law or in equity is brought to enforce or interpret the provisions of this Agreement or to recover any Administrative Fee and accrued interest, the prevailing party shall be entitled to reasonable attorney's fees and costs in addition to any other relief to which it may be entitled.

18. This Agreement and OMNIA Partners' rights and obligations hereunder may be assigned at OMNIA Partners' sole discretion to an affiliate of OMNIA Partners, any purchaser of any or all or substantially all of the assets of OMNIA Partners, or the successor entity as a result of a merger, reorganization, consolidation, conversion or change of control, whether by operation of law or otherwise. Supplier may not assign its obligations hereunder without the prior written consent of OMNIA Partners.

19. All written communications given hereunder shall be delivered by first-class mail, postage prepaid, or overnight delivery on receipt to the addresses as set forth below.

A. OMNIA Partners:

OMNIA Partners
5001 Aspen Grove
Franklin, TN 37067
Attention: Legal Department - Public Sector Contracting

B. Supplier:

_____
_____
_____
_____

20. If any provision of this Agreement shall be deemed to be, or shall in fact be, illegal, inoperative or unenforceable, the same shall not affect any other provision or provisions herein contained or render the same invalid, inoperative or unenforceable to any extent whatever, and this

Agreement will be construed by limiting or invalidating such provision to the minimum extent necessary to make such provision valid, legal and enforceable.

21. This Agreement may not be amended, changed, modified, or altered without the prior written consent of the parties hereto, and no provision of this Agreement may be discharged or waived, except by a writing signed by the parties. A waiver of any particular provision will not be deemed a waiver of any other provision, nor will a waiver given on one occasion be deemed to apply to any other occasion.

22. This Agreement shall inure to the benefit of and shall be binding upon OMNIA Partners, the Supplier and any respective successor and assign thereto; subject, however, to the limitations contained herein.

23. This Agreement will be construed under and governed by the laws of the State of Delaware, excluding its conflicts of law provisions and any action arising out of or related to this Agreement shall be commenced solely and exclusively in the state or federal courts in Williamson County Tennessee.

24. This Agreement may be executed in counterparts, each of which is an original but all of which, together, shall constitute but one and the same instrument. The exchange of copies of this Agreement and of signature pages by facsimile, or by .pdf or similar electronic transmission, will constitute effective execution and delivery of this Agreement as to the parties and may be used in lieu of the original Agreement for all purposes. Signatures of the parties transmitted by facsimile, or by .pdf or similar electronic transmission, will be deemed to be their original signatures for any purpose whatsoever.

[INSERT SUPPLIER ENTITY NAME]	**OMNIA PARTNERS, PUBLIC SECTOR, INC.**
Signature	Signature Sarah Vavra
Name	Name Sr. Vice President, Public Sector Contracting
Title	Title
Date	Date

Exhibit C
Master Intergovernmental Cooperative Purchasing Agreement, Example

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MASTER INTERGOVERNMENTAL COOPERATIVE PURCHASING AGREEMENT

This Master Intergovernmental Cooperative Purchasing Agreement (this "**Agreement**") is entered into by and between those certain government agencies that execute a Principal Procurement Agency Certificate ("**Principal Procurement Agencies**") with OMNIA Partners, Public Sector, Inc., a Delaware corporation f/k/a National Intergovernmental Purchasing Alliance Company; Communities Program Management, LLC, a California limited liability company d/b/a U.S. Communities, and/or NCPA LLC, a Texas limited liability company d/b/a National Cooperative Purchasing Alliance (collectively, "**OMNIA Partners**"), in its capacity as the cooperative administrator, to be appended and made a part hereof and such other agencies ("**Participating Public Agencies**"), as defined in each Master Agreement (as defined below), who register to participate in the cooperative purchasing programs administered by OMNIA Partners and its affiliates and subsidiaries (collectively, the "**OMNIA Partners Parties**") by either registering on the OMNIA Partners website (www.omniapartners.com/publicsector or any successor website), or by executing a copy of this Agreement.

RECITALS

WHEREAS, after a competitive solicitation and selection process by Principal Procurement Agencies, in compliance with their own policies, procedures, rules and regulations, a number of suppliers have entered into "**Master Agreements**" (herein so called) to provide a variety of goods, products and services ("**Products**") to the applicable Principal Procurement Agency and the Participating Public Agencies;

WHEREAS, Master Agreements are made available by Principal Procurement Agencies through the OMNIA Partners Parties and provide that Participating Public Agencies may purchase Products on the same terms, conditions and pricing as the Principal Procurement Agency, subject to any applicable federal and/or local purchasing ordinances and the laws of the State of purchase; and

WHEREAS, in addition to Master Agreements, the OMNIA Partners Parties may from time to time offer Participating Public Agencies the opportunity to acquire Products through other group purchasing agreements.

NOW, THEREFORE, in consideration of the mutual promises contained in this Agreement, and of the mutual benefits to result, the parties hereby agree as follows:

1. Each party will facilitate the cooperative procurement of Products.

2. The Participating Public Agencies shall procure Products in accordance with and subject to the relevant federal, state and local statutes, ordinances, rules and regulations that govern Participating Public Agency's procurement practices. The Participating Public Agencies hereby acknowledge and agree that it is the intent of the parties that all provisions of this Agreement and that Principal Procurement Agencies' participation in the program described herein comply with all applicable laws, including but not limited to the requirements of 42 C.F.R. § 1001.952(j), as may be amended from time to time. The Participating Public Agencies further acknowledge and agree that they are solely responsible for their compliance with all applicable "safe harbor" regulations,

including but not limited to any and all obligations to fully and accurately report discounts and incentives.

3. The Participating Public Agency represents and warrants that the Participating Public Agency is not a hospital or other healthcare provider and is not purchasing Products on behalf of a hospital or healthcare provider; provided that the foregoing shall not prohibit Participating Public Agency from furnishing health care services so long as the furnishing of health care services is not in furtherance of a primary purpose of the Participating Public Agency.

4. The cooperative use of Master Agreements shall be in accordance with the terms and conditions of the Master Agreements, except as modification of those terms and conditions is otherwise required by applicable federal, state or local law, policies or procedures.

5. The Principal Procurement Agencies will make available, upon reasonable request, Master Agreement information which may assist in improving the procurement of Products by the Participating Public Agencies.

6. The Participating Public Agency agrees the OMNIA Partners Parties may provide access to group purchasing organization ("**GPO**") agreements directly or indirectly by enrolling the Participating Public Agency in another GPO's purchasing program, provided that the purchase of Products through the OMNIA Partners Parties or any other GPO shall be at the Participating Public Agency's sole discretion.

7. The Participating Public Agencies (each a "**Procuring Party**") that procure Products through any Master Agreement or GPO Product supply agreement (each a "**GPO Contract**") will make timely payments to the distributor, manufacturer or other vendor (collectively, "**Supplier**") for Products received in accordance with the terms and conditions of the Master Agreement or GPO Contract, as applicable. Payment for Products and inspections and acceptance of Products ordered by the Procuring Party shall be the exclusive obligation of such Procuring Party. Disputes between Procuring Party and any Supplier shall be resolved in accordance with the law and venue rules of the State of purchase unless otherwise agreed to by the Procuring Party and Supplier.

8. The Procuring Party shall not use this Agreement as a method for obtaining additional concessions or reduced prices for purchase of similar products or services outside of the Master Agreement. Master Agreements may be structured with not-to-exceed pricing, in which cases the Supplier may offer the Procuring Party and the Procuring Party may accept lower pricing or additional concessions for purchase of Products through a Master Agreement.

9. The Procuring Party shall be responsible for the ordering of Products under this Agreement. A non-procuring party shall not be liable in any fashion for any violation by a Procuring Party, and, to the extent permitted by applicable law, the Procuring Party shall hold non-procuring party harmless from any liability that may arise from the acts or omissions of the Procuring Party.

10. WITHOUT LIMITING THE GENERALITY OF THE FOREGOING, THE OMNIA PARTNERS PARTIES EXPRESSLY DISCLAIM ALL EXPRESS OR IMPLIED REPRESENTATIONS AND WARRANTIES REGARDING ANY PRODUCT, MASTER AGREEMENT AND GPO CONTRACT. THE OMNIA PARTNERS PARTIES SHALL NOT BE LIABLE IN ANY WAY FOR ANY SPECIAL, INCIDENTAL, INDIRECT, CONSEQUENTIAL, EXEMPLARY, PUNITIVE, OR RELIANCE DAMAGES, EVEN IF THE OMNIA PARTNERS PARTIES ARE ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. FURTHER, THE

PROCURING PARTY ACKNOWLEDGES AND AGREES THAT THE OMNIA PARTNERS PARTIES SHALL HAVE NO LIABILITY FOR ANY ACT OR OMISSION BY A SUPPLIER OR OTHER PARTY UNDER A MASTER AGREEMENT OR GPO CONTRACT.

11. This Agreement shall remain in effect until termination by either party giving thirty (30) days' written notice to the other party. The provisions of Paragraphs 6 - 10 hereof shall survive any such termination.

12. This Agreement shall take effect upon (i) execution of the Principal Procurement Agency Certificate, or (ii) registration on the OMNIA Partners website or the execution of this Agreement by a Participating Public Agency, as applicable.

Participating Public Agency:	**OMNIA Partners, as the cooperative administrator on behalf of Principal Procurement Agencies:** **OMNIA PARTNERS, PUBLIC SECTOR, INC.**
Authorized Signature	Signature Sarah E. Vavra
Name	Name Sr. Vice President, Public Sector Contracting
Title and Agency Name	Title
Date	Date

Exhibit D
Principal Procurement Agency Certificate, Example

PRINCIPAL PROCUREMENT AGENCY CERTIFICATE

In its capacity as a Principal Procurement Agency (as defined below) for OMNIA Partners, Public Sector, Inc., a Delaware corporation ("**OMNIA Partners**"), [PPA Name] agrees to pursue Master Agreements for Products as specified in the attached Exhibits to this Principal Procurement Agency Certificate.

I hereby acknowledge, in my capacity as _____ of and on behalf of **[PPA Name]** ("**Principal Procurement Agency**"), that I have read and hereby agree to the general terms and conditions set forth in the attached Master Intergovernmental Cooperative Purchasing Agreement regulating the use of the Master Agreements and purchase of Products that from time to time are made available by Principal Procurement Agencies to Participating Public Agencies nationwide through OMNIA Partners.

I understand that the purchase of one or more Products under the provisions of the Master Intergovernmental Cooperative Purchasing Agreement is at the sole and complete discretion of the Participating Public Agency.

Authorized Signature, [PPA Name]_____

_____
Signature

_____
Name

_____
Title

_____
Date

Exhibit E
Contract Sales Reporting Template

Contract Sales Report submitted electronically in Microsoft Excel:

OMNIA® PARTNERS			Supplier Name:		Total Sales	$0.00										
			Contract Number:		Admin Fee %											
			Reporting Period:		Total Admin Fee	$0.00							FOR OMNIA USE ONLY			
Supplier Internal ID	ID	Name	Street Address	Street Address 2	City	State	Postal Code	Transaction Date	Sales Amount	Admin Fee %	Admin Fee	Notes	Wildcard	Uniqueld	Rebate Due	Rebate Name

Exhibit F
Federal Funds Certifications

FEDERAL CERTIFICATIONS
ADDENDUM FOR AGREEMENT FUNDED BY U.S. FEDERAL GRANT

TO WHOM IT MAY CONCERN:

Participating Agencies may elect to use federal funds to purchase under the Master Agreement. This form should be completed and returned.

DEFINITIONS

Contract means a legal instrument by which a non–Federal entity purchases property or services needed to carry out the project or program under a Federal award. The term as used in this part does not include a legal instrument, even if the non–Federal entity considers it a contract, when the substance of the transaction meets the definition of a Federal award or subaward

Contractor means an entity that receives a contract as defined in Contract.

Cooperative agreement means a legal instrument of financial assistance between a Federal awarding agency or pass-through entity and a non–Federal entity that, consistent with 31 U.S.C. 6302–6305:

(a) Is used to enter into a relationship the principal purpose of which is to transfer anything of value from the Federal awarding agency or pass-through entity to the non–Federal entity to carry out a public purpose authorized by a law of the United States (see 31 U.S.C. 6101(3)); and not to acquire property or services for the Federal government or pass-through entity's direct benefit or use;

(b) Is distinguished from a grant in that it provides for substantial involvement between the Federal awarding agency or pass-through entity and the non–Federal entity in carrying out the activity contemplated by the Federal award.

(c) The term does not include:

(1) A cooperative research and development agreement as defined in 15 U.S.C. 3710a; or

(2) An agreement that provides only:

(i) Direct United States Government cash assistance to an individual;

(ii) A subsidy;

(iii) A loan;

(iv) A loan guarantee; or

(v) Insurance.

Federal awarding agency means the Federal agency that provides a Federal award directly to a non–Federal entity

Federal award has the meaning, depending on the context, in either paragraph (a) or (b) of this section:

(a)(1) The Federal financial assistance that a non–Federal entity receives directly from a Federal awarding agency or indirectly from a pass-through entity, as described in § 200.101 Applicability; or

(2) The cost-reimbursement contract under the Federal Acquisition Regulations that a non–Federal entity receives directly from a Federal awarding agency or indirectly from a pass-through entity, as described in § 200.101 Applicability.

(b) The instrument setting forth the terms and conditions. The instrument is the grant agreement, cooperative agreement, other agreement for assistance covered in paragraph (b) of § 200.40 Federal financial assistance, or the cost-reimbursement contract awarded under the Federal Acquisition Regulations.

(c) Federal award does not include other contracts that a Federal agency uses to buy goods or services from a contractor or a contract to operate Federal government owned, contractor operated facilities (GOCOs).

(d) See also definitions of Federal financial assistance, grant agreement, and cooperative agreement.

Non–Federal entity means a state, local government, Indian tribe, institution of higher education (IHE), or nonprofit organization that carries out a Federal award as a recipient or subrecipient.

Nonprofit organization means any corporation, trust, association, cooperative, or other organization, not including IHEs, that:

(a) Is operated primarily for scientific, educational, service, charitable, or similar purposes in the public interest;
(b) Is not organized primarily for profit; and
(c) Uses net proceeds to maintain, improve, or expand the operations of the organization.

Obligations means, when used in connection with a non–Federal entity's utilization of funds under a Federal award, orders placed for property and services, contracts and subawards made, and similar transactions during a given period that require payment by the non–Federal entity during the same or a future period.

Pass-through entity means a non–Federal entity that provides a subaward to a subrecipient to carry out part of a Federal program.

Recipient means a non–Federal entity that receives a Federal award directly from a Federal awarding agency to carry out an activity under a Federal program. The term recipient does not include subrecipients.

Simplified acquisition threshold means the dollar amount below which a non–Federal entity may purchase property or services using small purchase methods. Non–Federal entities adopt small purchase procedures in order to expedite the purchase of items costing less than the simplified acquisition threshold. The simplified acquisition threshold is set by the Federal Acquisition Regulation at 48 CFR Subpart 2.1 (Definitions) and in accordance with 41 U.S.C. 1908. As of the publication of this part, the simplified acquisition threshold is $250,000, but this threshold is periodically adjusted for inflation. (Also see definition of § 200.67 Micro-purchase.)

Subaward means an award provided by a pass-through entity to a subrecipient for the subrecipient to carry out part of a Federal award received by the pass-through entity. It does not include payments to a contractor or payments to an individual that is a beneficiary of a Federal program. A subaward may be provided through any form of legal agreement, including an agreement that the pass-through entity considers a contract.

Subrecipient means a non–Federal entity that receives a subaward from a pass-through entity to carry out part of a Federal program; but does not include an individual that is a beneficiary of such program. A subrecipient may also be a recipient of other Federal awards directly from a Federal awarding agency.

Termination means the ending of a Federal award, in whole or in part at any time prior to the planned end of period of performance.

The following provisions may be required and apply when Participating Agency expends federal funds for any purchase resulting from this procurement process. Per FAR 52.204-24 and FAR 52.204-25, solicitations and resultant contracts shall contain the following provisions.

52.204-24 Representation Regarding Certain Telecommunications and Video Surveillance Services or Equipment (Oct 2020)

The Offeror shall not complete the representation at paragraph (d)(1) of this provision if the Offeror has represented that it "does not provide covered telecommunications equipment or services as a part of its offered products or services to the Government in the performance of any contract, subcontract, or other contractual instrument" in paragraph (c)(1) in the provision at 52.204-26, Covered Telecommunications Equipment or Services—Representation, or in paragraph (v)(2)(i) of the provision at 52.212-3, Offeror Representations and Certifications-Commercial Items. The Offeror shall not complete the representation in paragraph (d)(2) of this provision if the Offeror has represented that it "does not use covered telecommunications equipment or services, or any equipment, system, or service that uses covered telecommunications equipment or services" in paragraph (c)(2) of the provision at 52.204-26, or in paragraph (v)(2)(ii) of the provision at 52.212-3.

(a) *Definitions.* As used in this provision—

Backhaul, covered telecommunications equipment or services, critical technology, interconnection arrangements, reasonable inquiry, roaming, and substantial or essential component have the meanings provided in the clause 52.204-25, Prohibition on Contracting for Certain Telecommunications and Video Surveillance Services or Equipment.

(b) *Prohibition*.

(1) Section 889(a)(1)(A) of the John S. McCain National Defense Authorization Act for Fiscal Year 2019 (Pub. L. 115-232) prohibits the head of an executive agency on or after August 13, 2019, from procuring or obtaining, or extending or renewing a contract to procure or obtain, any equipment, system, or service that uses covered telecommunications equipment or services as a substantial or essential component of any system, or as critical technology as part of any system. Nothing in the prohibition shall be construed to—

(i) Prohibit the head of an executive agency from procuring with an entity to provide a service that connects to the facilities of a third-party, such as backhaul, roaming, or interconnection arrangements; or

(ii) Cover telecommunications equipment that cannot route or redirect user data traffic or cannot permit visibility into any user data or packets that such equipment transmits or otherwise handles.

(2) Section 889(a)(1)(B) of the John S. McCain National Defense Authorization Act for Fiscal Year 2019 (Pub. L. 115-232) prohibits the head of an executive agency on or after August 13, 2020, from entering into a contract or extending or renewing a contract with an entity that uses any equipment, system, or service that uses covered telecommunications equipment or services as a substantial or essential component of any system, or as critical technology as part of any system. This prohibition applies to the use of covered telecommunications equipment or services, regardless of whether that use is in performance of work under a Federal contract. Nothing in the prohibition shall be construed to—

(i) Prohibit the head of an executive agency from procuring with an entity to provide a service that connects to the facilities of a third-party, such as backhaul, roaming, or interconnection arrangements; or

(ii) Cover telecommunications equipment that cannot route or redirect user data traffic or cannot permit visibility into any user data or packets that such equipment transmits or otherwise handles.

(c) *Procedures.* The Offeror shall review the list of excluded parties in the System for Award Management (SAM) (https://www.sam.gov) for entities excluded from receiving federal awards for "covered telecommunications equipment or services".

(d) *Representation.* The Offeror represents that—

(1) It □ will, □ will not provide covered telecommunications equipment or services to the Government in the performance of any contract, subcontract or other contractual instrument resulting from this solicitation. The Offeror shall provide the additional disclosure information required at paragraph (e)(1) of this section if the Offeror responds "will" in paragraph (d)(1) of this section; and

(2) After conducting a reasonable inquiry, for purposes of this representation, the Offeror represents that—

It □ does, □ does not use covered telecommunications equipment or services, or use any equipment, system, or service that uses covered telecommunications equipment or services. The Offeror shall provide the additional disclosure information required at paragraph (e)(2) of this section if the Offeror responds "does" in paragraph (d)(2) of this section.

(e) *Disclosures.*

(1) Disclosure for the representation in paragraph (d)(1) of this provision. If the Offeror has responded "will" in the representation in paragraph (d)(1) of this provision, the Offeror shall provide the following information as part of the offer.

(i) For covered equipment—

(A) The entity that produced the covered telecommunications equipment (include entity name, unique entity identifier, CAGE code, and whether the entity was the original equipment manufacturer (OEM) or a distributor, if known);

(B) A description of all covered telecommunications equipment offered (include brand; model number, such as OEM number, manufacturer part number, or wholesaler number; and item description, as applicable); and

(C) Explanation of the proposed use of covered telecommunications equipment and any factors relevant to determining if such use would be permissible under the prohibition in paragraph (b)(1) of this provision.

(ii) For covered services—

(A) If the service is related to item maintenance: A description of all covered telecommunications services offered (include on the item being maintained: Brand; model number, such as OEM number, manufacturer part number, or wholesaler number; and item description, as applicable); or

(B) If not associated with maintenance, the Product Service Code (PSC) of the service being provided; and explanation of the proposed use of covered telecommunications services and any factors relevant to determining if such use would be permissible under the prohibition in paragraph (b)(1) of this provision.

(2) Disclosure for the representation in paragraph (d)(2) of this provision. If the Offeror has responded "does" in the representation in paragraph (d)(2) of this provision, the Offeror shall provide the following information as part of the offer:

(i) For covered equipment—

(A) The entity that produced the covered telecommunications equipment (include entity name, unique entity identifier, CAGE code, and whether the entity was the OEM or a distributor, if known);

(B) A description of all covered telecommunications equipment offered (include brand; model number, such as OEM number, manufacturer part number, or wholesaler number; and item description, as applicable); and

(C) Explanation of the proposed use of covered telecommunications equipment and any factors relevant to determining if such use would be permissible under the prohibition in paragraph (b)(2) of this provision.

(ii) For covered services—

(A) If the service is related to item maintenance: A description of all covered telecommunications services offered (include on the item being maintained: Brand; model number, such as OEM number, manufacturer part number, or wholesaler number; and item description, as applicable); or

(B) If not associated with maintenance, the PSC of the service being provided; and explanation of the proposed use of covered telecommunications services and any factors relevant to determining if such use would be permissible under the prohibition in paragraph (b)(2) of this provision.

52.204-25 Prohibition on Contracting for Certain Telecommunications and Video Surveillance Services or Equipment (Aug 2020).

(a) *Definitions.* As used in this clause—

Backhaul means intermediate links between the core network, or backbone network, and the small subnetworks at the edge of the network (*e.g.*, connecting cell phones/towers to the core telephone network). Backhaul can be wireless (e.g., microwave) or wired (*e.g.*, fiber optic, coaxial cable, Ethernet).

Covered foreign country means The People's Republic of China.

Covered telecommunications equipment or services means–

(1) Telecommunications equipment produced by Huawei Technologies Company or ZTE Corporation (or any subsidiary or affiliate of such entities);

(2) For the purpose of public safety, security of Government facilities, physical security surveillance of critical infrastructure, and other national security purposes, video surveillance and telecommunications equipment produced by Hytera Communications Corporation, Hangzhou Hikvision Digital Technology Company, or Dahua Technology Company (or any subsidiary or affiliate of such entities);

(3) Telecommunications or video surveillance services provided by such entities or using such equipment; or

(4) Telecommunications or video surveillance equipment or services produced or provided by an entity that the Secretary of Defense, in consultation with the Director of National Intelligence or the Director of the Federal Bureau of Investigation, reasonably believes to be an entity owned or controlled by, or otherwise connected to, the government of a covered foreign country.

Critical technology means–

(1) Defense articles or defense services included on the United States Munitions List set forth in the International Traffic in Arms Regulations under subchapter M of chapter I of title 22, Code of Federal Regulations;

(2) Items included on the Commerce Control List set forth in Supplement No. 1 to part 774 of the Export Administration Regulations under subchapter C of chapter VII of title 15, Code of Federal Regulations, and controlled-

(i) Pursuant to multilateral regimes, including for reasons relating to national security, chemical and biological weapons proliferation, nuclear nonproliferation, or missile technology; or

(ii) For reasons relating to regional stability or surreptitious listening;

(3) Specially designed and prepared nuclear equipment, parts and components, materials, software, and technology covered by part 810 of title 10, Code of Federal Regulations (relating to assistance to foreign atomic energy activities);

(4) Nuclear facilities, equipment, and material covered by part 110 of title 10, Code of Federal Regulations (relating to export and import of nuclear equipment and material);

(5) Select agents and toxins covered by part 331 of title 7, Code of Federal Regulations, part 121 of title 9 of such Code, or part 73 of title 42 of such Code; or

(6) Emerging and foundational technologies controlled pursuant to section 1758 of the Export Control Reform Act of 2018 (50 U.S.C. 4817).

Interconnection arrangements means arrangements governing the physical connection of two or more networks to allow the use of another's network to hand off traffic where it is ultimately delivered (*e.g.*, connection of a customer of telephone provider A to a customer of telephone company B) or sharing data and other information resources.

Reasonable inquiry means an inquiry designed to uncover any information in the entity's possession about the identity of the producer or provider of covered telecommunications equipment or services used by the entity that excludes the need to include an internal or third-party audit.

Roaming means cellular communications services (*e.g.*, voice, video, data) received from a visited network when unable to connect to the facilities of the home network either because signal coverage is too weak or because traffic is too high.

Substantial or essential component means any component necessary for the proper function or performance of a piece of equipment, system, or service.

(b) *Prohibition*.

(1) Section 889(a)(1)(A) of the John S. McCain National Defense Authorization Act for Fiscal Year 2019 (Pub. L. 115-232) prohibits the head of an executive agency on or after August 13, 2019, from procuring or obtaining, or extending or renewing a contract to procure or obtain, any equipment, system, or service that uses covered telecommunications equipment or services as a substantial or essential component of any system, or as critical technology as part of any system. The Contractor is prohibited from providing to the Government any equipment, system, or service that uses covered telecommunications equipment or services as a substantial or essential component of any system, or as critical technology as part of any system, unless an exception at paragraph (c) of this clause applies or the covered telecommunication equipment or services are covered by a waiver described in FAR 4.2104.

(2) Section 889(a)(1)(B) of the John S. McCain National Defense Authorization Act for Fiscal Year 2019 (Pub. L. 115-232) prohibits the head of an executive agency on or after August 13, 2020, from entering into a contract, or extending or renewing a contract, with an entity that uses any equipment, system, or service that uses covered telecommunications equipment or services as a substantial or essential component of any system, or as critical technology as part of any system, unless an exception at paragraph (c) of this clause applies or the covered telecommunication equipment or services are covered by a waiver described in FAR 4.2104. This prohibition applies to the use of covered telecommunications equipment or services, regardless of whether that use is in performance of work under a Federal contract.

(c) *Exceptions.* This clause does not prohibit contractors from providing—

(1) A service that connects to the facilities of a third-party, such as backhaul, roaming, or interconnection arrangements; or

(2) Telecommunications equipment that cannot route or redirect user data traffic or permit visibility into any user data or packets that such equipment transmits or otherwise handles.

(d) Reporting requirement.

(1) In the event the Contractor identifies covered telecommunications equipment or services used as a substantial or essential component of any system, or as critical technology as part of any system, during contract performance, or the Contractor is notified of such by a subcontractor at any tier or by any other source, the Contractor shall report the information in paragraph (d)(2) of this clause to the Contracting Officer, unless elsewhere in this contract are established procedures for reporting the information; in the case of the Department of Defense, the Contractor shall report to the website at https://dibnet.dod.mil. For indefinite delivery contracts, the Contractor shall report to the Contracting Officer for the indefinite delivery contract and the Contracting Officer(s) for any affected order or, in the case of the Department of Defense, identify both the indefinite delivery contract and any affected orders in the report provided at https://dibnet.dod.mil.

(2) The Contractor shall report the following information pursuant to paragraph (d)(1) of this clause

(i) Within one business day from the date of such identification or notification: the contract number; the order number(s), if applicable; supplier name; supplier unique entity identifier (if known); supplier Commercial and Government Entity (CAGE) code (if known); brand; model number (original equipment manufacturer number, manufacturer part number, or wholesaler number); item description; and any readily available information about mitigation actions undertaken or recommended.

(ii) Within 10 business days of submitting the information in paragraph (d)(2)(i) of this clause: any further available information about mitigation actions undertaken or recommended. In addition, the Contractor shall describe the efforts it undertook to prevent use or submission of covered telecommunications equipment or services, and any additional efforts that will be incorporated to prevent future use or submission of covered telecommunications equipment or services.

(e) *Subcontracts.* The Contractor shall insert the substance of this clause, including this paragraph (e) and excluding paragraph (b)(2), in all subcontracts and other contractual instruments, including subcontracts for the acquisition of commercial items.

The following certifications and provisions may be required and apply when Participating Agency expends federal funds for any purchase resulting from this procurement process. Pursuant to 2 C.F.R. § 200.326, all contracts, including small purchases, awarded by the Participating Agency and the Participating Agency's subcontractors shall contain the procurement provisions of Appendix II to Part 200, as applicable.

APPENDIX II TO 2 CFR PART 200

(A) Contracts for more than the simplified acquisition threshold currently set at $250,000, which is the inflation adjusted amount determined by the Civilian Agency Acquisition Council and the Defense Acquisition Regulations Council (Councils) as authorized by 41 U.S.C. 1908, must address administrative, contractual, or legal remedies in instances where contractors violate or breach contract terms, and provide for such sanctions and penalties as appropriate.

Pursuant to Federal Rule (A) above, when a Participating Agency expends federal funds, the Participating Agency reserves all rights and privileges under the applicable laws and regulations with respect to this procurement in the event of breach of contract by either party.

Does offeror agree? YES _____ Initials of Authorized Representative of offeror

(B) Termination for cause and for convenience by the grantee or subgrantee including the manner by which it will be effected and the basis for settlement. (All contracts in excess of $10,000)

Pursuant to Federal Rule (B) above, when a Participating Agency expends federal funds, the Participating Agency reserves the right to immediately terminate any agreement in excess of $10,000 resulting from this procurement process in the event of a breach or default of the agreement by Offeror as detailed in the terms of the contract.

Does offeror agree? YES _____ Initials of Authorized Representative of offeror

(**C) Equal Employment Opportunity. Except as otherwise provided under 41 CFR Part 60, all contracts that meet the definition of "federally assisted construction contract" in 41 CFR Part 60-1.3 must include the equal opportunity clause provided under 41 CFR 60-1.4(b), in accordance with Executive Order 11246, "Equal Employment Opportunity" (30 CFR 12319, 12935, 3 CFR Part, 1964-1965 Comp., p. 339), as amended by Executive Order 11375, "Amending Executive Order 11246 Relating to Equal Employment Opportunity," and implementing regulations at 41 CFR part 60, "Office of Federal Contract Compliance Programs, Equal Employment Opportunity, Department of Labor."**

Pursuant to Federal Rule (C) above, when a Participating Agency expends federal funds on any federally assisted construction contract, the equal opportunity clause is incorporated by reference herein.

Does offeror agree to abide by the above? YES _____ Initials of Authorized Representative of offeror

(D) Davis-Bacon Act, as amended (40 U.S.C. 3141-3148). When required by Federal program legislation, all prime construction contracts in excess of $2,000 awarded by non-Federal entities must include a provision for compliance with the Davis-Bacon Act (40 U.S.C. 3141-3144, and 3146-3148) as supplemented by Department of Labor regulations (29 CFR Part 5, "Labor Standards Provisions Applicable to Contracts Covering Federally Financed and Assisted Construction"). In accordance with the statute, contractors must be required to pay wages to laborers and mechanics at a rate not less than the prevailing wages specified in a wage determination made by the Secretary of Labor. In addition, contractors must be required to pay wages not less than once a week. The non-Federal entity must place a copy of the current prevailing wage determination issued by the Department of Labor in each solicitation. The decision to award a contract or subcontract must be conditioned upon the acceptance of the wage determination. The non - Federal entity must report all suspected or reported violations to the Federal awarding agency. The contracts must also include a provision for compliance with the Copeland "Anti-Kickback" Act (40 U.S.C. 3145), as supplemented by Department of Labor regulations (29 CFR Part 3, "Contractors and Subcontractors on Public Building or Public Work

Financed in Whole or in Part by Loans or Grants from the United States"). The Act provides that each contractor or subrecipient must be prohibited from inducing, by any means, any person employed in the construction, completion, or repair of public work, to give up any part of the compensation to which he or she is otherwise entitled. The non-Federal entity must report all suspected or reported violations to the Federal awarding agency.
Pursuant to Federal Rule (D) above, when a Participating Agency expends federal funds during the term of an award for all contracts and subgrants for construction or repair, offeror will be in compliance with all applicable Davis-Bacon Act provisions.

Does offeror agree? YES _____ Initials of Authorized Representative of offeror

(E) Contract Work Hours and Safety Standards Act (40 U.S.C. 3701-3708). Where applicable, all contracts awarded by the non-Federal entity in excess of $100,000 that involve the employment of mechanics or laborers must include a provision for compliance with 40 U.S.C. 3702 and 3704, as supplemented by Department of Labor regulations (29 CFR Part 5). Under 40 U.S.C. 3702 of the Act, each contractor must be required to compute the wages of every mechanic and laborer on the basis of a standard work week of 40 hours. Work in excess of the standard work week is permissible provided that the worker is compensated at a rate of not less than one and a half times the basic rate of pay for all hours worked in excess of 40 hours in the work week. The requirements of 40 U.S.C. 3704 are applicable to construction work and provide that no laborer or mechanic must be required to work in surroundings or under working conditions which are unsanitary, hazardous or dangerous. These requirements do not apply to the purchases of supplies or materials or articles ordinarily available on the open market, or contracts for transportation or transmission of intelligence.

Pursuant to Federal Rule (E) above, when a Participating Agency expends federal funds, offeror certifies that offeror will be in compliance with all applicable provisions of the Contract Work Hours and Safety Standards Act during the term of an award for all contracts by Participating Agency resulting from this procurement process.

Does offeror agree? YES _____ Initials of Authorized Representative of offeror

(F) Rights to Inventions Made Under a Contract or Agreement. If the Federal award meets the definition of "funding agreement" under 37 CFR §401.2 (a) and the recipient or subrecipient wishes to enter into a contract with a small business firm or nonprofit organization regarding the substitution of parties, assignment or performance of experimental, developmental, or research work under that "funding agreement," the recipient or subrecipient must comply with the requirements of 37 CFR Part 401, "Rights to Inventions Made by Nonprofit Organizations and Small Business Firms Under Government Grants, Contracts and Cooperative Agreements," and any implementing regulations issued by the awarding agency.

Pursuant to Federal Rule (F) above, when federal funds are expended by Participating Agency, the offeror certifies that during the term of an award for all contracts by Participating Agency resulting from this procurement process, the offeror agrees to comply with all applicable requirements as referenced in Federal Rule (F) above.

Does offeror agree? YES _____ Initials of Authorized Representative of offeror

(G) Clean Air Act (42 U.S.C. 7401-7671q.) and the Federal Water Pollution Control Act (33 U.S.C. 1251-1387), as amended—Contracts and subgrants of amounts in excess of $150,000 must contain a provision that requires the non-Federal award to agree to comply with all applicable standards, orders or regulations issued pursuant to the Clean Air Act (42 U.S.C. 7401-7671q) and the Federal Water Pollution Control Act as amended (33 U.S.C. 1251- 1387). Violations must be reported to the Federal awarding agency and the Regional Office of the Environmental Protection Agency (EPA)

In the event Federal Transit Administration (FTA) or Department of Transportation (DOT) funding is used by Participating Public Agency, Offeror also agrees to include Clean Air and Clean Water requirements in each subcontract exceeding $100,000 financed in whole or in part with Federal assistance provided by FTA.

Pursuant to Federal Rule (G) above, when federal funds are expended by Participating Agency, the offeror certifies that during the term of an award for all contracts by Participating Agency member resulting from this procurement process, the offeror agrees to comply with all applicable requirements as referenced in Federal Rule (G) above.

Does offeror agree? YES _____ Initials of Authorized Representative of offeror

(H) Debarment and Suspension (Executive Orders 12549 and 12689)—A contract award (see 2 CFR 180.220) must not be made to parties listed on the government wide exclusions in the System for Award Management (SAM), in accordance with the Executive Office of the President Office of Management and Budget (OMB) guidelines at 2 CFR 180 that implement Executive Orders 12549 (3 CFR part 1986 Comp., p. 189) and 12689 (3 CFR part 1989 Comp., p. 235), "Debarment and Suspension." SAM Exclusions contains the names of parties debarred, suspended, or otherwise excluded by agencies, as well as parties declared ineligible under statutory or regulatory authority other than Executive Order 12549.

Pursuant to Federal Rule (H) above, when federal funds are expended by Participating Agency, the offeror certifies that during the term of an award for all contracts by Participating Agency resulting from this procurement process, the offeror certifies that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation by any federal department or agency. If at any time during the term of an award the offeror or its principals becomes debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation by any federal department or agency, the offeror will notify the Participating Agency.

Does offeror agree? YES _____ Initials of Authorized Representative of offeror

(I) Byrd Anti-Lobbying Amendment (31 U.S.C. 1352)—Contractors that apply or bid for an award exceeding $100,000 must file the required certification. Each tier certifies to the tier above that it will not and has not used Federal appropriated funds to pay any person or organization for influencing or attempting to influence an officer or employee of any agency, a member of Congress, officer or employee of Congress, or an employee of a member of Congress in connection with obtaining any Federal contract, grant or any other award covered by 31 U.S.C. 1352. Each tier must also disclose any lobbying with non-Federal funds that takes place in connection with obtaining any Federal award. Such disclosures are forwarded from tier to tier up to the non-Federal award.

Pursuant to Federal Rule (I) above, when federal funds are expended by Participating Agency, the offeror certifies that during the term and after the awarded term of an award for all contracts by Participating Agency resulting from this procurement process, the offeror certifies that it is in compliance with all applicable provisions of the Byrd Anti-Lobbying Amendment (31 U.S.C. 1352). The undersigned further certifies that:

(1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

(2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure of Lobbying Activities," in accordance with its instructions.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by Section 1352, Title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

(3) The prospective participant also agrees by submitting his or her bid or proposal that he or she shall require that the language of this certification be included in all lower tier subcontracts, which exceed $100,000 and that all such subrecipients shall certify and disclose accordingly.

Does offeror agree? YES _____ Initials of Authorized Representative of offeror

RECORD RETENTION REQUIREMENTS FOR CONTRACTS INVOLVING FEDERAL FUNDS

When federal funds are expended by Participating Agency for any contract resulting from this procurement process, offeror certifies that it will comply with the record retention requirements detailed in 2 CFR § 200.333. The offeror further certifies that offeror will retain all records as required by 2 CFR § 200.333 for a period of three years after grantees or subgrantees submit final expenditure reports or quarterly or annual financial reports, as applicable, and all other pending matters are closed.

Does offeror agree? YES _____ Initials of Authorized Representative of offeror

CERTIFICATION OF COMPLIANCE WITH THE ENERGY POLICY AND CONSERVATION ACT

When Participating Agency expends federal funds for any contract resulting from this procurement process, offeror certifies that it will comply with the mandatory standards and policies relating to energy efficiency which are contained in the state energy conservation plan issued in compliance with the Energy Policy and Conservation Act (42 U.S.C. 6321 et seq.; 49 C.F.R. Part 18).

Does offeror agree? YES _____ Initials of Authorized Representative of offeror

CERTIFICATION OF COMPLIANCE WITH BUY AMERICA PROVISIONS

To the extent purchases are made with Federal Highway Administration, Federal Railroad Administration, or Federal Transit Administration funds, offeror certifies that its products comply with all applicable provisions of the Buy America Act and agrees to provide such certification or applicable waiver with respect to specific products to any Participating Agency upon request. Purchases made in accordance with the Buy America Act must still follow the applicable procurement rules calling for free and open competition. Additionally:

(1) The Contractor agrees to comply with 49 USC 5323(j) and 49 CFR Part 661, which provide that federal funds may not be obligated unless steel, iron and manufactured products used in FTA-funded projects are produced in the United States, unless a waiver has been granted by FTA or the product is subject to a general waiver. General waivers are listed in 49 CFR 661.7.A general public interest waiver from the Buy America requirements applies to microprocessors, computers, microcomputers, software or other such devices, which are used solely for the purpose of processing or storing data. This general waiver does not extend to a product or device that merely contains a microprocessor or microcomputer and is not used solely for the purpose of processing or storing data. Separate requirements for rolling stock are set out at 5323(j)(2)(C) and 49 CFR 661.11.

(2) A bidder or offeror must submit to the FTA recipient the appropriate Buy America certification with all bids on FTA-funded contracts, except those subject to a general waiver. Bids or offers that are not accompanied by a completed Buy America certification must be rejected as nonresponsive. This requirement does not apply to lower tier subcontractors.

The following certificates titled FTA and DOT Buy America Certification should be completed and returned with the response as part of FTA and DOT requirements.

FEDERAL TRASIT ADMINISTRATION (FTA) AND DEPARTMENT OF TRANSPORTATION (DOT) - BUY AMERICA: CERTIFICATION REQUIREMENT FOR PROCUREMENTOF ROLLING STOCK

CERTIFICATE OF COMPLIANCE

(select one of the two options, NOT BOTH)

Certificate of Compliance with 49 USC §5323(j)

The proposer hereby certifies that it will comply with the requirements of 49 U.S.C. 5323(j), and the applicable regulations of 49 CFR 661.11.

Check for YES: □

OR

Certificate of <u>Non-Compliance</u> with 49 USC §5323(j)

The proposer hereby certifies that it cannot comply with the requirements of 49 U.S.C. 5323(j), but may qualify for an exception to the requirement consistent with 49 U.S.C. 5323(j)(2)(C), and the applicable regulations in 49 CFR 661.7.
Check for YES: □

FEDERAL TRASIT ADMINISTRATION (FTA) AND DEPARTMENT OF TRANSPORTATION (DOT) -
BUY AMERICA: CERTIFICATION REQUIREMENT FOR PROCUREMENT OF STEEL OR MANUFACTURED PRODUCTS

CERTIFICATE OF COMPLIANCE (select one of the two options, NOT BOTH)
Certificate of Compliance with 49 USC §5323(j)(1)
The proposer hereby certifies that it will comply with the requirements of 49 U.S.C. 5323(j)(1), and the applicable regulations in 49 CFR part 661.
Check for YES: □

OR

Certificate of Non-Compliance with 49 USC §5323(j)(1)
The proposer hereby certifies that it cannot comply with the requirements of 49 U.S.C. 5323(j), but it may qualify for an exception to the requirement pursuant to 49 U.S.C. 5323(j)(2), as amended, and the applicable regulations in 49 CFR 661.7.
Check for YES: □

Does offeror agree? YES _____Initials of Authorized Representative of offeror

Offeror's Name: _____
Address, City, State, and Zip Code: _____
Phone Number: _____
Fax Number: _____

Printed Name and Title of Authorized Representative: _____
Email Address: _____
Signature of Authorized Representative: _____
Date: _____

CERTIFICATION OF COMPLIANCE WITH BUY AMERICAN PROVISIONS

7 CFR Part 210.21 School Lunch Procurement.

The school food authority must include the following provisions in all cost reimbursable contracts, including contracts with cost reimbursable provisions, and in solicitation documents prepared to obtain offers for such contracts:

(i) Allowable costs will be paid from the nonprofit school food service account to the contractor net of all discounts, rebates and other applicable credits accruing to or received by the contractor or any assignee under the contract, to the extent those credits are allocable to the allowable portion of the costs billed to the school food authority;

(ii)

(A) The contractor must separately identify for each cost submitted for payment to the school food authority the amount of that cost that is allowable (can be paid from the nonprofit school food service account) and the amount that is unallowable (cannot be paid from the nonprofit school food service account); or

(B) The contractor must exclude all unallowable costs from its billing documents and certify that only allowable costs are submitted for payment and records have been established that maintain the visibility of unallowable costs, including directly associated costs in a manner suitable for contract cost determination and verification;

(iii) The contractor's determination of its allowable costs must be made in compliance with the applicable Departmental and Program regulations and Office of Management and Budget cost circulars;

(iv) The contractor must identify the amount of each discount, rebate and other applicable credit on bills and invoices presented to the school food authority for payment and individually identify the amount as a discount, rebate, or in the case of other applicable credits, the nature of the credit. If approved by the State agency, the school food authority may permit the contractor to report this information on a less frequent basis than monthly, but no less frequently than annually;

(v) The contractor must identify the method by which it will report discounts, rebates and other applicable credits allocable to the contract that are not reported prior to conclusion of the contract; and

Unless Supplier is exempt *(See FAR 25.103*), when authorized by statute or explicitly indicated by Participating Public Agency, Buy American requirements will apply where only unmanufactured construction material mined or produced in the United States shall be used *(see Subpart 25.6 – American Recovery and Reinvestment Act-Buy American statute for additional details).*

CERTIFICATION OF ACCESS TO RECORDS – 2 C.F.R. § 200.336

Offeror agrees that the Inspector General of the Agency or any of their duly authorized representatives shall have access to any documents, papers, or other records of offeror that are pertinent to offeror's discharge of its obligations under the Contract for the purpose of making audits, examinations, excerpts, and transcriptions. The right also includes timely and reasonable access to offeror's personnel for the purpose of interview and discussion relating to such documents.

Does offeror agree? YES _____ Initials of Authorized Representative of offeror

CERTIFICATION OF APPLICABILITY TO SUBCONTRACTORS

Offeror agrees that all contracts it awards pursuant to the Contract shall be bound by the foregoing terms and conditions.

Does offeror agree? YES _____ Initials of Authorized Representative of offeror

COMMUNITY DEVELOPMENT BLOCK GRANTS

Purchases made under this contract may be partially or fully funded with federal grant funds. Funding for this work may include Federal Funding sources, including Community Development Block Grant (CDBG) funds from the U.S. Department of Housing and Urban Development. When such funding is provided, Offeror shall comply with all terms, conditions and requirements enumerated by the grant funding source, as well as requirements of the State statutes for which the contract is utilized, whichever is the more restrictive requirement. When using Federal Funding, Offeror shall comply with all wage and latest reporting provisions of the Federal Davis-Bacon Act. HUD-4010 Labor Provisions also applies to this contract.

Does offeror agree? YES _____ Initials of Authorized Representative of offeror

Offeror agrees to comply with all federal, state, and local laws, rules, regulations and ordinances, as applicable. It is further acknowledged that offeror certifies compliance with all provisions, laws, acts, regulations, etc. as specifically noted above.

Offeror's Name:

_____

Address, City, State, and Zip Code:

_____

Phone Number: _____ Fax Number: _____

Printed Name and Title of Authorized Representative:

_____

Email Address:

_____

Signature of Authorized Representative: _____Date: _____

FEMA AND ADDITIONAL FEDERAL FUNDING SPECIAL CONDITIONS

Awarded Supplier(s) (also referred to as Contractors) may need to respond to events and losses where products and services are needed for the immediate and initial response to emergency situations such as, but not limited to, water damage, fire damage, vandalism cleanup, biohazard cleanup, sewage decontamination, deodorization, and/or wind damage during a disaster or emergency situation. By submitting a proposal, the Supplier is accepted these FEMA and Additional Federal Funding Special Conditions required by the Federal Emergency Management Agency (FEMA) and other federal entities.

"Contract" in the below pages under FEMA AND ADDITIONAL FEDERAL FUNDING SPECIAL CONDITIONS is also referred to and defined as the "Master Agreement".

"Contractor" in the below pages under FEMA AND ADDITIONAL FEDERAL FUNDING SPECIAL CONDITIONS is also referred to and defined as "Supplier" or "Awarded Supplier".

Conflicts of Interest

No employee, officer, or agent may participate in the selection, award, or administration of a contract supported by a FEMA award if he or she has a real or apparent conflict of interest. Such a conflict would arise when the employee, officer, or agent, any member of his or her immediate family, his or her partner, or an organization which employs or is about to employ any of these parties, has a financial or other interest in or a tangible personal benefit from a firm considered for award. 2 C.F.R. § 200.318(c)(1); See also Standard Form 424D, ¶ 7; Standard Form 424B, ¶ 3. i. FEMA considers a "financial interest" to be the potential for gain or loss to the employee, officer, or agent, any member of his or her immediate family, his or her partner, or an organization which employs or is about to employ any of these parties as a result of the particular procurement. The prohibited financial interest may arise from ownership of certain financial instruments or investments such as stock, bonds, or real estate, or from a salary, indebtedness, job offer, or similar interest that might be affected by the particular procurement. ii. FEMA considers an "apparent" conflict of interest to exist where an actual conflict does not exist, but where a reasonable person with knowledge of the relevant facts would question the impartiality of the employee, officer, or agent participating in the procurement. c. Gifts. The officers, employees, and agents of the Participating Public Agency nor the Participating Public Agency ("NFE") must neither solicit nor accept gratuities, favors, or anything of monetary value from contractors or parties to subcontracts. However, NFE's may set standards for situations in which the financial interest is de minimus, not substantial, or the gift is an unsolicited item of nominal value. 2 C.F.R. § 200.318(c)(1). d. Violations. The NFE's written standards of conduct must provide for disciplinary actions to be applied for violations of such standards by officers, employees, or agents of the NFE. 2 C.F.R. § 200.318(c)(1). For example, the penalty for a NFE's employee may be dismissal, and the penalty for a contractor might be the termination of the contract.

Contractor Integrity

A contractor must have a satisfactory record of integrity and business ethics. Contractors that are debarred or suspended, as described in and subject to the debarment and suspension regulations implementing Executive Order 12549, *Debarment and Suspension* (1986) and Executive Order 12689, *Debarment and Suspension* (1989) at 2 C.F.R. Part 180 and the Department of Homeland Security's regulations at 2 C.F.R. Part 3000 (Non-procurement Debarment and Suspension), must be rejected and cannot receive contract awards at any level.

Notice of Legal Matters Affecting the Federal Government

In the event FTA or DOT funding is used by Participating Public Agency, Contractor agrees to:

1) The Contractor agrees that if a current or prospective legal matter that may affect the Federal Government emerges, the Contractor shall promptly notify the Participating Public Agency of the legal matter in accordance with 2 C.F.R. §§ 180.220 and 1200.220.

2) The types of legal matters that require notification include, but are not limited to, a major dispute, breach, default, litigation, or naming the Federal Government as a party to litigation or a legal disagreement in any forum for any reason.

3) The Contractor further agrees to include the above clause in each subcontract, at every tier, financed in whole or in part with Federal assistance provided by the FTA.

Public Policy

A contractor must comply with the public policies of the Federal Government and state, local government, or tribal government. This includes, among other things, past and current compliance with the:
a. Equal opportunity and nondiscrimination laws
b. Five affirmative steps described at 2 C.F.R. § 200.321(b) for all subcontracting under contracts supported by FEMA financial assistance; and FEMA Procurement Guidance June 21, 2016 Page IV- 7
c. Applicable prevailing wage laws, regulations, and executive orders

Affirmative Steps

For any subcontracting opportunities, Contractor must take the following Affirmative steps:

1. Placing qualified small and minority businesses and women's business enterprises on solicitation lists;
2. Assuring that small and minority businesses, and women's business enterprises are solicited whenever they are potential sources;
3. Dividing total requirements, when economically feasible, into smaller tasks or quantities to permit maximum participation by small and minority businesses, and women's business enterprises;
4. Establishing delivery schedules, where the requirement permits, which encourage participation by small and minority businesses, and women's business enterprises; and
5. Using the services and assistance, as appropriate, of such organizations as the Small Business Administration and the Minority Business Development Agency of the Department of Commerce.

Prevailing Wage Requirements

When applicable, the awarded Contractor (s) and any and all subcontractor(s) agree to comply with all laws regarding prevailing wage rates including the Davis-Bacon Act, applicable to this solicitation and/or Participating Public Agencies. The Participating Public Agency shall notify the Contractor of the applicable pricing/prevailing wage rates and must apply any local wage rates requested. The Contractor and any subcontractor(s) shall comply with the prevailing wage rates set by the Participating Public Agency.

Federal Requirements

If products and services are issued in response to an emergency or disaster recovery the items below, located in this FEMA Special Conditions section of the Federal Funds Certifications, are activated and required when federal funding may be utilized.

2 C.F.R. § 200.326 and 2 C.F.R. Part 200, Appendix II, Required Contract Clauses

1. CONTRACT REMEDIES

Contracts for more than the federal simplified acquisition threshold (SAT), the dollar amount below which an NFE may purchase property or services using small purchase methods, currently set at $250,000 for procurements made on or after June 20, 2018,4 must address administrative, contractual, or legal remedies in instances where contractors violate or breach contract terms and must provide for sanctions and penalties as appropriate.

1.1 Applicability
This contract provision is required for contracts over the SAT, currently set at $250,000 for procurements made on or after June 20, 2018. Although not required for contracts at or below the SAT, FEMA suggests including a remedies provision.

1.2 Additional Considerations
For FEMA's Assistance to Firefighters Grant (AFG) Program, recipients must include a penalty clause in all contracts for any AFG-funded vehicle, regardless of dollar amount. In that situation, the contract must include a clause addressing that non-delivery by the contract's specified date or other vendor nonperformance will require a penalty of no less than $100 per day until such time that the vehicle, compliant with the terms of the contract, has been accepted by the recipient. This penalty clause should, however, account for force majeure or acts of God. AFG recipients should refer to the applicable year's Notice of Funding Opportunity (NOFO) for additional information, which can be accessed at FEMA.gov.

2. TERMINATION FOR CAUSE AND CONVENIENCE

a. Standard. All contracts in excess of $10,000 must address termination for cause and for convenience by the non-Federal entity, including the manner by which it will be effected and the basis for settlement. See 2 C.F.R. Part 200, Appendix II(B).

b. Applicability. This requirement applies to all FEMA grant and cooperative agreement programs.

3. EQUAL EMPLOYMENT OPPORTUNITY

When applicable:

a. Standard. Except as otherwise provided under 41 C.F.R. Part 60, all contracts that meet the definition of "federally assisted construction contract" in 41 C.F.R. § 60-1.3 must include the equal opportunity clause provided under 41 C.F.R. § 60- 1.4(b), in accordance with Executive Order 11246**,** *Equal Employment Opportunity* (30 Fed. Reg. 12319, 12935, 3 C.F.R. Part, 1964-1965 Comp., p. 339), as amended by Executive Order 11375, *Amending Executive Order 11246 Relating to Equal Employment Opportunity*, and implementing regulations at 41 C.F.R. Part 60 (Office of Federal Contract Compliance Programs, Equal Employment Opportunity, Department of Labor). See 2 C.F.R. Part 200, Appendix II(C).

b. Key Definitions.

i. Federally Assisted Construction Contract. The regulation at 41 C.F.R. § 60-1.3 defines a "federally assisted construction contract" as any agreement or modification thereof between any applicant and a person for construction work which is paid for in whole or in part with funds obtained from the Government or borrowed on the credit of the Government pursuant to any Federal program involving a grant, contract, loan, insurance, or guarantee, or undertaken pursuant to any Federal program involving such grant, contract, loan, insurance, or guarantee, or any application or modification thereof approved by the Government for a grant, contract,

loan, insurance, or guarantee under which the applicant itself participates in the construction work.

ii. Construction Work. The regulation at 41 C.F.R. § 60-1.3 defines "construction work" as the construction, rehabilitation, alteration, conversion, extension, demolition or repair of buildings, highways, or other changes or improvements to real property, including facilities providing utility services. The term also includes the supervision, inspection, and other onsite functions incidental to the actual construction.

c. Applicability. This requirement applies to all FEMA grant and cooperative agreement programs.

d. Required Language. The regulation at 41 C.F.R. Part 60-1.4(b) requires the insertion of the following contract clause.

During the performance of this contract, the contractor agrees as follows:

(1) The contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, sexual orientation, gender identity, or national origin. The contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment without regard to their race, color, religion, sex, sexual orientation, gender identity, or national origin. Such action shall include, but not be limited to the following:

Employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided setting forth the provisions of this nondiscrimination clause.

(2) The contractor will, in all solicitations or advertisements for employees placed by or on behalf of the contractor, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, sexual orientation, gender identity, or national origin.

(3) The contractor will not discharge or in any other manner discriminate against any employee or applicant for employment because such employee or applicant has inquired about, discussed, or disclosed the compensation of the employee or applicant or another employee or applicant. This provision shall not apply to instances in which an employee who has access to the compensation information of other employees or applicants as a part of such employee's essential job functions discloses the compensation of such other employees or applicants to individuals who do not otherwise have access to such information, unless such disclosure is in response to a formal complaint or charge, in furtherance of an investigation, proceeding, hearing, or action, including an investigation conducted by the employer, or is consistent with the contractor's legal duty to furnish information.

(4) The contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice to be provided advising the said labor union or workers' representatives of the contractor's commitments under this section and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

(5) The contractor will comply with all provisions of Executive Order 11246 of September

24, 1965, and of the rules, regulations, and relevant orders of the Secretary of Labor.

(6) The contractor will furnish all information and reports required by Executive Order 11246 of September 24, 1965, and by rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his books, records, and accounts by the administering agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.

(7) In the event of the contractor's noncompliance with the nondiscrimination clauses of this contract or with any of the said rules, regulations, or orders, this contract may be canceled, terminated, or suspended in whole or in part and the contractor may be declared ineligible for further Government contracts or federally assisted construction contracts in accordance with procedures authorized in Executive Order 11246 of September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order 11246 of September 24, 1965, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.

(8) The contractor will include the portion of the sentence immediately preceding paragraph (1) and the provisions of paragraphs (1) through (8) in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to section 204 of Executive Order 11246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor. The contractor will take such action with respect to any subcontract or purchase order as the administering agency may direct as a means of enforcing such provisions, including sanctions for noncompliance:

Provided, however, that in the event a contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the administering agency, the contractor may request the United States to enter into such litigation to protect the interests of the United States.

The applicant further agrees that it will be bound by the above equal opportunity clause with respect to its own employment practices when it participates in federally assisted construction work: *Provided,* That if the applicant so participating is a State or local government, the above equal opportunity clause is not applicable to any agency, instrumentality or subdivision of such government which does not participate in work on or under the contract.

The applicant agrees that it will assist and cooperate actively with the administering agency and the Secretary of Labor in obtaining the compliance of contractors and subcontractors with the equal opportunity clause and the rules, regulations, and relevant orders of the Secretary of Labor, that it will furnish the administering agency and the Secretary of Labor such information as they may require for the supervision of such compliance, and that it will otherwise assist the administering agency in the discharge of the agency's primary responsibility for securing compliance.

The applicant further agrees that it will refrain from entering into any contract or contract modification subject to Executive Order 11246 of September 24, 1965, with a contractor debarred from, or who has not demonstrated eligibility for, Government contracts and federally assisted construction contracts pursuant to the Executive Order and will carry out such sanctions and penalties for violation of the equal opportunity clause as may be imposed upon contractors and subcontractors by the administering agency or the Secretary of Labor pursuant to Part II, Subpart D of the Executive Order. In addition, the applicant agrees that if it fails or refuses to comply with these undertakings, the administering agency may take any or all of the following actions: Cancel, terminate, or

suspend in whole or in part this grant (contract, loan, insurance, guarantee); refrain from extending any further assistance to the applicant under the program with respect to which the failure or refund occurred until satisfactory assurance of future compliance has been received from such applicant; and refer the case to the Department of Justice for appropriate legal proceedings.

4. DAVIS-BACON ACT

a. Standard. All prime construction contracts in excess of $2,000 awarded by non- Federal entities must include a provision for compliance with the Davis-Bacon Act (40 U.S.C. §§ 3141-3144 and 3146-3148) as supplemented by Department of Labor regulations at 29 C.F.R. Part 5 (Labor Standards Provisions Applicable to Contracts Covering Federally Financed and Assisted Construction). See 2 C.F.R. Part 200, Appendix II(D). In accordance with the statute, contractors must be required to pay wages to laborers and mechanics at a rate not less than the prevailing wages specified in a wage determination made by the Secretary of Labor. In addition, contractors must be required to pay wages not less than once a week.

b. Applicability. The Davis-Bacon Act applies to the Emergency Management Preparedness Grant Program, Homeland Security Grant Program, Nonprofit Security Grant Program, Tribal Homeland Security Grant Program, Port Security Grant Program, and Transit Security Grant Program.

c. Requirements. If applicable, the non-federal entity must do the following:

i. The non-Federal entity must place a copy of the current prevailing wage determination issued by the Department of Labor in each solicitation. The decision to award a contract or subcontract must be conditioned upon the acceptance of the wage determination. The non-Federal entity must report all suspected or reported violations to the Federal awarding agency.

ii. Additionally, pursuant 2 C.F.R. Part 200, Appendix II(D), contracts subject to the Davis-Bacon Act, must also include a provision for compliance with the Copeland "Anti-Kickback" Act (40 U.S.C. § 3145), as supplemented by Department of Labor regulations at 29 C.F.R. Part 3 (Contractors and Subcontractors on Public Building or Public Work Financed in Whole or in Part by Loans or Grants from the United States). The Copeland Anti- Kickback Act provides that each contractor or subrecipient must be prohibited from inducing, by any means, any person employed in the construction, completion, or repair of public work, to give up any part of the compensation to which he or she is otherwise entitled. The non-Federal entity must report all suspected or reported violations to FEMA.

iii. Include a provision for compliance with the Davis-Bacon Act (40 U.S.C. 3141-3144, and 3146-3148) as supplemented by Department of Labor regulations (29 CFR Part 5, "Labor Standards Provisions Applicable to Contracts Covering Federally Financed and Assisted Construction").

Suggested Language. The following provides a sample contract clause:

Compliance with the Davis-Bacon Act.

a. All transactions regarding this contract shall be done in compliance with the Davis-Bacon Act (40 U.S.C. 3141- 3144, and

3146-3148) and the requirements of 29 C.F.R. pt. 5 as may be applicable. The contractor shall comply with 40 U.S.C. 3141-3144, and 3146-3148 and the requirements of 29 C.F.R. pt. 5 as applicable.

b. Contractors are required to pay wages to laborers and mechanics at a rate not less than the prevailing wages specified in a wage determination made by the Secretary of Labor.

c. Additionally, contractors are required to pay wages not less than once a week.

5. COPELAND ANTI-KICKBACK ACT

a. Standard. Recipient and subrecipient contracts must include a provision for compliance with the Copeland "Anti-Kickback" Act (40 U.S.C. 3145), as supplemented by Department of Labor regulations (29 CFR Part 3, "Contractors and Subcontractors on Public Building or Public Work Financed in Whole or in Part by Loans or Grants from the United States").

b. Applicability. This requirement applies to all contracts for construction or repair work above $2,000 in situations where the Davis-Bacon Act also applies. It DOES NOT apply to the FEMA Public Assistance Program.

c. Requirements. If applicable, the non-federal entity must include a provision for compliance with the Copeland "Anti-Kickback" Act (40 U.S.C. § 3145), as supplemented by Department of Labor regulations at 29 C.F.R. Part 3 (Contractors and Subcontractors on Public Building or Public Work Financed in Whole or in Part by Loans or Grants from the United States). Each contractor or subrecipient must be prohibited from inducing, by any means, any person employed in the construction, completion, or repair of public work, to give up any part of the compensation to which he or she is otherwise entitled. The non-Federal entity must report all suspected or reported violations to FEMA. Additionally, in accordance with the regulation, each contractor and subcontractor must furnish each week a statement with respect to the wages paid each of its employees engaged in work covered by the Copeland Anti-Kickback Act and the Davis Bacon Act during the preceding weekly payroll period. The report shall be delivered by the contractor or subcontractor, within seven days after the regular payment date of the payroll period, to a representative of a Federal or State agency in charge at the site of the building or work.

Sample Language. The following provides a sample contract clause:

Compliance with the Copeland "Anti-Kickback" Act.

a. Contractor. The contractor shall comply with 18 U.S.C. §874, 40 U.S.C. § 3145, and the requirements of 29 C.F.R. pt. 3 as may be applicable, which are incorporated by reference into this contract.

b. Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clause above and such other clauses as FEMA may by appropriate instructions require, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all of these contract clauses.

c. Breach. A breach of the contract clauses above may be grounds for termination of the contract, and for debarment as a contractor and subcontractor as provided in 29 C.F.R. §5.12."

6. CONTRACT WORK HOURS AND SAFETY STANDARDS ACT

a. Standard. Where applicable (see 40 U.S.C. §§ 3701-3708), all contracts awarded by the non-Federal entity in excess of $100,000 that involve the employment of mechanics or laborers must include a provision for compliance with 40 U.S.C. §§ 3702 and 3704, as supplemented by Department of Labor regulations at 29 C.F.R. Part 5. See 2 C.F.R. Part 200, Appendix II(E). Under 40 U.S.C. § 3702, each contractor must be required to compute the wages of every mechanic and laborer on the basis of a standard work week of 40 hours. Work in excess of the standard work week is permissible provided that the worker is compensated at a rate of not less than one and a half times the basic rate of pay for all hours worked in excess of 40 hours in the work week. Further, no laborer or mechanic must be required to work in surroundings or under working conditions which are unsanitary, hazardous, or dangerous.

b. Applicability. This requirement applies to all FEMA contracts awarded by the non- federal entity in excess of $100,000 under grant and cooperative agreement programs that involve the employment of mechanics or laborers. It is applicable to construction work. These requirements do not apply to the purchase of supplies or materials or articles ordinarily available on the open market, or contracts for transportation or transmission of intelligence.

c. Suggested Language. The regulation at 29 C.F.R. § 5.5(b) provides contract clause language concerning compliance with the Contract Work Hours and Safety Standards Act. FEMA suggests including the following contract clause:

Compliance with the Contract Work Hours and Safety Standards Act.

(1) *Overtime requirements.* No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.

(2) *Violation; liability for unpaid wages; liquidated damages.* In the event of any violation of the clause set forth in paragraph (b)(1) of this section the contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph (b)(1) of this section, in the sum of
$27 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph (b)(1) of this section.

(3) *Withholding for unpaid wages and liquidated damages.* The Federal agency or

loan/grant recipient shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph (b)(2) of this section.

(4) *Subcontracts.* The contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraph (b)(1) through (4) of this section and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs (b)(1) through (4) of this section.

7. RIGHTS TO INVENTIONS MADE UNDER A CONTRACT OR AGREEMENT

a. Standard. If the FEMA award meets the definition of "funding agreement" under 37C.F.R. § 401.2(a) and the non-Federal entity wishes to enter into a contract with a small business firm or nonprofit organization regarding the substitution of parties, assignment or performance of experimental, developmental, or research work under that "funding agreement," the non- Federal entity must comply with the requirements of 37 C.F.R. Part 401 (Rights to Inventions Made by Nonprofit Organizations and Small Business Firms Under Government Grants, Contracts and Cooperative Agreements), and any implementing regulations issued by FEMA. See 2 C.F.R. Part 200, Appendix II(F).

b. Applicability. This requirement applies to "*funding agreements*," but it DOES NOT apply to the Public Assistance, Hazard Mitigation Grant Program, Fire Management Assistance Grant Program, Crisis Counseling Assistance and Training Grant Program, Disaster Case Management Grant Program, and Federal Assistance to Individuals and Households – Other Needs Assistance Grant Program, as FEMA awards under these programs do not meet the definition of "funding agreement."

c. Funding Agreements Definition. The regulation at 37 C.F.R. § 401.2(a) defines "funding agreement" as any contract, grant, or cooperative agreement entered into between any Federal agency, other than the Tennessee Valley Authority, and any contractor for the performance of experimental, developmental, or research work funded in whole or in part by the Federal government. This term also includes any assignment, substitution of parties, or subcontract of any type entered into for the performance of experimental, developmental, or research work under a funding agreement as defined in the first sentence of this paragraph.

8. CLEAN AIR ACT AND THE FEDERAL WATER POLLUTION CONTROL ACT

a. Standard. If applicable, contracts must contain a provision that requires the contractor to agree to comply with all applicable standards, orders, or regulations issued pursuant to the Clean Air Act (42 U.S.C. §§ 7401-7671q.) and the Federal Water Pollution Control Act as amended (33 U.S.C. §§ 1251-1387). Violations must be reported to FEMA and the Regional Office of the Environmental Protection Agency. See 2 C.F.R. Part 200, Appendix II(G).

b. Applicability. This requirement applies to contracts awarded by a non-federal entity of amounts in excess of $150,000 under a federal grant.

c. Suggested Language. The following provides a sample contract clause.

Clean Air Act

1. The contractor agrees to comply with all applicable standards, orders or regulations issued pursuant to the Clean Air Act, as amended, 42 U.S.C. § 7401 et seq.

2. The contractor agrees to report each violation to the Participating Public Agency and understands and agrees that the Participating Public Agency will, in turn, report each violation as required to assure notification to the Federal Emergency Management Agency, and the appropriate Environmental Protection Agency Regional Office.

3. The contractor agrees to include these requirements in each subcontract exceeding $150,000 financed in whole or in part with Federal assistance provided by FEMA.

Federal Water Pollution Control Act

1. The contractor agrees to comply with all applicable standards, orders, or regulations issued pursuant to the Federal Water Pollution Control Act, as amended, 33 U.S.C. 1251 et seq.

2. The contractor agrees to report each violation to the Participating Public Agency and understands and agrees that the Participating Public Agency will, in turn, report each violation as required to assure notification to the Federal Emergency Management Agency, and the appropriate Environmental Protection Agency Regional Office.

3. The contractor agrees to include these requirements in each subcontract exceeding $150,000 financed in whole or in part with Federal assistance provided by FEMA.

9. DEBARMENT AND SUSPENSION

a. Standard. Non-Federal entities and contractors are subject to the debarment and suspension regulations implementing Executive Order 12549, *Debarment and Suspension* (1986) and Executive Order 12689, *Debarment and Suspension* (1989) at 2 C.F.R. Part 180 and the Department of Homeland Security's regulations at 2 C.F.R. Part 3000 (Non-procurement Debarment and Suspension).

b. Applicability. This requirement applies to all FEMA grant and cooperative agreement programs.

c. Requirements.

i. These regulations restrict awards, subawards, and contracts with certain parties that are debarred, suspended, or otherwise excluded from or ineligible for participation in Federal assistance programs and activities. See 2 C.F.R. Part 200, Appendix II(H); and 2 C.F.R. § 200.213. A contract award must not be made to parties listed in the SAM Exclusions. SAM Exclusions is the list maintained by the General Services Administration that contains the names of parties debarred, suspended, or otherwise excluded by agencies, as well as parties declared ineligible under statutory or regulatory authority other than Executive Order 12549. SAM exclusions can be accessed at www.sam.gov. See 2 C.F.R. § 180.530.

ii. In general, an "excluded" party cannot receive a Federal grant award or a contract within the meaning of a "covered transaction," to include subawards and subcontracts. This includes parties that receive Federal funding indirectly, such as contractors to recipients and subrecipients. The key to the exclusion is whether there is a "covered transaction," which is any non-procurement transaction (unless excepted) at either a "primary" or "secondary" tier. Although "covered transactions" do not include contracts awarded by the Federal Government for purposes of the non-procurement common rule and DHS's implementing regulations, it does include some contracts awarded by recipients and subrecipients.

iii. Specifically, a covered transaction includes the following contracts for goods or services:

1. The contract is awarded by a recipient or subrecipient in the amount of at least $25,000.

2. The contract requires the approval of FEMA, regardless of amount.

3. The contract is for federally-required audit services.

4. A subcontract is also a covered transaction if it is awarded by the contractor of a recipient or subrecipient and requires either the approval of FEMA or is in excess of $25,000.

d. Suggested Language. The following provides a debarment and suspension clause. It incorporates an optional method of verifying that contractors are not excluded or disqualified.

Suspension and Debarment

(1) This contract is a covered transaction for purposes of 2 C.F.R. pt. 180 and 2 C.F.R. pt. 3000. As such, the contractor is required to verify that none of the contractor's principals (defined at 2 C.F.R. § 180.995) or its affiliates (defined at 2 C.F.R. § 180.905) are excluded (defined at 2 C.F.R. § 180.940) or disqualified (defined at 2 C.F.R. § 180.935).

(2) The contractor must comply with 2 C.F.R. pt. 180, subpart C and 2 C.F.R. pt. 3000, subpart C, and must include a requirement to comply with these regulations in any lower tier covered transaction it enters into.

(3) This certification is a material representation of fact relied upon by the Participating Public Agency. If it is later determined that the contractor did not comply with 2

C.F.R. pt. 180, subpart C and 2 C.F.R. pt. 3000, subpart C, in addition to remedies available to the Participating Public Agency, the Federal Government may pursue available remedies, including but not limited to suspension and/or debarment.

(4) The bidder or proposer agrees to comply with the requirements of 2 C.F.R. pt. 180, subpart C and 2 C.F.R. pt. 3000, subpart C while this offer is valid and throughout the period of any contract that may arise from this offer. The bidder or proposer further agrees to include a provision requiring such compliance in its lower tier covered transactions.

10. BYRD ANTI-LOBBYING AMENDMENT

a. Standard. Each tier certifies to the tier above that it will not and has not used Federal appropriated funds to pay any person or organization for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, officer or employee of Congress, or an employee of a Member of Congress in connection with obtaining any Federal contract, grant or any other award covered by 31 U.S.C. § 1352. FEMA's regulation at 44 C.F.R. Part 18 implements the requirements of 31 U.S.C. § 1352 and provides, in Appendix A to Part 18, a copy of the certification that is required to be completed by each entity as described in 31 U.S.C. § 1352. Each tier must also disclose any lobbying with non-Federal funds that takes place in connection with obtaining any Federal award. Such disclosures are forwarded from tier to tier up to the Federal awarding agency.

b. Applicability. This requirement applies to all FEMA grant and cooperative agreement programs. Contractors that apply or bid for a contract of $100,000 or more under a federal grant must file the required certification. See 2 C.F.R. Part 200, Appendix II(I); 31 U.S.C. § 1352; and 44 C.F.R. Part 18.

c. Suggested Language.

Byrd Anti-Lobbying Amendment, 31 U.S.C. § 1352 (as amended)

Contractors who apply or bid for an award of $100,000 or more shall file the required certification. Each tier certifies to the tier above that it will not and has not used Federal appropriated funds to pay any person or organization for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, officer or employee of Congress, or an employee of a Member of Congress in connection with obtaining any Federal contract, grant, or any other award covered by 31 U.S.C. § 1352. Each tier shall also disclose any lobbying with non-Federal funds that takes place in connection with obtaining any Federal award. Such disclosures are forwarded from tier to tier up to the recipient who in turn will forward the certification(s) to the awarding agency.

d. Required Certification. If applicable, contractors must sign and submit to the non-federal entity the following certification.

APPENDIX A, 44 C.F.R. PART 18 – CERTIFICATION REGARDING LOBBYING

Certification for Contracts, Grants, Loans, and Cooperative Agreements

The undersigned certifies, to the best of his or her knowledge and belief, that:

1. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

2. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

3. The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by section 1352, title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

The Contractor,_____, certifies or affirms the truthfulness and accuracy of each statement of its certification and disclosure, if any. In addition, the Contractor understands and agrees that the provisions of 31 U.S.C. Chap. 38, Administrative Remedies for False Claims and Statements, apply to this certification and disclosure, if any.

_____

Signature of Contractor's Authorized Official

_____

Name and Title of Contractor's Authorized Official

_____

Date

11. PROCUREMENT OF RECOVERED MATERIALS

a. Standard. A non-Federal entity that is a state agency or agency of a political subdivision of a state and its contractors must comply with Section 6002 of the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act. See 2 C.F.R. Part 200, Appendix II(J); and 2 C.F.R. §200.322.

b. Applicability. This requirement applies to all contracts awarded by a non- federal entity under FEMA grant and cooperative agreement programs.

c. Requirements. The requirements of Section 6002 include procuring only items designated in guidelines of the EPA at 40 C.F.R. Part 247 that contain the highest percentage of recovered materials practicable, consistent with maintaining a satisfactory level of competition, where the purchase price of the item exceeds
$10,000 or the value of the quantity acquired by the preceding fiscal year exceeded $10,000; procuring solid waste management services in a manner that maximizes energy and resource recovery; and establishing an affirmative procurement program for procurement of recovered materials identified in the EPA guidelines.

d. Suggested Language.

i. In the performance of this contract, the Contractor shall make maximum use of products containing recovered materials that are EPA-designated items unless the product cannot be acquired—

1. Competitively within a timeframe providing for compliance with the contract performance schedule;
2. Meeting contract performance requirements; or
3. At a reasonable price.

ii. Information about this requirement, along with the list of EPA- designated items, is available at EPA's Comprehensive Procurement Guidelines web site, https://www.epa.gov/smm/comprehensive-procurement-guideline-cpg-program.

iii. The Contractor also agrees to comply with all other applicable requirements of Section 6002 of the Solid Waste Disposal Act."

12. **DOMESTIC PREFERENCES FOR PROCUREMENTS**

As appropriate, and to the extent consistent with law, CONTRACTOR should, to the greatest extent practicable under a federal award, provide a preference for the purchase, acquisition, or use of goods, products or materials produced in the United States. This includes, but is not limited to, iron, aluminum, steel, cement, and other manufactured products.

Applicability For purchases in support of FEMA declarations and awards issued on or after November 12, 2020, all FEMA recipients and subrecipients are required to include in all contracts and purchase orders for work or products a contract provision encouraging domestic preference for procurements.

Domestic Preference for Procurements As appropriate, and to the extent consistent with law, the contractor should, to the greatest extent practicable, provide a preference for the purchase, acquisition, or use of goods, products, or materials produced in the United States. This includes, but is not limited to iron, aluminum, steel, cement, and other manufactured products. For purposes of this clause: Produced in the United States means, for iron and steel products, that all manufacturing processes, from the initial melting stage through the application of coatings, occurred in the United States. Manufactured products mean items and construction materials composed in whole or in part of non-ferrous metals such as aluminum; plastics and polymer-based products such as polyvinyl chloride pipe; aggregates such as concrete; glass, including optical fiber; and lumber."

13. **ACCESS TO RECORDS**

a. Standard. All recipients, subrecipients, successors, transferees, and assignees must acknowledge and agree to comply with applicable provisions governing DHS access to records, accounts, documents, information, facilities, and staff. Recipients must give DHS/FEMA access to, and the right to examine and copy, records, accounts, and other documents and sources of information related to the federal financial assistance award and permit access to facilities, personnel, and other individuals and information as may be necessary, as required by DHS regulations *and* other applicable laws or program guidance. See DHS Standard Terms and Conditions: Version 8.1 (2018). Additionally, Section 1225 of the Disaster Recovery Reform Act of 2018 prohibits FEMA from providing reimbursement to any state, local, tribal, or territorial government, or private non-profit for activities made pursuant to a contract that purports to prohibit audits or internal reviews by the FEMA administrator or Comptroller General.

Access to Records. The following access to records requirements apply to this contract:

i. The Contractor agrees to provide Participating Public Agency, the FEMA Administrator, the Comptroller General of the United States, or any of their authorized representatives access to any books, documents, papers, and records of the Contractor which are directly pertinent to this contract for the purposes of making audits, examinations, excerpts, and transcriptions.

ii. The Contractor agrees to permit any of the foregoing parties to reproduce by any means whatsoever or to copy excerpts and transcriptions as reasonably needed.

iii. The Contractor agrees to provide the FEMA Administrator or his authorized representatives access to construction or other work sites pertaining to the work being completed under the contract.

iv. In compliance with the Disaster Recovery Act of 2018, the Participating Public Agency and the Contractor acknowledge and agree that no language in this contract is intended to prohibit audits or internal reviews by the FEMA Administrator or the Comptroller General of the United States.

14. CHANGES

a. Standard. To be eligible for FEMA assistance under the non-Federal entity's FEMA grant or cooperative agreement, the cost of the change, modification, change order, or constructive change must be allowable, allocable, within the scope of its grant or cooperative agreement, and reasonable for the completion of project scope.

b. Applicability. FEMA recommends, therefore, that a non-Federal entity include a changes clause in its contract that describes how, if at all, changes can be made by either party to alter the method, price, or schedule of the work without breaching the contract. The language of the clause may differ depending on the nature of the contract and the end-item procured.

15. DHS SEAL, LOGO, AND FLAGS

a. Standard. Recipients must obtain permission prior to using the DHS seal(s), logos, crests, or reproductions of flags or likenesses of DHS agency officials. See DHS Standard Terms and Conditions: Version 8.1 (2018).

b. Applicability. FEMA recommends that all non-Federal entities place in their contracts a provision that a contractor shall not use the DHS seal(s), logos, crests, or reproductions of flags or likenesses of DHS agency officials without specific FEMA pre-approval.

c. "The contractor shall not use the DHS seal(s), logos, crests, or reproductions of flags or likenesses of DHS agency officials without specific FEMA pre-approval.

16. COMPLIANCE WITH FEDERAL LAW, REGULATIONS, AND EXECUTIVE ORDERS

a. Standard. The recipient and its contractors are required to comply with all Federal laws, regulations, and executive orders.

b. Applicability. FEMA recommends that all non-Federal entities place into their contracts an acknowledgement that FEMA financial assistance will be used to fund the contract along with the requirement that the contractor will comply with all applicable Federal law, regulations, executive orders, and FEMA policies, procedures, and directives.

c. "This is an acknowledgement that FEMA financial assistance will be used to fund all or a portion of the contract. The contractor will comply with all applicable Federal law, regulations, executive orders, FEMA policies, procedures, and directives."

17. NO OBLIGATION BY FEDERAL GOVERNMENT

a. Standard. FEMA is not a party to any transaction between the recipient and its contractor. FEMA is not subject to any obligations or liable to any party for any matter relating to the contract.

b. Applicability. FEMA recommends that the non-Federal entity include a provision in its contract that states that the Federal Government is not a party to the contract and is not subject to any obligations or liabilities to the non-Federal entity, contractor, or any other party pertaining to any matter resulting from the contract.

c. "The Federal Government is not a party to this contract and is not subject to any obligations or liabilities to the non-Federal entity, contractor, or any other party pertaining to any matter resulting from the contract."

18. PROGRAM FRAUD AND FALSE OR FRAUDULENT STATEMENTS OR RELATED ACTS

a. Standard. Recipients must comply with the requirements of The False Claims Act (31 U.S.C. §§ 3729-3733) which prohibits the submission of false or

fraudulent claims for payment to the federal government. See DHS Standard Terms and Conditions: Version 8.1 (2018); and 31 U.S.C. §§ 3801-3812, which details the administrative remedies for false claims and statements made. The non-Federal entity must include a provision in its contract that the contractor acknowledges that 31 U.S.C. Chap. 38 (Administrative Remedies for False Claims and Statements) applies to its actions pertaining to the contract.

b. Applicability. FEMA recommends that the non-Federal entity include a provision in its contract that the contractor acknowledges that 31 U.S.C. Chap. 38 (Administrative Remedies for False Claims and Statements) applies to its actions pertaining to the contract.

c. "The Contractor acknowledges that 31 U.S.C. Chap. 38 (Administrative Remedies for False Claims and Statements) applies to the Contractor's actions pertaining to this contract."

d. In the event FTA or DOT funding is used by a Participating Public Agency, Contractor further acknowledges U.S. DOT regulations, "Program Fraud Civil Remedies," 49 CFR Part 31, and apply to its actions pertaining to this Contract. Upon execution of the underlying Contract, Contractor certifies or affirms the truthfulness and accuracy of any statement it has made, it makes, it may make, or causes to me made, pertaining to the underlying Contract or the FTA assisted project for which this Contract Work is being performed.

In addition to other penalties that may be applicable, Contractor further acknowledges that if it makes, or causes to be made, a false, fictitious, or fraudulent claim, statement, submission, or certification, the Federal Government reserves the right to impose the penalties of the Program Fraud Civil Remedies Act of 1986 on Contractor to the extent the Federal Government deems appropriate.

Contractor also acknowledges that if it makes, or causes to me made, a false, fictitious, or fraudulent claim, statement, submission, or certification to the Federal Government under a contract connected with a project that is financed in whole or in part with Federal assistance originally awarded by FTA

under the authority of 49 U.S.C. § 5307, the Government reserves the right to impose the penalties of 18 U.S.C. § 1001 and 49 U.S.C. § 5307 (n)(1) on the Contractor, to the extent the Federal Government deems appropriate.

Contractor agrees to include the above clauses in each subcontract financed in whole or in part with Federal assistance provided by FTA. It is further agreed that the clauses shall not be modified, except to identify the subcontractor who will be subject to the provisions.

Offeror agrees to comply with all terms and conditions outlined in the FEMA Special Conditions section of this solicitation.

Offeror's Name: _____

Address, City, State, and Zip Code:

_____

Phone Number: _____ Fax Number: _____

Printed Name and Title of Authorized Representative:

_____

Email Address: _____

Signature of Authorized Representative: _____

Date: _____

FEDERAL TRANSIT ADMINISTRATION (FTA) AND DEPARTMENT OF TRANSPORTATION (DOT) SPECIAL CONDITIONS (Version May 4, 2023)

Awarded Supplier(s) (also referred to as Contractors) may be asked to provide products and services to agencies following Federal Transit Administration and/or Department of Transportation requirements. By submitting a response, the Supplier is accepting these FTA and DOT Special Conditions.

NO GOVERNMENT OBLIGATION TO THIRD PARTIES

These requirements do not apply to micro-purchases ($10,000 or less, except for construction contracts over $2,000).
(1) The Participating Public Agency and contractor/vendor acknowledge and agree that, notwithstanding any concurrence by the Federal Government in or approval of the solicitation or award of the underlying contract, absent the express written consent by the Federal Government, the Federal Government is not a party to this contract and shall not be subject to any obligations or liabilities to the purchaser, contractor, or any other party (whether or not a party to that contract) pertaining to any matter resulting from the underlying contract.
(2) The contractor agrees to include the above clause in each subcontract financed in whole or in part with Federal assistance provided by FTA. It is further agreed that the clause shall not be modified, except to identify the subcontractor who will be subject to its provisions.

PROGRAM FRAUD AND FALSE OR FRAUDULENT STATEMENTS OR RELATED ACTS

These requirements do not apply to micro-purchases ($10,000 or less, except for construction contracts over $2,000)

(1) The contractor acknowledges that the provisions of the Program Fraud Civil Remedies Act of 1986, as amended, 31 U.S.C. 3801 et seq. and U.S. DOT regulations, "Program Fraud Civil Remedies, "49 CFR Part 31, apply to its actions pertaining to this Project. Upon execution of the underlying contract, the contractor certifies or affirms the truthfulness and accuracy of any statement it has made, it makes, it may make, or causes to be made, pertaining to the underlying contract or the FTA assisted project for which this contract work is being performed. In addition to other penalties that may be applicable, the contractor further acknowledges that if it makes, or causes to be made, a false, fictitious, or fraudulent claim, statement, submission, or certification, the Federal Government reserves the right to impose the penalties of the Program Fraud Civil Remedies Act of 1986 on the contractor to the extent the Federal Government deems appropriate.

(2) The contractor also acknowledges that if it makes, or causes to be made, a false, fictitious, or fraudulent claim, statement, submission, or certification to the Federal Government under a contract connected with a project that is financed in whole or in part with Federal assistance originally awarded by FTA under the authority of 49 U.S.C. 5307, the Government reserves the right to impose the penalties of 18 U.S.C. 1001 and 49 U.S.C. § 5323(l) on the contractor, to the extent the Federal Government deems appropriate.

(3) The contractor agrees to include the above two clauses in each subcontract financed in whole or in part with Federal assistance provided by FTA. It is further agreed that the clauses shall not be modified, except to identify the subcontractor who will be subject to the provisions.

ACCESS TO RECORDS AND REPORTS

(1) Record Retention. The Contractor will retain, and will require its subcontractors of all tiers to retain, complete and readily accessible records related in whole or in part to the contract, including, but not limited to, data, documents, reports, statistics, sub-agreements, leases, subcontracts, arrangements, other third party agreements of any type, and supporting materials related to those records.
(2) Retention Period. The Contractor agrees to comply with the record retention requirements in accordance with 2 C.F.R. § 200.333. The Contractor shall maintain all books, records, accounts and reports required under this Contract for a period of at not less than three (3) years after the date of termination or expiration of this Contract, except in the event of litigation or settlement of claims arising from the performance of this Contract, in which case records shall be maintained until the disposition of all such litigation, appeals, claims or exceptions related thereto.
(3) Access to Records. The Contractor agrees to provide sufficient access to FTA and its contractors to inspect and audit records and information related to performance of this contract as reasonably may be required.
(4) Access to the Sites of Performance. The Contractor agrees to permit FTA and its contractors access to the sites of performance under this contract as reasonably may be required.

FEDERAL CHANGES

(1) Contractor shall at all times comply with all applicable FTA regulations, policies, procedures and directives, including without limitation those listed directly or by reference in the Master Agreement between Purchaser and FTA,

as they may be amended or promulgated from time to time during the term of this contract. Contractor's failure to so comply shall constitute a material breach of this Contract.
Contractor agrees to:

a) Maintain all books, records, accounts and reports required under this Contract for a period of not less than three (3) years after the date of termination or expiration of this Contract or any extensions thereof except in the event of litigation or settlement of claims arising from the performance of this Contract, in which case Contractor agrees to maintain same until Public Agency, the FTA Administrator, the Comptroller General, or any of their duly authorized representatives, have disposed of all such litigation, appeals, claims or exceptions related thereto.

b) Permit any of the foregoing parties to inspect all work, materials, payrolls, and other data and records with regard to the Project, and to audit the books, records, and accounts with regard to the Project and to reproduce by any means whatsoever or to copy excerpts and transcriptions as reasonably needed for the purpose of audit and examination.

FTA does not require the inclusion of these requirements of Article 1.01 in subcontracts. Reference 49 CFR 18.39 (a)(11).

CIVIL RIGHTS / TITLE VI REQUIREMENTS

The Participating Public Agency is an Equal Opportunity Employer. As such, the Participating Public Agency agrees to comply with all applicable Federal civil rights laws and implementing regulations. Apart from inconsistent requirements imposed by Federal laws or regulations, the Participating Public Agency agrees to comply with the requirements of 49 U.S.C. § 5323(h) (3) by not using any Federal assistance awarded by FTA to support procurements using exclusionary or discriminatory specifications.
Under this Agreement, the Contractor shall at all times comply with the following requirements and shall include these requirements in each subcontract entered into as part thereof.
(1) Nondiscrimination – In accordance with Title VI of the Civil Rights Act, as amended, 42 U.S.C. 20000d, section 303 of the Age Discrimination Act of 1975, as amended, 42 U.S.C. 6102, section 202 of the Americans with disabilities Act of 1990, 42 U.S.C. 12132, and Federal transit law at 49 U.S.C. 5332, the contractor agrees that it will not discriminate against any employee or applicant for employment because of race, color, creed, national origin, sex, age, or disability. In addition, the contractor agrees to comply with applicable Federal implementing regulations and other implementing requirements FTA may issue.

(2) Equal Employment Opportunity – The following equal employment opportunity requirements apply to the underlying contract:

(a) **Race, Color, Creed, National Origin, Sex**. In accordance with Title VII of the Civil Rights Act, as amended, 42 U.S.C. § 2000e et seq., and Federal transit laws at 49 U.S.C. § 5332, the Contractor agrees to comply with all applicable equal employment opportunity requirements of U.S. Department of Labor (U.S. DOL) regulations, "Office of Federal Contract Compliance Programs, Equal Employment Opportunity, Department of Labor," 41 C.F.R. chapter 60, and Executive Order No. 11246, "Equal Employment Opportunity in Federal Employment," September 24, 1965, 42 U.S.C. § 2000e note, as amended by any later Executive Order that amends or supersedes it, referenced in 42 U.S.C. § 2000e note. The Contractor agrees to take affirmative action to ensure that applicants are employed, and that employees are treated during employment, without regard to their race, color, religion, national origin, or sex (including sexual orientation and gender identity). Such action shall include, but not be limited to, the following: employment, promotion, demotion or transfer, recruitment or recruitment advertising, layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. In addition, the Contractor agrees to comply with any implementing requirements FTA may issue.

(b) **Age** - In accordance with the Age Discrimination in Employment Act, 29 U.S.C. §§ 621-634, U.S. Equal Employment Opportunity Commission (U.S. EEOC) regulations, “Age Discrimination in Employment Act,” 29 C.F.R. part 1625, the Age Discrimination Act of 1975, as amended, 42 U.S.C. § 6101 et seq., U.S. Health and Human Services regulations, “Nondiscrimination on the Basis of Age in Programs or Activities Receiving Federal Financial Assistance,” 45 C.F.R. part 90, and Federal transit law at 49 U.S.C. § 5332, the Contractor agrees to refrain from discrimination against present and prospective employees for reason of age. In addition, the Contractor agrees to comply with any implementing requirements FTA may issue.

(c) **Disabilities** - In accordance with section 504 of the Rehabilitation Act of 1973, as amended, 29 U.S.C. § 794, the Americans with Disabilities Act of 1990, as amended, 42 U.S.C. § 12101 et seq., the Architectural Barriers Act of 1968, as amended, 42 U.S.C. §4151 et seq., and Federal transit law at 49 U.S.C. § 5332, the Contractor agrees that it will not discriminate against individuals on the basis of disability. In addition, the Contractor agrees to comply with any implementing requirements FTA may issue.

(3) The contractor also agrees to include these requirements in each subcontract financed whole or in part with Federal assistance provided by FTA, modified only if necessary to identify the affected parties.

INCORPORATION OF FTA 4220.1F TERMS

(1) The preceding provisions include, in part, certain Standard Terms and Conditions required by DOT, whether or not expressly set forth in the preceding contract provisions. All contractual provisions required by DOT, as set forth in FTA Circular 4220.1F, dated November 1, 2008, are hereby incorporated by reference. Anything to the contrary herein notwithstanding, all FTA-mandated terms shall be deemed to control in the event of a conflict with other provisions contained in this Agreement. The contractor shall not perform any act, fail to perform any act, or refuse to comply with any Participating Public Agency request, which would cause the Participating Public Agency to be in violation of the FTA terms and conditions.
(2) Flow Down – The incorporation of FTA terms has unlimited flow down.

DISADVANTAGED BUSINESS ENTERPRISE (DBE)

The contractor, subrecipient or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The contractor shall carry out applicable requirements of 49 C.F.R. part 26 in the award and administration of DOT-assisted contracts. Failure by the contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the recipient deems appropriate, which may include, but is not limited to:

1) Withholding monthly progress payments;

2) Assessing sanctions;

3) Liquidated damages; and/or

4) Disqualifying the contractor from future bidding as non-responsible. 49 C.F.R. § 26.13(b).

5) Non-Discrimination Assurances. Contractor or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this Contract. Contractor shall carry out all applicable requirements of 49 CFR Part 26 in the award and administration of DOT-assisted contracts. Failure by Contractor to carry out these requirements is a material breach of this Contract, which may result in the termination of this Contract or other such remedy as public agency deems appropriate. Each subcontract Contractor signs with a subcontractor must include the assurance in this paragraph. (See 49 CFR 26.13(b)).

6) Prompt Payment. Contractor is required to pay each subcontractor performing Work under this prime Contract for satisfactory performance of that work no later than thirty (30) days after Contractor's receipt of payment for that Work from public agency. In addition, Contractor is required to return any retainage payments to those subcontractors within thirty (30) days after the subcontractor's work related to this Contract is satisfactorily completed and any liens have been secured. Any delay or postponement of payment from the above time frames may occur only for good cause following written approval of public agency. This clause applies to both DBE and non-DBE subcontractors. Contractor must promptly notify public agency whenever a DBE subcontractor performing Work related to this Contract is terminated or fails to complete its Work, and must make good faith efforts to engage another DBE subcontractor to perform at least the same amount of work. Contractor may not terminate any DBE subcontractor and perform that Work through its own forces, or those of an affiliate, without prior written consent of Participating Public Agency.

7) DBE Program. In connection with the performance of this Contract, Contractor will cooperate with public agency in meeting its commitments and goals to ensure that DBEs shall have the maximum practicable opportunity to compete for subcontract work, regardless of whether a contract goal is set for this Contract. Contractor agrees to use good faith efforts to carry out a policy in the award of its subcontracts, agent agreements, and procurement contracts which will, to the fullest extent, utilize DBEs consistent with the efficient performance of the Contract.

ENERGY CONSERVATION REQUIREMENTS

Contractor agrees to comply with mandatory standards and policies relating to energy efficiency which are contained in the State energy conservation plans issued under the Energy Policy and Conservation Act, as amended, 42 U.S.C. Sections 6321 et seq. and 41 CFR Part 301-10.

INCORPORATION OF FEDERAL TRANSIT ADMINISTRATION (FTA) TERMS

1) The preceding provisions include, in part, certain Standard Terms and Conditions required by DOT, whether or not expressly set forth in the preceding contract provisions. All contractual provisions required by DOT, as set forth in FTA Circular 4220.1F, dated November 1, 2008, are hereby incorporated by reference. Anything to the contrary herein notwithstanding, all FTA-mandated terms shall be deemed to control in the event of a conflict with other provisions contained in this Agreement. The contractor shall not perform any act, fail to perform any act, or refuse to comply with any Participating Public Agency request, which would cause the Participating Public Agency to be in violation of the FTA terms and conditions.

2) Flow Down – The incorporation of FTA terms has unlimited flow down.

SUSPENSION AND DEBARMENT

The Contractor shall comply and facilitate compliance with U.S. DOT regulations, "Nonprocurement Suspension and Debarment," 2 C.F.R. part 1200, which adopts and supplements the U.S. Office of Management and Budget (U.S. OMB) "Guidelines to Agencies on Government Wide Debarment and Suspension (Nonprocurement)," 2 C.F.R. part 180. These provisions apply to each contract at any tier of $25,000 or more, and to each contract at any tier for a federally required audit (irrespective of the contract amount), and to each contract at any tier that must be approved by an FTA official irrespective of the contract amount. As such, the Contractor shall verify that its principals, affiliates, and subcontractors are eligible to participate in this federally funded contract and are not presently declared by any Federal department or agency to be:

a) Debarred from participation in any federally assisted Award;
b) Suspended from participation in any federally assisted Award;
c) Proposed for debarment from participation in any federally assisted Award;
d) Declared ineligible to participate in any federally assisted Award;
e) Voluntarily excluded from participation in any federally assisted Award; or
f) Disqualified from participation in ay federally assisted Award.

By signing and submitting its bid or proposal, the bidder or proposer certifies as follows:
The certification in this clause is a material representation of fact relied upon by the AGENCY. If it is later determined by the AGENCY that the bidder or proposer knowingly rendered an erroneous certification, in addition to remedies available to the AGENCY, the Federal Government may pursue available remedies, including but not limited to suspension and/or debarment. The bidder or proposer agrees to comply with the requirements of 2 C.F.R. part 180, subpart C, as supplemented by 2 C.F.R. part 1200, while this offer is valid and throughout the period of any contract that may arise from this offer. The bidder or proposer further agrees to include a provision requiring such compliance in its lower tier covered transactions.

NO FEDERAL GOVERNMENT OBLIGATIONS TO THIRD PARTIES

Agency and Contractor acknowledge and agree that, absent the Federal Government's express written consent and notwithstanding any concurrence by the Federal Government in or approval of the solicitation or award of the underlying Contract, the Federal Government is not a party to this Contract and shall not be subject to any obligations or liabilities to agency, Contractor, or any other party (whether or not a party to that contract) pertaining to any matter resulting from the underlying Contract.

Contractor agrees to include the above clause in each subcontract financed in whole or in part with federal assistance provided by the FTA. It is further agreed that the clause shall not be modified, except to identify the subcontractor who will be subject to its provisions.

CARGO PREFERENCE REQUIREMENTS

Use of United States-Flag Vessels. The contractor agrees:

1) To use privately owned United States-Flag commercial vessels to ship at least 50 percent of the gross tonnage (computed separately for dry bulk carriers, dry cargo liners, and tankers) involved, whenever shipping any equipment, material, or commodities pursuant to the underlying contract to the extent such vessels are available at fair and reasonable rates for United States-Flag commercial vessels.

2) To furnish within 20 working days following the date of loading for shipments originating within the United States or within 30 days following the date of loading for shipments originating outside the United States, a legible copy of a rated, "on-board" commercial ocean bill-of-lading in English for each shipment of cargo described in the preceding paragraph to the Division of National Cargo, Office of Market Development,

Maritime Administration, Washington D.C. 20590 and the FTA recipient (through the contractor in the case of a subcontractor's bill-of lading).

3) To include these requirements in all subcontracts issued pursuant to the contract when the subcontract may involve the transport of equipment, materials, or commodities by ocean vessel.

FLY AMERICA

Fly America Requirements:

1) Definitions. As used in this clause- "International air transportation" means transportation by air between a place in the United States and a place outside the United States or between two places both of which are outside the United States. "United States" means the 50 States, the District of Columbia, and outlying areas. "U.S.-flag air carrier" means an air carrier holding a certificate under 49 U.S.C. Chapter 411.

2) When Federal funds are used to fund travel, Section 5 of the International Air Transportation Fair Competitive Practices Act of 1974 (49 U.S.C. 40118) (Fly America Act) requires contractors, recipients, and others use U.S.-flag air carriers for U.S. Government-financed international air transportation of personnel (and their personal effects) or property, to the extent that service by those carriers is available. It requires the Comptroller General of the United States, in the absence of satisfactory proof of the necessity for foreign-flag air transportation, to disallow expenditures from funds, appropriated or otherwise established for the account of the United States, for international air transportation secured aboard a foreign-flag air carrier if a U.S.-flag air carrier is available to provide such services.

3) If available, the contractor, in performing work under this contract, shall use U.S.-flag carriers for international air transportation of personnel (and their personal effects) or property.

4) In the event that the contractor selects a carrier other than a U.S.-flag air carrier for international air transportation, the contractor shall include a statement on vouchers involving such transportation essentially as follows:

Statement of Unavailability of U.S.-Flag Air Carriers

International air transportation of persons (and their personal effects) or property by U.S.-flag air carrier was not available or it was necessary to use foreign-flag air carrier service for the following reasons. See FAR § 47.403.

Stated Reason(s):_____
_____
_____

5) The contractor shall include the substance of this clause, including this paragraph, in each subcontract or purchase under this contract that may involve international air transportation.

RECYCLED PRODUCTS

1) The Contractor agrees to provide a preference for those products and services that conserve natural resources, protect the environment, and are energy efficient by complying with and facilitating compliance with Section 6002 of the Resource Conservation and Recovery Act, as amended, 42 U.S.C. § 6962, and U.S. Environmental Protection Agency (U.S. EPA), "Comprehensive Procurement Guideline for Products Containing Recovered Materials," 40 C.F.R. part 247.

CONFORMANCE WITH ITS NATIONAL ARCHITECTURE

When applicable:

1) Contractor shall conform, to the extent applicable, to the National Intelligent Transportation Standards architecture as required by SAFETEA-LU Section 5307(c), 23 U.S.C. Section 512 and as amended by MAP-21 23 U.S.C. § 517(d), note and follow the provisions of FTA Notice, "FTA National Architecture Policy on

Transit Projects," 66 Fed. Reg.1455 et seq., January 8, 2001, and any other implementing directives FTA may issue at a later date, except to the extent FTA determines otherwise in writing.

ADA ACCESS

1) In accordance with section 504 of the Rehabilitation Act of 1973, as amended, 29 U.S.C. § 794, the Americans with Disabilities Act of 1990, as amended, 42 U.S.C. § 12101 et seq., the Architectural Barriers Act of 1968, as amended, 42 U.S.C. § 4151 et seq., and Federal transit law at 49 U.S.C. § 5332, the Contractor agrees that it will not discriminate against individuals on the basis of disability. In addition, the Contractor agrees to comply with any implementing requirements FTA may issue.

SAFE OPERATION OF MOTOR VEHICLES

1) *Seat Belt Use* - The Contractor is encouraged to adopt and promote on-the-job seat belt use policies and programs for its employees and other personnel that operate company-owned vehicles, company-rented vehicles, or personally operated vehicles. The terms "company-owned" and "company-leased" refer to vehicles owned or leased either by the Contractor or Participating Public Agency.

2) *Distracted Driver* - The Contractor agrees to adopt and enforce workplace safety policies to decrease crashes caused by distracted drivers, including policies to ban text messaging while using an electronic device supplied by an employer, and driving a vehicle the driver owns or rents, a vehicle Contactor owns, leases, or rents, or a privately-owned vehicle when on official business in connection with the work performed under this agreement.

PROMPT PAYMENT

1) The Prime Contractor shall pay any Subcontractor for work that has been satisfactorily performed no later than thirty (30) days from the date of the Prime Contractor's receipt of each payment made by the Participating Public Agency. Additionally, within thirty (30) days of satisfactory completion of all work required of the Subcontractor, the Prime Contractor shall release any retainage payments withheld to the Subcontractor.

FTA PROTEST NOTIFICATION

A protestant must exhaust all Participating Public Agency Procurement administrative procedures and remedies before pursuing a protest with the FTA.

1) Any and all protests shall be in writing and shall be filed with the Purchasing Manager with the Participating Public Agency. A protest relating to the process for determining the most responsive and responsible contractor shall be filed within five (5) business days after the protestor knows or should have known the basis of the determination. The Contract Officer shall respond to a protest within fourteen (14) calendar days after the receipt of the protest. The Purchasing Manager may grant the Contract Officer an extension for the response if warranted. A request for reconsideration of any and all determinations by the Contract Officer shall be filed with the Purchasing Manager within seven (7) calendar days after the receipt of the determination.

2) A protest shall include:

    a. The name, address, and telephone number, including FAX number if available, of the protestor;

    b. The signature of the protestor or authorized representative;

    c. Identification of the contract/solicitation;

    d. A detailed statement of the legal and/or factual grounds of protest including copies and/or citations of relevant documents, and;

    e. The form of relief requested.

3) If any of the above information is omitted or incomplete, then the Protestor shall be notified, in writing, within two (2) calendar days after that determination, and the Protestor shall have two (2) calendar days in which to remedy the specified problem.

4) The Participating Public Agency will not make award prior to the resolution of a protest, or open bids prior to resolution of a protest filed before bid opening unless the Purchasing Manager determines in writing that it is in the best interests of the Participating Public Agency or in keeping with Item 7 of this procedure to do otherwise. Potential contractors will be advised of a pending protest if the protest is filed before award.

5) The Purchasing Manager may allow for an informal conference on the merits of a protest with all interested parties allowed to attend. Interested parties include all bidding contractors, and may also include a subcontractor or supplier provided they have a substantial economic interest in a portion of the IFB or RFP.

6) The Purchasing Manager shall respond "in writing", in detail, to each substantial issue raised in the protest. The Purchasing Manager has the sole authority to make determinations for the Participating Public Agency, and a determination shall be considered final when it is labeled as such. A request for reconsideration will be allowed by the Purchasing Manager if he determines that data has become available that was not previously known, or that there has been an error of law or regulation.

7) The Participating Public Agency may proceed with procurement when a protest is pending if the Participating Public Agency determines that:

    a. The items to be procured are urgently required;

    b. Delivery or performance will be unduly delayed by failure to make the award promptly; or

    c. Failure to make award will otherwise cause undue harm to the grantee for the Federal Government.

8) FTA will only entertain a protest that alleges:

    a. The Participating Public Agency failed to have or to adhere to its protest procedures, or failed to review a complaint or protest; or

    b. Violations of Federal law or regulation.

9) A protest to FTA must be filed in accordance with FTA Circular 4220.1F, available from the Contract Officer. Specifically, protestors shall file a protest with FTA Region 9 or FTA Headquarters Office no later than five (5) days after a final decision is rendered under the Participating Public Agency's protest procedure. In instances where the protestor alleges that the Participating Public Agency failed to make a final determination on the protest, protestors shall file a protest with FTA not later than five (5) calendar days after the protester knew or should have known of the grantee's failure to render a final determination on the protest.

    A protest filed with FTA shall:

    a. Include the name and address of the protestor.

    b. Identify the grantee, project number, and the number of the contract solicitation.

    c. Contain a statement of the grounds for protest and any supporting documentation. This should detail the alleged failure to have or adhere to protest procedures, failure to review a complaint or protest; or Violation of Federal law or regulation.

    Include a copy of the local protest filed with the grantee and a copy of the grantee's decision, if any.

NEW JERSEY BUSINESS COMPLIANCE

Suppliers intending to do business in the State of New Jersey must comply with policies and procedures required under New Jersey statues. All offerors submitting proposals must complete the following forms specific to the State of New Jersey. Completed forms should be submitted with the offeror's response to the RFP. Failure to complete the New Jersey packet will impact OMNIA Partners' ability to promote the Master Agreement in the State of New Jersey.

DOC #1	Ownership Disclosure Form
DOC #2	Non-Collusion Affidavit
DOC #3	Affirmative Action Affidavit
DOC #4	Political Contribution Disclosure Form
DOC #5	Stockholder Disclosure Certification
DOC #6	Disclosure of Investment Activities in Iran
DOC #7	Certification of Non-Involvement in Prohibited Activities in Russia or Belarus
DOC #8	New Jersey Business Registration Certificate
DOC #9	EEOAA Evidence
DOC #10	MacBride Principals Form

New Jersey suppliers are required to comply with the following New Jersey statutes when applicable:

- all anti-discrimination laws, including those contained in N.J.S.A. 10:2-1 through N.J.S.A. 10:2-14, N.J.S.A. 10:5-1, and N.J.S.A. 10:5-31 through 10:5-38;
- Prevailing Wage Act, N.J.S.A. 34:11-56.26, for all contracts within the contemplation of the Act;
- Public Works Contractor Registration Act, N.J.S.A. 34:11-56.26; and
- Bid and Performance Security, as required by the applicable municipal or state statutes.

STATEMENT OF OWNERSHIP DISCLOSURE

N.J.S.A. 52:25-24.2 (P.L. 1977, c.33, as amended by P.L. 2016, c.43)

This statement shall be completed, certified to, and included with all bid and proposal submissions. Failure to submit the required information is cause for automatic rejection of the bid or proposal.

Name of Organization: _____

Organization Address: _____

Part I Check the box that represents the type of business organization:

☐ Sole Proprietorship (skip Parts II and III, execute certification in Part IV)

☐ Non-Profit Corporation (skip Parts II and III, execute certification in Part IV)

☐ For-Profit Corporation (any type) ☐ Limited Liability Company (LLC)

☐ Partnership ☐ Limited Partnership ☐ Limited Liability Partnership (LLP)

☐ Other (be specific): _____

Part II

☐ The list below contains the names and addresses of all stockholders in the corporation who own 10 percent or more of its stock, of any class, or of all individual partners in the partnership who own a 10 percent or greater interest therein, or of all members in the limited liability company who own a 10 percent or greater interest therein, as the case may be. (**COMPLETE THE LIST BELOW IN THIS SECTION**)

OR

☐ No one stockholder in the corporation owns 10 percent or more of its stock, of any class, or no individual partner in the partnership owns a 10 percent or greater interest therein, or no member in the limited liability company owns a 10 percent or greater interest therein, as the case may be. (**SKIP TO PART IV**)

(Please attach additional sheets if more space is needed):

Name of Individual or Business Entity	Home Address (for Individuals) or Business Address

Part III DISCLOSURE OF 10% OR GREATER OWNERSHIP IN THE STOCKHOLDERS, PARTNERS OR LLC MEMBERS LISTED IN PART II

If a bidder has a direct or indirect parent entity which is publicly traded, and any person holds a 10 percent or greater beneficial interest in the publicly traded parent entity as of the last annual federal Security and Exchange Commission (SEC) or foreign equivalent filing, ownership disclosure can be met by providing links to the website(s) containing the last annual filing(s) with the federal Securities and Exchange Commission (or foreign equivalent) that contain the name and address of each person holding a 10% or greater beneficial interest in the publicly traded parent entity, along with the relevant page numbers of the filing(s) that contain the information on each such person. **Attach additional sheets if more space is needed**.

Website (URL) containing the last annual SEC (or foreign equivalent) filing	Page #'s

Please list the names and addresses of each stockholder, partner or member owning a 10 percent or greater interest in any corresponding corporation, partnership and/or limited liability company (LLC) listed in Part II **other than for any publicly traded parent entities referenced above**. The disclosure shall be continued until names and addresses of every noncorporate stockholder, and individual partner, and member exceeding the 10 percent ownership criteria established pursuant to N.J.S.A. 52:25-24.2 has been listed. **Attach additional sheets if more space is needed.**

Stockholder/Partner/Member and Corresponding Entity Listed in Part II	Home Address (for Individuals) or Business Address

Part IV Certification

I, being duly sworn upon my oath, hereby represent that the foregoing information and any attachments thereto to the best of my knowledge are true and complete. I acknowledge: that I am authorized to execute this certification on behalf of the bidder/proposer; that the ***<name of contracting unit>*** is relying on the information contained herein and that I am under a continuing obligation from the date of this certification through the completion of any contracts with ***<type of contracting unit>*** to notify the ***<type of contracting unit>*** in writing of any changes to the information contained herein; that I am aware that it is a criminal offense to make a false statement or misrepresentation in this certification, and if I do so, I am subject to criminal prosecution under the law and that it will constitute a material breach of my agreement(s) with the, permitting the ***<type of contracting unit>*** to declare any contract(s) resulting from this certification void and unenforceable.

Full Name (Print):		Title:	
Signature:		Date:	

NON-COLLUSION AFFIDAVIT

STANDARD BID DOCUMENT REFERENCE	
	Reference: VII-H
Name of Form:	**NON-COLLUSION AFFIDAVIT**
Statutory Reference:	No specific statutory reference State Statutory Reference N.J.S.A. 52:34-15
Instructions Reference:	Statutory and Other Requirements VII-H
Description:	The Owner's use of this form is optional. It is used to ensure that the bidder has not participated in any collusion with any other bidder or Owner representative or otherwise taken any action in restraint of free and competitive bidding.

NON-COLLUSION AFFIDAVIT

State of New Jersey
County of _____ ss:

I, _____ residing in _____
(name of affiant) (name of municipality)
in the County of _____ and State of _____of full age, being duly sworn according to law on my oath depose and say that:

I am _____ of the firm of _____
(title or position) (name of firm)

_____ the bidder making this Proposal for the bid

entitled _____, and that I executed the said proposal with
(title of bid proposal)
full authority to do so that said bidder has not, directly or indirectly entered into any agreement, participated in any collusion, or otherwise taken any action in restraint of free, competitive bidding in connection with the above named project; and that all statements contained in said proposal and in this affidavit are true and correct, and made with full knowledge that the _____ _____relies upon the truth of the statements contained in said Proposal
(name of contracting unit)
and in the statements contained in this affidavit in awarding the contract for the said project.

I further warrant that no person or selling agency has been employed or retained to solicit or secure such contract upon an agreement or understanding for a commission, percentage, brokerage, or contingent fee, except bona fide employees or bona fide established commercial or selling agencies maintained by _____.

Subscribed and sworn to

before me this day _____
Signature

_____, 2____ _____
(Type or print name of affiant under signature)

_____
Notary public of

My Commission expires _____

(Seal)

DOC #3

AFFIRMATIVE ACTION AFFIDAVIT
(P.L. 1975, C.127)

Company Name: _____

Street: _____

City, State, Zip Code: _____

Proposal Certification:

Indicate below company's compliance with New Jersey Affirmative Action regulations. Company's proposal will be accepted even if company is not in compliance at this time. No contract and/or purchase order may be issued, however, until all Affirmative Action requirements are met.

Required Affirmative Action Evidence:

Procurement, Professional & Service Contracts (Exhibit A)

Vendors must submit with proposal:

1. A photocopy of a valid letter that the contractor is operating under an existing Federally approved or sanctioned affirmative action program (good for one year from the date of the letter);

   OR

2. A photocopy of a Certificate of Employee Information Report approval, issued in accordance with N.J.A.C. 17:27-4;

   OR

3. A photocopy of an Employee Information Report (Form AA302) provided by the Division of Contract Compliance and Equal Employment Opportunity in Public Contracts and distributed to the public agency to be completed by the contractor in accordance with N.J.A.C. 17:27-4.

Public Work – Over $50,000 Total Project Cost:

A. No approved Federal or New Jersey Affirmative Action Plan. We will complete Report Form AA201. A project contract ID number will be assigned to your firm upon receipt of the completed Initial Project Workforce Report (AA201) for this contract.

B. Approved Federal or New Jersey Plan – certificate enclosed

I further certify that the statements and information contained herein, are complete and correct to the best of my knowledge and belief.

_____ _____

Date ***Authorized Signature and Title***

P.L. 1995, c. 127 (N.J.A.C. 17:27)
MANDATORY AFFIRMATIVE ACTION LANGUAGE

PROCUREMENT, PROFESSIONAL AND SERVICE CONTRACTS

During the performance of this contract, the contractor agrees as follows:

The contractor or subcontractor, where applicable, will not discriminate against any employee or applicant for employment because of age, race, creed, color, national origin, ancestry, marital status, sex, affectional or sexual orientation. The contractor will take affirmative action to ensure that such applicants are recruited and employed, and that employees are treated during employment, without regard to their age, race, creed, color, national origin, ancestry, marital status, sex, affectional or sexual orientation. Such action shall include, but not be limited to the following: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided by the Public Agency Compliance Officer setting forth provisions of this non-discrimination clause.

The contractor or subcontractor, where applicable will, in all solicitations or advertisement for employees placed by or on behalf of the contractor, state that all qualified applicants will receive consideration for employment without regard to age, race, creed, color, national origin, ancestry, marital status, sex, affectional or sexual orientation.

The contractor or subcontractor, where applicable, will send to each labor union or representative of workers with which it has a collective bargaining agreement or other contract or understanding, a notice, to be provided by the agency contracting officer advising the labor union or workers' representative of the contractor's commitments under this act and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

The contractor or subcontractor, where applicable, agrees to comply with any regulations promulgated by the Treasurer pursuant to P.L. 1975, c. 127, as amended and supplemented from time to time and the Americans with Disabilities Act.

The contractor or subcontractor agrees to attempt in good faith to employ minority and female workers trade consistent with the applicable county employment goal prescribed by N.J.A.C. 17:27-5.2 promulgated by the Treasurer pursuant to P.L. 1975, C.127, as amended and supplemented from time to time or in accordance with a binding determination of the applicable county employment goals determined by the Affirmative Action Office pursuant to N.J.A.C. 17:27-5.2 promulgated by the Treasurer pursuant to P.L. 1975, C.127, as amended and supplemented from time to time.

The contractor or subcontractor agrees to inform in writing appropriate recruitment agencies in the area, including employment agencies, placement bureaus, colleges, universities, labor unions, that it does not discriminate on the basis of age, creed, color, national origin, ancestry, marital status, sex, affectional or sexual orientation, and that it will discontinue the use of any recruitment agency which engages in direct or indirect discriminatory practices.

The contractor or subcontractor agrees to revise any of it testing procedures, if necessary, to assure that all personnel testing conforms with the principles of job-related testing, as established by the statutes and court decisions of the state of New Jersey and as established by applicable Federal law and applicable Federal court decisions.

The contractor or subcontractor agrees to review all procedures relating to transfer, upgrading, downgrading and lay-off to ensure that all such actions are taken without regard to age, creed, color, national origin, ancestry, marital status, sex, affectional or sexual orientation, and conform with the applicable employment goals, consistent with the statutes and court decisions of the State of New Jersey, and applicable Federal law and applicable Federal court decisions.

The contractor and its subcontractors shall furnish such reports or other documents to the Affirmative Action Office as may be requested by the office from time to time in order to carry out the purposes of these regulations, and public agencies shall furnish such information as may be requested by the Affirmative Action Office for conducting a compliance investigation pursuant to Subchapter 10 of the Administrative Code (NJAC 17:27).

_____

Signature of Procurement Agent

C. 271 POLITICAL CONTRIBUTION DISCLOSURE FORM

Public Agency Instructions

This page provides guidance to public agencies entering into contracts with business entities that are required to file Political Contribution Disclosure forms with the agency. **It is not intended to be provided to contractors.** What follows are instructions on the use of form local units can provide to contractors that are required to disclose political contributions pursuant to N.J.S.A. 19:44A-20.26 (P.L. 2005, c. 271, s.2). Additional information on the process is available in Local Finance Notice 2006-1 (http://www.nj.gov/dca/divisions/dlgs/resources/lfns_2006.html). Please refer back to these instructions for the appropriate links, as the Local Finance Notices include links that are no longer operational.

1. The disclosure is required for all contracts in excess of $17,500 that are **not awarded** pursuant to a "fair and open" process (N.J.S.A. 19:44A-20.7).
2. Due to the potential length of some contractor submissions, the public agency should consider allowing data to be submitted in electronic form (i.e., spreadsheet, pdf file, etc.). Submissions must be kept with the contract documents or in an appropriate computer file and be available for public access. **The form is worded to accept this alternate submission.** The text should be amended if electronic submission will not be allowed.
3. The submission must be **received from the contractor and** on file at least 10 days prior to award of the contract. Resolutions of award should reflect that the disclosure has been received and is on file.
4. The contractor must disclose contributions made to candidate and party committees covering a wide range of public agencies, including all public agencies that have elected officials in the county of the public agency, state legislative positions, and various state entities. The Division of Local Government Services recommends that contractors be provided a list of the affected agencies. This will assist contractors in determining the campaign and political committees of the officials and candidates affected by the disclosure.
    a. The Division has prepared model disclosure forms for each county. They can be downloaded from the "County PCD Forms" link on the Pay-to-Play web site at http://www.nj.gov/dca/divisions/dlgs/programs/lpcl.html#12. They will be updated from time-to-time as necessary.
    b. A public agency using these forms **should edit them to properly reflect the correct legislative district**(s). As the forms are county-based, **they list all legislative districts** in each county. **Districts that do not represent the public agency should be removed from the lists.**
    c. Some contractors may find it easier to provide a single list that covers all contributions, regardless of the county. These submissions are appropriate and should be accepted.
    d. The form may be used "as-is", subject to edits as described herein.
    e. The "Contractor Instructions" sheet is intended to be provided with the form. It is recommended that the Instructions and the form be printed on the same piece of paper. The form notes that the Instructions are printed on the back of the form; where that is not the case, the text should be edited accordingly.
    f. The form is a Word document and can be edited to meet local needs, and posted for download on web sites, used as an e-mail attachment, or provided as a printed document.
5. It is recommended that the contractor also complete a "Stockholder Disclosure Certification." This will assist the local unit in its obligation to ensure that contractor did not make any prohibited contributions to the committees listed on the Business Entity Disclosure Certification in the 12 months prior to the contract (See Local Finance Notice 2006-7 for additional information on this obligation at http://www.nj.gov/dca/divisions/dlgs/resources/lfns_2006.html). A sample Certification form is part of this package and the instruction to complete it is included in the Contractor Instructions. NOTE: This section is not applicable to Boards of Education.

C. 271 POLITICAL CONTRIBUTION DISCLOSURE FORM

Contractor Instructions

Business entities (contractors) receiving contracts from a public agency that are NOT awarded pursuant to a "fair and open" process (defined at N.J.S.A. 19:44A-20.7) are subject to the provisions of P.L. 2005, c. 271, s.2 (N.J.S.A. 19:44A-20.26). This law provides that 10 days prior to the award of such a contract, the contractor shall disclose contributions to:

- any State, county, or municipal committee of a political party
- any legislative leadership committee*
- any continuing political committee (a.k.a., political action committee)
- any candidate committee of a candidate for, or holder of, an elective office:
    - of the public entity awarding the contract
    - of that county in which that public entity is located
    - of another public entity within that county
    - or of a legislative district in which that public entity is located or, when the public entity is a county, of any legislative district which includes all or part of the county

The disclosure must list reportable contributions to any of the committees that exceed $300 per election cycle that were made during the 12 months prior to award of the contract. See N.J.S.A. 19:44A-8 and 19:44A-16 for more details on reportable contributions.

N.J.S.A. 19:44A-20.26 itemizes the parties from whom contributions must be disclosed when a business entity is not a natural person. This includes the following:

- individuals with an "interest" ownership or control of more than 10% of the profits or assets of a business entity or 10% of the stock in the case of a business entity that is a corporation for profit
- all principals, partners, officers, or directors of the business entity or their spouses
- any subsidiaries directly or indirectly controlled by the business entity
- IRS Code Section 527 New Jersey based organizations, directly or indirectly controlled by the business entity and filing as continuing political committees, (PACs).

When the business entity is a natural person, "a contribution by that person's spouse or child, residing therewith, shall be deemed to be a contribution by the business entity." [N.J.S.A. 19:44A-20.26(b)] The contributor must be listed on the disclosure.

Any business entity that fails to comply with the disclosure provisions shall be subject to a fine imposed by ELEC in an amount to be determined by the Commission which may be based upon the amount that the business entity failed to report.

The enclosed list of agencies is provided to assist the contractor in identifying those public agencies whose elected official and/or candidate campaign committees are affected by the disclosure requirement. It is the contractor's responsibility to identify the specific committees to which contributions may have been made and need to be disclosed. The disclosed information may exceed the minimum requirement.

The enclosed form, a content-consistent facsimile, or an electronic data file containing the required details (along with a signed cover sheet) may be used as the contractor's submission and is disclosable to the public under the Open Public Records Act.

The contractor must also complete the attached Stockholder Disclosure Certification. This will assist the agency in meeting its obligations under the law. **NOTE: This section does not apply to Board of Education contracts.**

* N.J.S.A. 19:44A-3(s): "The term "legislative leadership committee" means a committee established, authorized to be established, or designated by the President of the Senate, the Minority Leader of the Senate, the Speaker of the General Assembly or the Minority Leader of the General Assembly pursuant to section 16 of P.L.1993, c.65 (C.19:44A-10.1) for the purpose of receiving contributions and making expenditures."

C. 271 POLITICAL CONTRIBUTION DISCLOSURE FORM

Required Pursuant to N.J.S.A. 19:44A-20.26

This form or its permitted facsimile must be submitted to the local unit no later than 10 days prior to the award of the contract.

Part I – Vendor Information

Vendor Name:			
Address:			
City:		State:	Zip:

The undersigned being authorized to certify, hereby certifies that the submission provided herein represents compliance with the provisions of N.J.S.A. 19:44A-20.26 and as represented by the Instructions accompanying this form.

_____ _____ _____

Signature Printed Name Title

Part II – Contribution Disclosure

Disclosure requirement: Pursuant to N.J.S.A. 19:44A-20.26 this disclosure must include all reportable political contributions (more than $300 per election cycle) over the 12 months prior to submission to the committees of the government entities listed on the form provided by the local unit.

☐ Check here if disclosure is provided in electronic form

Contributor Name	Recipient Name	Date	Dollar Amount
			$

☐ Check here if the information is continued on subsequent page(s)

List of Agencies with Elected Officials Required for Political Contribution Disclosure
N.J.S.A. 19:44A-20.26

County Name:
State: Governor, and Legislative Leadership Committees
Legislative District #s:
State Senator and two members of the General Assembly per district.

County:

Freeholders	County Clerk	Sheriff
{County Executive}	Surrogate	

Municipalities (Mayor and members of governing body, regardless of title):

USERS SHOULD CREATE THEIR OWN FORM, OR DOWNLOAD FROM THE PAY TO PLAY SECTION OF THE DLGS WEBSITE A COUNTY-BASED, CUSTOMIZABLE FORM.

DOC #5

STOCKHOLDER DISCLOSURE CERTIFICATION

Name of Business:

☐ I certify that the list below contains the names and home addresses of all stockholders holding 10% or more of the issued and outstanding stock of the undersigned.

OR

☐ I certify that no one stockholder owns 10% or more of the issued and outstanding stock of the undersigned.

Check the box that represents the type of business organization:

☐ Partnership ☐ Corporation ☐ Sole Proprietorship

☐ Limited Partnership ☐ Limited Liability Corporation ☐ Limited Liability Partnership

☐ Subchapter S Corporation

Sign and notarize the form below, and, if necessary, complete the stockholder list below.

Stockholders:

Name: Home Address:	Name: Home Address:
Name: Home Address:	Name: Home Address:
Name: Home Address:	Name: Home Address:

Subscribed and sworn before me this ___ day of _____, 2__.

(Notary Public)

My Commission expires:

_____
(Affiant)

_____
(Print name & title of affiant)

(Corporate Seal)

DISCLOSURE OF INVESTMENT ACTIVITIES IN IRAN FORM

STATE OF NEW JERSEY
DEPARTMENT OF THE TREASURY - DIVISION OF PURCHASE AND PROPERTY
33 WEST STATE STREET, P.O. BOX 230 TRENTON, NEW JERSEY 08625-0230

BID SOLICITATION # AND TITLE: _____

VENDOR NAME: _____

Pursuant to N.J.S.A. 52:32-57, et seq. (P.L. 2012, c.25 and P.L. 2021, c.4) any person or entity that submits a bid or proposal or otherwise proposes to enter into or renew a contract must certify that neither the person nor entity, nor any of its parents, subsidiaries, or affiliates, is identified on the New Jersey Department of the Treasury's Chapter 25 List as a person or entity engaged in investment activities in Iran. The Chapter 25 list is found on the Division's website at https://www.state.nj.us/treasury/purchase/pdf/Chapter25List.pdf. Vendors/Bidders must review this list prior to completing the below certification. If the Director of the Division of Purchase and Property finds a person or entity to be in violation of the law, s/he shall take action as may be appropriate and provided by law, rule or contract, including but not limited to, imposing sanctions, seeking compliance, recovering damages, declaring the party in default and seeking debarment or suspension of the party.

CHECK THE APPROPRIATE BOX

☐ I certify, pursuant to N.J.S.A. 52:32-57, et seq. (P.L. 2012, c.25 and P.L. 2021, c.4), that neither the Vendor/Bidder listed above nor any of its parents, subsidiaries, or affiliates is listed on the New Jersey Department of the Treasury's Chapter 25 List of entities determined to be engaged in prohibited activities in Iran.

OR

☐ I am unable to certify as above because the Vendor/Bidder and/or one or more of its parents, subsidiaries, or affiliates is listed on the New Jersey Department of the Treasury's Chapter 25 List. I will provide a detailed, accurate and precise description of the activities of the Vendor/Bidder, or one of its parents, subsidiaries or affiliates, has engaged in regarding investment activities in Iran by completing the information requested below.

Entity Engaged in Investment Activities _____
Relationship to Vendor/ Bidder _____
Description of Activities _____
_____
_____
Duration of Engagement _____
Anticipated Cessation Date
**Attach Additional Sheets If Necessary.*

CERTIFICATION

I, the undersigned, certify that I am authorized to execute this certification on behalf of the Vendor, that the foregoing information and any attachments hereto, to the best of my knowledge are true and complete. I acknowledge that the State of New Jersey is relying on the information contained herein, and that the Vendor is under a continuing obligation from the date of this certification through the completion of any contract(s) with the State to notify the State in writing of any changes to the information contained herein; that I am aware that it is a criminal offense to make a false statement or misrepresentation in this certification. If I do so, I may be subject to criminal prosecution under the law, and it will constitute a material breach of my contract(s) with the State, permitting the State to declare any contract(s) resulting from this certification void and unenforceable.

_____ _____
Signature Date

_____
Print Name and Title

DPP Rev. 12.13.2021

CERTIFICATION OF NON-INVOLVEMENT IN PROHIBITED ACTIVITIES IN RUSSIA OR BELARUS

Pursuant to N.J.S.A. 52:32-60.1, et seq. (L. 2022, c. 3) any person or entity (hereinafter "Vendor[i]") that seeks to enter into or renew a contract with a State agency for the provision of goods or services, or the purchase of bonds or other obligations, must complete the certification below indicating whether or not the Vendor is identified on the Office of Foreign Assets Control (OFAC) Specially Designated Nationals and Blocked Persons list, available here: https://sanctionssearch.ofac.treas.gov/. If the Department of the Treasury finds that a Vendor has made a certification in violation of the law, it shall take any action as may be appropriate and provided by law, rule or contract, including but not limited to, imposing sanctions, seeking compliance, recovering damages, declaring the party in default and seeking debarment or suspension of the party.

I, the undersigned, certify that I have read the definition of "Vendor" below, and have reviewed the Office of Foreign Assets Control (OFAC) Specially Designated Nationals and Blocked Persons list, and having done so certify:

(Check the Appropriate Box)

○ A. That the Vendor is not identified on the OFAC Specially Designated Nationals and Blocked Persons list on account of activity related to Russia and/or Belarus.

OR

○ B. That I am unable to certify as to "A" above, because the Vendor is identified on the OFAC Specially Designated Nationals and Blocked Persons list on account of activity related to Russia and/or Belarus.

OR

○ C. That I am unable to certify as to "A" above, because the Vendor is identified on the OFAC Specially Designated Nationals and Blocked Persons list. However, the Vendor is engaged in activity related to Russia and/or Belarus consistent with federal law, regulation, license or exemption. A detailed description of how the Vendor's activity related to Russia and/or Belarus is consistent with federal law is set forth below.

_____

_____

_____

_____

_____

_____

(Attach Additional Sheets If Necessary.)

Signature of Vendor's Authorized Representative	Date
Print Name and Title of Vendor's Authorized Representative	Vendor's FEIN
Vendor's Name	Vendor's Phone Number
Vendor's Address (Street Address)	Vendor's Fax Number
Vendor's Address (City/State/Zip Code)	Vendor's Email Address

[i] Vendor means: (1) A natural person, corporation, company, limited partnership, limited liability partnership, limited liability company, business association, sole proprietorship, joint venture, partnership, society, trust, or any other nongovernmental entity, organization, or group; (2) Any governmental entity or instrumentality of a government, including a multilateral development institution, as defined in Section 1701(c)(3) of the International Financial Institutions Act, 22 U.S.C. 262r(c)(3); or (3) Any parent, successor, subunit, direct or indirect subsidiary, or any entity under common ownership or control with, any entity described in paragraph (1) or (2). NJ Rev. 1.22.2024

DOC #8

NEW JERSEY BUSINESS REGISTRATION CERTIFICATE
(N.J.S.A. 52:32-44)

Offerors wishing to do business in New Jersey must submit their State Division of Revenue issued Business Registration Certificate with their proposal here. Failure to do so will disqualify the Offeror from offering products or services in New Jersey through any resulting contract.

https://www.njportal.com/DOR/BusinessRegistration/

DOC #9

EEOAA EVIDENCE

Equal Employment Opportunity/Affirmative Action
Goods, Professional Services & General Service Projects

EEO/AA Evidence

Vendors are required to submit evidence of compliance with N.J.S.A. 10:5-31 et seq. and N.J.A.C. 17:27 in order to be considered a responsible vendor.

One of the following must be included with submission:

- Copy of Letter of Federal Approval
- Certificate of Employee Information Report
- Fully Executed Form AA302
- Fully Executed EEO-1 Report

See the guidelines at:
https://www.state.nj.us/treasury/contract_compliance/documents/pdf/guidelines/pa.pdf
for further information.

I certify that my bid package includes the required evidence per the above list and State website.

Name: _____ Title: _____

Signature: _____ Date: _____

DOC #10

MACBRIDE-PRINCIPLES

STATE OF NEW JERSEY
DEPARTMENT OF THE TREASURY - DIVISION OF PURCHASE AND PROPERTY 33 WEST STATE STREET, P.O. BOX 230 TRENTON, NEW JERSEY 08625-0230

BID SOLICITATION # AND TITLE: _____

VENDOR NAME: _____

Pursuant to Public Law 1995, c. 134, a responsible Vendor/Bidder is required to provide a certification in compliance with the MacBride Principles and Northern Ireland Act of 1989. Pursuant to N.J.S.A. 52:34-12.2, Vendor/Bidder must complete the certification below by checking one of the two options listed below and signing where indicated. If a Vendor/Bidder that would otherwise be awarded a purchase, contract or agreement does not complete the certification, then the Director may determine, in accordance with applicable law and rules, that it is in the best interest of the State to award the purchase, contract or agreement to another Vendor/ Bidder that has completed the certification and has submitted a bid within five (5) percent of the most advantageous bid. If the Director finds contractors to be in violation of the principles that are the subject of this law, he/she shall take such action as may be appropriate and provided by law, rule or contract, including but not limited to, imposing sanctions, seeking compliance, recovering damages, declaring the party in default and seeking debarment or suspension of the party.

I, the undersigned, on behalf the Vendor/Bidder, certify pursuant to N.J.S.A. 52:34-12.2 that:

CHECK THE APPROPRIATE BOX

☐ The Vendor/Bidder has no business operations in Northern Ireland; or

OR

☐ The Vendor/Bidder will take lawful steps in good faith to conduct any business operations it has in Northern Ireland in accordance with the MacBride principles of nondiscrimination in employment as set forth in section 2 of P.L. 1987, c. 177 (N.J.S.A. 52:18A-89.5) and in conformance with the United Kingdom's Fair Employment (Northern Ireland) Act of 1989, and permit independent monitoring of its compliance with those principles.

CERTIFICATION

I, the undersigned, certify that I am authorized to execute this certification on behalf of the Vendor, that the foregoing information and any attachments hereto, to the best of my knowledge are true and complete. I acknowledge that the State of New Jersey is relying on the information contained herein, and that the Vendor is under a continuing obligation from the date of this certification through the completion of any contract(s) with the State to notify the State in writing of any changes to the information contained herein; that I am aware that it is a criminal offense to make a false statement or misrepresentation in this certification. If I do so, I may be subject to criminal prosecution under the law, and it will constitute a material breach of my contract(s) with the State, permitting the State to declare any contract(s) resulting from this certification void and unenforceable.

_____ _____
Signature Date

_____
Print Name and Title

Exhibit H
Advertising Compliance Requirement

Pursuant to certain state notice provisions, including but not limited to Oregon Revised Statutes Chapter 279A.210, Chapter 279A.220, and other related provisions, the following public agencies and political subdivisions of the referenced public agencies are eligible to register with OMNIA Partners and access the Master Agreement contract award made pursuant to this solicitation, and are hereby given notice of the foregoing request for proposals for purposes of complying with the procedural requirements of said statutes:

Nationwide:

State of Alabama	State of Hawaii	Commonwealth of Massachusetts	State of New Mexico	State of South Dakota
State of Alaska	State of Idaho	State of Michigan	State of New York	State of Tennessee
State of Arizona	State of Illinois	State of Minnesota	State of North Carolina	State of Texas
State of Arkansas	State of Indiana	State of Mississippi	State of North Dakota	State of Utah
State of California	State of Iowa	State of Missouri	State of Ohio	State of Vermont
State of Colorado	State of Kansas	State of Montana	State of Oklahoma	Commonwealth of Virginia
State of Connecticut	Commonwealth of Kentucky	State of Nebraska	State of Oregon	State of Washington
State of Delaware	State of Louisiana	State of Nevada	Commonwealth of Pennsylvania	State of West Virginia
State of Florida	State of Maine	State of New Hampshire	State of Rhode Island	State of Wisconsin
State of Georgia	State of Maryland	State of New Jersey	State of South Carolina	State of Wyoming
District of Columbia	U.S. Territories			

Lists of political subdivisions and local governments in the above referenced states, districts, and territories may be found at http://www.usa.gov/state-governments and https://www.usa.gov/local-governments.

Certain Public Agencies and Political Subdivisions:

CITIES, TOWNS, VILLAGES AND BOROUGHS INCLUDING BUT NOT LIMITED TO:

BAKER CITY GOLF COURSE, OR
CITY OF ADAIR VILLAGE, OR
CITY OF ASHLAND, OR
CITY OF AUMSVILLE, OR
CITY OF AURORA, OR
CITY OF BAKER, OR
CITY OF BATON ROUGE, LA
CITY OF BEAVERTON, OR
CITY OF BEND, OR
CITY OF BOARDMAN, OR
CITY OF BONANAZA, OR
CITY OF BOSSIER CITY, LA
CITY OF BROOKINGS, OR
CITY OF BURNS, OR
CITY OF CANBY, OR
CITY OF CANYONVILLE, OR
CITY OF CLATSKANIE, OR
CITY OF COBURG, OR
CITY OF CONDON, OR
CITY OF COQUILLE, OR
CITY OF CORVALLI, OR
CITY OF CORVALLIS PARKS AND RECREATION DEPARTMENT, OR
CITY OF COTTAGE GROVE, OR
CITY OF DONALD, OR
CITY OF EUGENE, OR
CITY OF FOREST GROVE, OR
CITY OF GOLD HILL, OR
CITY OF GRANTS PASS, OR
CITY OF GRESHAM, OR
CITY OF HILLSBORO, OR
CITY OF INDEPENDENCE, OR
CITY AND COUNTY OF HONOLULU, HI
CITY OF KENNER, LA
CITY OF LA GRANDE, OR
CITY OF LAFAYETTE, LA
CITY OF LAKE CHARLES, OR
CITY OF LEBANON, OR
CITY OF MCMINNVILLE, OR
CITY OF MEDFORD, OR
CITY OF METAIRIE, LA
CITY OF MILL CITY, OR
CITY OF MILWAUKIE, OR
CITY OF MONROE, LA
CITY OF MOSIER, OR
CITY OF NEW ORLEANS, LA
CITY OF NORTH PLAINS, OR
CITY OF OREGON CITY, OR
CITY OF PILOT ROCK, OR
CITY OF PORTLAND, OR
CITY OF POWERS, OR
CITY OF PRINEVILLE, OR
CITY OF REDMOND, OR
CITY OF REEDSPORT, OR
CITY OF RIDDLE, OR
CITY OF ROGUE RIVER, OR
CITY OF ROSEBURG, OR
CITY OF SALEM, OR
CITY OF SANDY, OR
CITY OF SCAPPOOSE, OR
CITY OF SHADY COVE, OR
CITY OF SHERWOOD, OR

CITY OF SHREVEPORT, LA
CITY OF SILVERTON, OR
CITY OF SPRINGFIELD, OR
CITY OF ST. HELENS, OR
CITY OF ST. PAUL, OR
CITY OF SULPHUR, LA
CITY OF TIGARD, OR
CITY OF TROUTDALE, OR
CITY OF TUALATIN, OR
CITY OF WALKER, LA
CITY OF WARRENTON, OR
CITY OF WEST LINN, OR
CITY OF WILSONVILLE, OR
CITY OF WINSTON, OR
CITY OF WOODBURN, OR
LEAGUE OF OREGON CITES
THE CITY OF HAPPY VALLEY OREGON
ALPINE, UT
ALTA, UT
ALTAMONT, UT
ALTON, UT
AMALGA, UT
AMERICAN FORK CITY, UT
ANNABELLA, UT
ANTIMONY, UT
APPLE VALLEY, UT
AURORA, UT
BALLARD, UT
BEAR RIVER CITY, UT
BEAVER, UT
BICKNELL, UT
BIG WATER, UT
BLANDING, UT
BLUFFDALE, UT
BOULDER, UT
CITY OF BOUNTIFUL, UT
BRIAN HEAD, UT
BRIGHAM CITY CORPORATION, UT
BRYCE CANYON CITY, UT
CANNONVILLE, UT
CASTLE DALE, UT
CASTLE VALLEY, UT
CITY OF CEDAR CITY, UT
CEDAR FORT, UT
CITY OF CEDAR HILLS, UT
CENTERFIELD, UT
CENTERVILLE CITY CORPORATION, UT
CENTRAL VALLEY, UT
CHARLESTON, UT
CIRCLEVILLE, UT
CLARKSTON, UT
CLAWSON, UT
CLEARFIELD, UT
CLEVELAND, UT
CLINTON CITY CORPORATION, UT
COALVILLE, UT
CORINNE, UT
CORNISH, UT
COTTONWOOD HEIGHTS, UT
DANIEL, UT
DELTA, UT
DEWEYVILLE, UT
DRAPER CITY, UT
DUCHESNE, UT
EAGLE MOUNTAIN, UT
EAST CARBON, UT
ELK RIDGE, UT
ELMO, UT
ELSINORE, UT
ELWOOD, UT
EMERY, UT
ENOCH, UT
ENTERPRISE, UT
EPHRAIM, UT
ESCALANTE, UT
EUREKA, UT
FAIRFIELD, UT
FAIRVIEW, UT
FARMINGTON, UT
FARR WEST, UT
FAYETTE, UT
FERRON, UT
FIELDING, UT
FILLMORE, UT
FOUNTAIN GREEN, UT
FRANCIS, UT
FRUIT HEIGHTS, UT
GARDEN CITY, UT
GARLAND, UT
GENOLA, UT
GLENDALE, UT
GLENWOOD, UT
GOSHEN, UT
GRANTSVILLE, UT
GREEN RIVER, UT
GUNNISON, UT
HANKSVILLE, UT
HARRISVILLE, UT
HATCH, UT
HEBER CITY CORPORATION, UT
HELPER, UT
HENEFER, UT
HENRIEVILLE, UT
HERRIMAN, UT
HIDEOUT, UT
HIGHLAND, UT
HILDALE, UT
HINCKLEY, UT
HOLDEN, UT
HOLLADAY, UT
HONEYVILLE, UT
HOOPER, UT
HOWELL, UT
HUNTINGTON, UT
HUNTSVILLE, UT
CITY OF HURRICANE, UT
HYDE PARK, UT
HYRUM, UT
INDEPENDENCE, UT
IVINS, UT
JOSEPH, UT
JUNCTION, UT
KAMAS, UT
KANAB, UT
KANARRAVILLE, UT
KANOSH, UT
KAYSVILLE, UT
KINGSTON, UT
KOOSHAREM, UT
LAKETOWN, UT
LA VERKIN, UT
LAYTON, UT
LEAMINGTON, UT
LEEDS, UT

LEHI CITY CORPORATION, UT
LEVAN, UT
LEWISTON, UT
LINDON, UT
LOA, UT
LOGAN CITY, UT
LYMAN, UT
LYNNDYL, UT
MANILA, UT
MANTI, UT
MANTUA, UT
MAPLETON, UT
MARRIOTT-SLATERVILLE, UT
MARYSVALE, UT
MAYFIELD, UT
MEADOW, UT
MENDON, UT
MIDVALE CITY INC., UT
MIDWAY, UT
MILFORD, UT
MILLVILLE, UT
MINERSVILLE, UT
MOAB, UT
MONA, UT
MONROE, UT
CITY OF MONTICELLO, UT
MORGAN, UT
MORONI, UT
MOUNT PLEASANT, UT
MURRAY CITY CORPORATION, UT
MYTON, UT
NAPLES, UT
NEPHI, UT
NEW HARMONY, UT
NEWTON, UT
NIBLEY, UT
NORTH LOGAN, UT
NORTH OGDEN, UT
NORTH SALT LAKE CITY, UT
OAK CITY, UT
OAKLEY, UT
OGDEN CITY CORPORATION, UT
OPHIR, UT
ORANGEVILLE, UT
ORDERVILLE, UT
OREM, UT
PANGUITCH, UT
PARADISE, UT
PARAGONAH, UT
PARK CITY, UT
PAROWAN, UT
PAYSON, UT
PERRY, UT
PLAIN CITY, UT
PLEASANT GROVE CITY, UT
PLEASANT VIEW, UT
PLYMOUTH, UT
PORTAGE, UT
PRICE, UT
PROVIDENCE, UT
PROVO, UT
RANDOLPH, UT
REDMOND, UT
RICHFIELD, UT
RICHMOND, UT
RIVERDALE, UT
RIVER HEIGHTS, UT
RIVERTON CITY, UT
ROCKVILLE, UT
ROCKY RIDGE, UT
ROOSEVELT CITY CORPORATION, UT
ROY, UT
RUSH VALLEY, UT
CITY OF ST. GEORGE, UT
SALEM, UT
SALINA, UT
SALT LAKE CITY CORPORATION, UT
SANDY, UT
SANTA CLARA, UT
SANTAQUIN, UT
SARATOGA SPRINGS, UT
SCIPIO, UT
SCOFIELD, UT
SIGURD, UT
SMITHFIELD, UT
SNOWVILLE, UT
CITY OF SOUTH JORDAN, UT
SOUTH OGDEN, UT
CITY OF SOUTH SALT LAKE, UT
SOUTH WEBER, UT
SPANISH FORK, UT
SPRING CITY, UT
SPRINGDALE, UT
SPRINGVILLE, UT
STERLING, UT
STOCKTON, UT
SUNNYSIDE, UT
SUNSET CITY CORP, UT
SYRACUSE, UT
TABIONA, UT
CITY OF TAYLORSVILLE, UT
TOOELE CITY CORPORATION, UT
TOQUERVILLE, UT
TORREY, UT
TREMONTON CITY, UT
TRENTON, UT
TROPIC, UT
UINTAH, UT
VERNAL CITY, UT
VERNON, UT
VINEYARD, UT
VIRGIN, UT
WALES, UT
WALLSBURG, UT
WASHINGTON CITY, UT
WASHINGTON TERRACE, UT
WELLINGTON, UT
WELLSVILLE, UT
WENDOVER, UT
WEST BOUNTIFUL, UT
WEST HAVEN, UT
WEST JORDAN, UT
WEST POINT, UT
WEST VALLEY CITY, UT
WILLARD, UT
WOODLAND HILLS, UT
WOODRUFF, UT
WOODS CROSS, UT

COUNTIES AND PARISHES INCLUDING BUT NOT LIMITED TO:

ASCENSION PARISH, LA
ASCENSION PARISH, LA, CLEAR OF COURT
CADDO PARISH, LA

CALCASIEU PARISH, LA
CALCASIEU PARISH SHERIFF'S OFFICE, LA
CITY AND COUNTY OF HONOLULU, HI
CLACKAMAS COUNTY, OR
CLACKAMAS COUNTY DEPT OF TRANSPORTATION, OR
CLATSOP COUNTY, OR
COLUMBIA COUNTY, OR
COOS COUNTY, OR
COOS COUNTY HIGHWAY DEPARTMENT, OR
COUNTY OF HAWAII, OR
CROOK COUNTY, OR
CROOK COUNTY ROAD DEPARTMENT, OR
CURRY COUNTY, OR
DESCHUTES COUNTY, OR
DOUGLAS COUNTY, OR
EAST BATON ROUGE PARISH, LA
GILLIAM COUNTY, OR
GRANT COUNTY, OR
HARNEY COUNTY, OR
HARNEY COUNTY SHERIFFS OFFICE, OR
HAWAII COUNTY, HI
HOOD RIVER COUNTY, OR
JACKSON COUNTY, OR
JEFFERSON COUNTY, OR
JEFFERSON PARISH, LA
JOSEPHINE COUNTY GOVERNMENT, OR
LAFAYETTE CONSOLIDATED GOVERNMENT, LA
LAFAYETTE PARISH, LA
LAFAYETTE PARISH CONVENTION & VISITORS COMMISSION
LAFOURCHE PARISH, LA
KAUAI COUNTY, HI
KLAMATH COUNTY, OR
LAKE COUNTY, OR
LANE COUNTY, OR
LINCOLN COUNTY, OR
LINN COUNTY, OR
LIVINGSTON PARISH, LA
MALHEUR COUNTY, OR
MAUI COUNTY, HI
MARION COUNTY, SALEM, OR
MORROW COUNTY, OR
MULTNOMAH COUNTY, OR
MULTNOMAH COUNTY BUSINESS AND COMMUNITY SERVICES, OR
MULTNOMAH COUNTY SHERIFFS OFFICE, OR
MULTNOMAH LAW LIBRARY, OR
ORLEANS PARISH, LA
PLAQUEMINES PARISH, LA
POLK COUNTY, OR
RAPIDES PARISH, LA
SAINT CHARLES PARISH, LA
SAINT CHARLES PARISH PUBLIC SCHOOLS, LA
SAINT LANDRY PARISH, LA
SAINT TAMMANY PARISH, LA
SHERMAN COUNTY, OR
TERREBONNE PARISH, LA
TILLAMOOK COUNTY, OR
TILLAMOOK COUNTY SHERIFF'S OFFICE, OR
TILLAMOOK COUNTY GENERAL HOSPITAL, OR
UMATILLA COUNTY, OR
UNION COUNTY, OR
WALLOWA COUNTY, OR
WASCO COUNTY, OR
WASHINGTON COUNTY, OR
WEST BATON ROUGE PARISH, LA
WHEELER COUNTY, OR
YAMHILL COUNTY, OR
COUNTY OF BOX ELDER, UT
COUNTY OF CACHE, UT
COUNTY OF RICH, UT
COUNTY OF WEBER, UT
COUNTY OF MORGAN, UT
COUNTY OF DAVIS, UT
COUNTY OF SUMMIT, UT
COUNTY OF DAGGETT, UT
COUNTY OF SALT LAKE, UT
COUNTY OF TOOELE, UT
COUNTY OF UTAH, UT
COUNTY OF WASATCH, UT
COUNTY OF DUCHESNE, UT
COUNTY OF UINTAH, UT
COUNTY OF CARBON, UT
COUNTY OF SANPETE, UT
COUNTY OF JUAB, UT
COUNTY OF MILLARD, UT
COUNTY OF SEVIER, UT
COUNTY OF EMERY, UT
COUNTY OF GRAND, UT
COUNTY OF BEVER, UT
COUNTY OF PIUTE, UT
COUNTY OF WAYNE, UT
COUNTY OF SAN JUAN, UT
COUNTY OF GARFIELD, UT
COUNTY OF KANE, UT
COUNTY OF IRON, UT
COUNTY OF WASHINGTON, UT

OTHER AGENCIES INCLUDING ASSOCIATIONS, BOARDS, DISTRICTS, COMMISSIONS, COUNCILS, PUBLIC CORPORATIONS, PUBLIC DEVELOPMENT AUTHORITIES, RESERVATIONS AND UTILITIES INCLUDING BUT NOT LIMITED TO:

ADAIR R.F.P.D., OR
ADEL WATER IMPROVEMENT DISTRICT, OR
ADRIAN R.F.P.D., OR
AGNESS COMMUNITY LIBRARY, OR
AGNESS-ILLAHE R.F.P.D., OR
AGRICULTURE EDUCATION SERVICE EXTENSION DISTRICT, OR
ALDER CREEK-BARLOW WATER DISTRICT NO. 29, OR
ALFALFA FIRE DISTRICT, OR
ALSEA R.F.P.D., OR
ALSEA RIVIERA WATER IMPROVEMENT DISTRICT, OR
AMITY FIRE DISTRICT, OR
ANTELOPE MEADOWS SPECIAL ROAD DISTRICT, OR
APPLE ROGUE DISTRICT IMPROVEMENT COMPANY, OR
APPLEGATE VALLEY R.F.P.D. #9, OR
ARCH CAPE DOMESTIC WATER SUPPLY DISTRICT, OR
ARCH CAPE SANITARY DISTRICT, OR
ARNOLD IRRIGATION DISTRICT, OR
ASH CREEK WATER CONTROL DISTRICT, OR
ATHENA CEMETERY MAINTENANCE DISTRICT, OR
AUMSVILLE R.F.P.D., OR
AURORA R.F.P.D., OR
AZALEA R.F.P.D., OR
BADGER IMPROVEMENT DISTRICT, OR
BAILEY-SPENCER R.F.P.D., OR
BAKER COUNTY LIBRARY DISTRICT, OR

BAKER R.F.P.D., OR
BAKER RIVERTON ROAD DISTRICT, OR
BAKER VALLEY IRRIGATION DISTRICT, OR
BAKER VALLEY S.W.C.D., OR
BAKER VALLEY VECTOR CONTROL DISTRICT, OR
BANDON CRANBERRY WATER CONTROL DISTRICT, OR
BANDON R.F.P.D., OR
BANKS FIRE DISTRICT, OR
BANKS FIRE DISTRICT #13, OR
BAR L RANCH ROAD DISTRICT, OR
BARLOW WATER IMPROVEMENT DISTRICT, OR
BASIN AMBULANCE SERVICE DISTRICT, OR
BASIN TRANSIT SERVICE TRANSPORTATION DISTRICT, OR
BATON ROUGE WATER COMPANY
BAY AREA HEALTH DISTRICT, OR
BAYSHORE SPECIAL ROAD DISTRICT, OR
BEAR VALLEY SPECIAL ROAD DISTRICT, OR
BEAVER CREEK WATER CONTROL DISTRICT, OR
BEAVER DRAINAGE IMPROVEMENT COMPANY, INC., OR
BEAVER SLOUGH DRAINAGE DISTRICT, OR
BEAVER SPECIAL ROAD DISTRICT, OR
BEAVER WATER DISTRICT, OR
BELLE MER S.I.G.L. TRACTS SPECIAL ROAD DISTRICT, OR
BEND METRO PARK AND RECREATION DISTRICT
BENTON S.W.C.D., OR
BERNDT SUBDIVISION WATER IMPROVEMENT DISTRICT, OR
BEVERLY BEACH WATER DISTRICT, OR
BIENVILLE PARISH FIRE PROTECTION DISTRICT 6, LA
BIG BEND IRRIGATION DISTRICT, OR
BIGGS SERVICE DISTRICT, OR
BLACK BUTTE RANCH DEPARTMENT OF POLICE SERVICES, OR
BLACK BUTTE RANCH R.F.P.D., OR
BLACK MOUNTAIN WATER DISTRICT, OR
BLODGETT-SUMMIT R.F.P.D., OR
BLUE MOUNTAIN HOSPITAL DISTRICT, OR
BLUE MOUNTAIN TRANSLATOR DISTRICT, OR
BLUE RIVER PARK & RECREATION DISTRICT, OR
BLUE RIVER WATER DISTRICT, OR
BLY R.F.P.D., OR
BLY VECTOR CONTROL DISTRICT, OR
BLY WATER AND SANITARY DISTRICT, OR
BOARDMAN CEMETERY MAINTENANCE DISTRICT, OR
BOARDMAN PARK AND RECREATION DISTRICT
BOARDMAN R.F.P.D., OR
BONANZA BIG SPRINGS PARK & RECREATION DISTRICT, OR
BONANZA MEMORIAL PARK CEMETERY DISTRICT, OR
BONANZA R.F.P.D., OR
BONANZA-LANGELL VALLEY VECTOR CONTROL DISTRICT, OR
BORING WATER DISTRICT #24, OR
BOULDER CREEK RETREAT SPECIAL ROAD DISTRICT, OR
BRIDGE R.F.P.D., OR
BROOKS COMMUNITY SERVICE DISTRICT, OR
BROWNSVILLE R.F.P.D., OR
BUELL-RED PRAIRIE WATER DISTRICT, OR
BUNKER HILL R.F.P.D. #1, OR
BUNKER HILL SANITARY DISTRICT, OR
BURLINGTON WATER DISTRICT, OR
BURNT RIVER IRRIGATION DISTRICT, OR
BURNT RIVER S.W.C.D., OR
CALAPOOIA R.F.P.D., OR
CAMAS VALLEY R.F.P.D., OR
CAMELLIA PARK SANITARY DISTRICT, OR
CAMMANN ROAD DISTRICT, OR
CAMP SHERMAN ROAD DISTRICT, OR
CANBY AREA TRANSIT, OR
CANBY R.F.P.D. #62, OR
CANBY UTILITY BOARD, OR
CANNON BEACH R.F.P.D., OR
CANYONVILLE SOUTH UMPQUA FIRE DISTRICT, OR
CAPE FERRELO R.F.P.D., OR
CAPE FOULWEATHER SANITARY DISTRICT, OR
CARLSON PRIMROSE SPECIAL ROAD DISTRICT, OR
CARMEL BEACH WATER DISTRICT, OR
CASCADE VIEW ESTATES TRACT 2, OR
CEDAR CREST SPECIAL ROAD DISTRICT, OR
CEDAR TRAILS SPECIAL ROAD DISTRICT, OR
CEDAR VALLEY - NORTH BANK R.F.P.D., OR
CENTRAL CASCADES FIRE AND EMS, OR
CENTRAL CITY ECONOMIC OPPORTUNITY CORP, LA
CENTRAL LINCOLN P.U.D., OR
CENTRAL OREGON COAST FIRE & RESCUE DISTRICT, OR
CENTRAL OREGON INTERGOVERNMENTAL COUNCIL
CENTRAL OREGON IRRIGATION DISTRICT, OR
CHAPARRAL WATER CONTROL DISTRICT, OR
CHARLESTON FIRE DISTRICT, OR
CHARLESTON SANITARY DISTRICT, OR
CHARLOTTE ANN WATER DISTRICT, OR
CHEHALEM PARK & RECREATION DISTRICT, OR
CHEHALEM PARK AND RECREATION DISTRICT
CHEMULT R.F.P.D., OR
CHENOWITH WATER P.U.D., OR
CHERRIOTS, OR
CHETCO COMMUNITY PUBLIC LIBRARY DISTRICT, OR
CHILOQUIN VECTOR CONTROL DISTRICT, OR
CHILOQUIN-AGENCY LAKE R.F.P.D., OR
CHINOOK DRIVE SPECIAL ROAD DISTRICT, OR
CHR DISTRICT IMPROVEMENT COMPANY, OR
CHRISTMAS VALLEY DOMESTIC WATER DISTRICT, OR
CHRISTMAS VALLEY PARK & RECREATION DISTRICT, OR
CHRISTMAS VALLEY R.F.P.D., OR
CITY OF BOGALUSA SCHOOL BOARD, LA
CLACKAMAS COUNTY FIRE DISTRICT #1, OR
CLACKAMAS COUNTY SERVICE DISTRICT #1, OR
CLACKAMAS COUNTY VECTOR CONTROL DISTRICT, OR
CLACKAMAS RIVER WATER
CLACKAMAS RIVER WATER, OR
CLACKAMAS S.W.C.D., OR
CLATSKANIE DRAINAGE IMPROVEMENT COMPANY, OR
CLATSKANIE LIBRARY DISTRICT, OR
CLATSKANIE P.U.D., OR
CLATSKANIE PARK & RECREATION DISTRICT, OR
CLATSKANIE PEOPLE'S UTILITY DISTRICT
CLATSKANIE R.F.P.D., OR
CLATSOP CARE CENTER HEALTH DISTRICT, OR
CLATSOP COUNTY S.W.C.D., OR

CLATSOP DRAINAGE IMPROVEMENT COMPANY #15, INC., OR
CLEAN WATER SERVICES
CLEAN WATER SERVICES, OR
CLOVERDALE R.F.P.D., OR
CLOVERDALE SANITARY DISTRICT, OR
CLOVERDALE WATER DISTRICT, OR
COALEDO DRAINAGE DISTRICT, OR
COBURG FIRE DISTRICT, OR
COLESTIN RURAL FIRE DISTRICT, OR
COLTON R.F.P.D., OR
COLTON WATER DISTRICT #11, OR
COLUMBIA 911 COMMUNICATIONS DISTRICT, OR
COLUMBIA COUNTY 4-H & EXTENSION SERVICE DISTRICT, OR
COLUMBIA DRAINAGE VECTOR CONTROL, OR
COLUMBIA IMPROVEMENT DISTRICT, OR
COLUMBIA R.F.P.D., OR
COLUMBIA RIVER FIRE & RESCUE, OR
COLUMBIA RIVER PUD, OR
COLUMBIA S.W.C.D., OR
COLUMBIA S.W.C.D., OR
CONFEDERATED TRIBES OF THE UMATILLA INDIAN RESERVATION
COOS COUNTY AIRPORT DISTRICT, OR
COOS COUNTY AIRPORT DISTRICT, OR
COOS COUNTY AREA TRANSIT SERVICE DISTRICT, OR
COOS COUNTY AREA TRANSIT SERVICE DISTRICT, OR
COOS FOREST PROTECTIVE ASSOCIATION
COOS S.W.C.D., OR
COQUILLE R.F.P.D., OR
COQUILLE VALLEY HOSPITAL DISTRICT, OR
CORBETT WATER DISTRICT, OR
CORNELIUS R.F.P.D., OR
CORP RANCH ROAD WATER IMPROVEMENT, OR
CORVALLIS R.F.P.D., OR
COUNTRY CLUB ESTATES SPECIAL WATER DISTRICT, OR
COUNTRY CLUB WATER DISTRICT, OR
COUNTRY ESTATES ROAD DISTRICT, OR
COVE CEMETERY MAINTENANCE DISTRICT, OR
COVE ORCHARD SEWER SERVICE DISTRICT, OR
COVE R.F.P.D., OR
CRESCENT R.F.P.D., OR
CRESCENT SANITARY DISTRICT, OR
CRESCENT WATER SUPPLY AND IMPROVEMENT DISTRICT, OR
CROOK COUNTY AGRICULTURE EXTENSION SERVICE DISTRICT, OR
CROOK COUNTY CEMETERY DISTRICT, OR
CROOK COUNTY FIRE AND RESCUE, OR
CROOK COUNTY PARKS & RECREATION DISTRICT, OR
CROOK COUNTY S.W.C.D., OR
CROOK COUNTY VECTOR CONTROL DISTRICT, OR
CROOKED RIVER RANCH R.F.P.D., OR
CROOKED RIVER RANCH SPECIAL ROAD DISTRICT, OR
CRYSTAL SPRINGS WATER DISTRICT, OR
CURRY COUNTY 4-H & EXTENSION SERVICE DISTRICT, OR
CURRY COUNTY PUBLIC TRANSIT SERVICE DISTRICT, OR
CURRY COUNTY S.W.C.D., OR
CURRY HEALTH DISTRICT, OR
CURRY PUBLIC LIBRARY DISTRICT, OR
DALLAS CEMETERY DISTRICT #4, OR
DARLEY DRIVE SPECIAL ROAD DISTRICT, OR
DAVID CROCKETT STEAM FIRE COMPANY #1, LA
DAYS CREEK R.F.P.D., OR
DAYTON FIRE DISTRICT, OR
DEAN MINARD WATER DISTRICT, OR
DEE IRRIGATION DISTRICT, OR
DEER ISLAND DRAINAGE IMPROVEMENT COMPANY, OR
DELL BROGAN CEMETERY MAINTENANCE DISTRICT, OR
DEPOE BAY R.F.P.D., OR
DESCHUTES COUNTY 911 SERVICE DISTRICT, OR
DESCHUTES COUNTY R.F.P.D. #2, OR
DESCHUTES PUBLIC LIBRARY DISTRICT, OR
DESCHUTES S.W.C.D., OR
DESCHUTES VALLEY WATER DISTRICT, OR
DEVILS LAKE WATER IMPROVEMENT DISTRICT, OR
DEXTER R.F.P.D., OR
DEXTER SANITARY DISTRICT, OR
DORA-SITKUM R.F.P.D., OR
DOUGLAS COUNTY FIRE DISTRICT #2, OR
DOUGLAS S.W.C.D., OR
DRAKES CROSSING R.F.P.D., OR
DRRH SPECIAL ROAD DISTRICT #6, OR
DRY GULCH DITCH DISTRICT IMPROVEMENT COMPANY, OR
DUFUR RECREATION DISTRICT, OR
DUMBECK LANE DOMESTIC WATER SUPPLY, OR
DUNDEE R.F.P.D., OR
DURKEE COMMUNITY BUILDING PRESERVATION DISTRICT, OR
EAGLE POINT IRRIGATION DISTRICT, OR
EAGLE VALLEY CEMETERY MAINTENANCE DISTRICT, OR
EAGLE VALLEY R.F.P.D., OR
EAGLE VALLEY S.W.C.D., OR
EAST FORK IRRIGATION DISTRICT, OR
EAST MULTNOMAH S.W.C.D., OR
EAST SALEM SERVICE DISTRICT, OR
EAST UMATILLA CHEMICAL CONTROL DISTRICT, OR
EAST UMATILLA COUNTY AMBULANCE AREA HEALTH DISTRICT, OR
EAST UMATILLA COUNTY R.F.P.D., OR
EAST VALLEY WATER DISTRICT, OR
ELGIN COMMUNITY PARKS & RECREATION DISTRICT, OR
ELGIN HEALTH DISTRICT, OR
ELGIN R.F.P.D., OR
ELKTON ESTATES PHASE II SPECIAL ROAD DISTRICT, OR
ELKTON R.F.P.D., OR
EMERALD P.U.D., OR
ENTERPRISE IRRIGATION DISTRICT, OR
ESTACADA CEMETERY MAINTENANCE DISTRICT, OR
ESTACADA R.F.P.D. #69, OR
EUGENE R.F.P.D. # 1, OR
EUGENE WATER AND ELECTRIC BOARD
EVANS VALLEY FIRE DISTRICT #6, OR
FAIR OAKS R.F.P.D., OR
FAIRVIEW R.F.P.D., OR
FAIRVIEW WATER DISTRICT, OR
FALCON HEIGHTS WATER AND SEWER, OR
FALCON-COVE BEACH WATER DISTRICT, OR

FALL RIVER ESTATES SPECIAL ROAD DISTRICT, OR
FARGO INTERCHANGE SERVICE DISTRICT, OR
FARMERS IRRIGATION DISTRICT, OR
FAT ELK DRAINAGE DISTRICT, OR
FERN RIDGE PUBLIC LIBRARY DISTRICT, OR
FERN VALLEY ESTATES IMPROVEMENT DISTRICT, OR
FOR FAR ROAD DISTRICT, OR
FOREST GROVE R.F.P.D., OR
FOREST VIEW SPECIAL ROAD DISTRICT, OR
FORT ROCK-SILVER LAKE S.W.C.D., OR
FOUR RIVERS VECTOR CONTROL DISTRICT, OR
FOX CEMETERY MAINTENANCE DISTRICT, OR
GARDINER R.F.P.D., OR
GARDINER SANITARY DISTRICT, OR
GARIBALDI R.F.P.D., OR
GASTON R.F.P.D., OR
GATES R.F.P.D., OR
GEARHART R.F.P.D., OR
GILLIAM S.W.C.D., OR
GLENDALE AMBULANCE DISTRICT, OR
GLENDALE R.F.P.D., OR
GLENEDEN BEACH SPECIAL ROAD DISTRICT, OR
GLENEDEN SANITARY DISTRICT, OR
GLENWOOD WATER DISTRICT, OR
GLIDE - IDLEYLD SANITARY DISTRICT, OR
GLIDE R.F.P.D., OR
GOLD BEACH - WEDDERBURN R.F.P.D., OR
GOLD HILL IRRIGATION DISTRICT, OR
GOLDFINCH ROAD DISTRICT, OR
GOSHEN R.F.P.D., OR
GOVERNMENT CAMP ROAD DISTRICT, OR
GOVERNMENT CAMP SANITARY DISTRICT, OR
GRAND PRAIRIE WATER CONTROL DISTRICT, OR
GRAND RONDE SANITARY DISTRICT, OR
GRANT COUNTY TRANSPORTATION DISTRICT, OR
GRANT S.W.C.D., OR
GRANTS PASS IRRIGATION DISTRICT, OR
GREATER BOWEN VALLEY R.F.P.D., OR
GREATER ST. HELENS PARK & RECREATION DISTRICT, OR
GREATER TOLEDO POOL RECREATION DISTRICT, OR
GREEN KNOLLS SPECIAL ROAD DISTRICT, OR
GREEN SANITARY DISTRICT, OR
GREENACRES R.F.P.D., OR
GREENBERRY IRRIGATION DISTRICT, OR
GREENSPRINGS RURAL FIRE DISTRICT, OR
HAHLEN ROAD SPECIAL DISTRICT, OR
HAINES CEMETERY MAINTENANCE DISTRICT, OR
HAINES FIRE PROTECTION DISTRICT, OR
HALSEY-SHEDD R.F.P.D., OR
HAMLET R.F.P.D., OR
HARBOR R.F.P.D., OR
HARBOR SANITARY DISTRICT, OR
HARBOR WATER P.U.D., OR
HARNEY COUNTY HEALTH DISTRICT, OR
HARNEY S.W.C.D., OR
HARPER SOUTH SIDE IRRIGATION DISTRICT, OR
HARRISBURG FIRE AND RESCUE, OR
HAUSER R.F.P.D., OR
HAZELDELL RURAL FIRE DISTRICT, OR
HEBO JOINT WATER-SANITARY AUTHORITY, OR
HECETA WATER P.U.D., OR
HELIX CEMETERY MAINTENANCE DISTRICT #4, OR
HELIX PARK & RECREATION DISTRICT, OR
HELIX R.F.P.D. #7-411, OR
HEPPNER CEMETERY MAINTENANCE DISTRICT, OR
HEPPNER R.F.P.D., OR
HEPPNER WATER CONTROL DISTRICT, OR
HEREFORD COMMUNITY HALL RECREATION DISTRICT, OR
HERMISTON CEMETERY DISTRICT, OR
HERMISTON IRRIGATION DISTRICT, OR
HIDDEN VALLEY MOBILE ESTATES IMPROVEMENT DISTRICT, OR
HIGH DESERT PARK & RECREATION DISTRICT, OR
HIGHLAND SUBDIVISION WATER DISTRICT, OR
HONOLULU INTERNATIONAL AIRPORT
HOOD RIVER COUNTY LIBRARY DISTRICT, OR
HOOD RIVER COUNTY TRANSPORTATION DISTRICT, OR
HOOD RIVER S.W.C.D., OR
HOOD RIVER VALLEY PARKS & RECREATION DISTRICT, OR
HOODLAND FIRE DISTRICT #74
HOODLAND FIRE DISTRICT #74, OR
HORSEFLY IRRIGATION DISTRICT, OR
HOSKINS-KINGS VALLEY R.F.P.D., OR
HOUSING AUTHORITY OF PORTLAND
HUBBARD R.F.P.D., OR
HUDSON BAY DISTRICT IMPROVEMENT COMPANY, OR
I N (KAY) YOUNG DITCH DISTRICT IMPROVEMENT COMPANY, OR
ICE FOUNTAIN WATER DISTRICT, OR
IDAHO POINT SPECIAL ROAD DISTRICT, OR
IDANHA-DETROIT RURAL FIRE PROTECTION DISTRICT, OR
ILLINOIS VALLEY FIRE DISTRICT
ILLINOIS VALLEY R.F.P.D., OR
ILLINOIS VALLEY S.W.C.D., OR
IMBLER R.F.P.D., OR
INTERLACHEN WATER P.U.D., OR
IONE LIBRARY DISTRICT, OR
IONE R.F.P.D. #6-604, OR
IRONSIDE CEMETERY MAINTENANCE DISTRICT, OR
IRONSIDE RURAL ROAD DISTRICT #5, OR
IRRIGON PARK & RECREATION DISTRICT, OR
IRRIGON R.F.P.D., OR
ISLAND CITY AREA SANITATION DISTRICT, OR
ISLAND CITY CEMETERY MAINTENANCE DISTRICT, OR
JACK PINE VILLAGE SPECIAL ROAD DISTRICT, OR
JACKSON COUNTY FIRE DISTRICT #3, OR
JACKSON COUNTY FIRE DISTRICT #4, OR
JACKSON COUNTY FIRE DISTRICT #5, OR
JACKSON COUNTY LIBRARY DISTRICT, OR
JACKSON COUNTY VECTOR CONTROL DISTRICT, OR
JACKSON S.W.C.D., OR
JASPER KNOLLS WATER DISTRICT, OR
JEFFERSON COUNTY EMERGENCY MEDICAL SERVICE DISTRICT, OR
JEFFERSON COUNTY FIRE DISTRICT #1, OR
JEFFERSON COUNTY LIBRARY DISTRICT, OR
JEFFERSON COUNTY S.W.C.D., OR
JEFFERSON PARK & RECREATION DISTRICT, OR
JEFFERSON R.F.P.D., OR
JOB'S DRAINAGE DISTRICT, OR
JOHN DAY WATER DISTRICT, OR
JOHN DAY-CANYON CITY PARKS & RECREATION DISTRICT, OR
JOHN DAY-FERNHILL R.F.P.D. #5-108, OR
JORDAN VALLEY CEMETERY DISTRICT, OR

JORDAN VALLEY IRRIGATION DISTRICT, OR
JOSEPHINE COMMUNITY LIBRARY DISTRICT, OR
JOSEPHINE COUNTY 4-H & EXTENSION SERVICE DISTRICT, OR
JOSEPHINE COUNTY 911 AGENCY, OR
JUNCTION CITY R.F.P.D., OR
JUNCTION CITY WATER CONTROL DISTRICT, OR
JUNIPER BUTTE ROAD DISTRICT, OR
JUNIPER CANYON WATER CONTROL DISTRICT, OR
JUNIPER FLAT DISTRICT IMPROVEMENT COMPANY, OR
JUNIPER FLAT R.F.P.D., OR
JUNO NONPROFIT WATER IMPROVEMENT DISTRICT, OR
KEATING R.F.P.D., OR
KEATING S.W.C.D., OR
KEIZER R.F.P.D., OR
KELLOGG RURAL FIRE DISTRICT, OR
KENO IRRIGATION DISTRICT, OR
KENO PINES ROAD DISTRICT, OR
KENO R.F.P.D., OR
KENT WATER DISTRICT, OR
KERBY WATER DISTRICT, OR
K-GB-LB WATER DISTRICT, OR
KILCHIS WATER DISTRICT, OR
KLAMATH 9-1-1 COMMUNICATIONS DISTRICT, OR
KLAMATH BASIN IMPROVEMENT DISTRICT, OR
KLAMATH COUNTY DRAINAGE SERVICE DISTRICT, OR
KLAMATH COUNTY EXTENSION SERVICE DISTRICT, OR
KLAMATH COUNTY FIRE DISTRICT #1, OR
KLAMATH COUNTY FIRE DISTRICT #3, OR
KLAMATH COUNTY FIRE DISTRICT #4, OR
KLAMATH COUNTY FIRE DISTRICT #5, OR
KLAMATH COUNTY LIBRARY SERVICE DISTRICT, OR
KLAMATH COUNTY PREDATORY ANIMAL CONTROL DISTRICT, OR
KLAMATH DRAINAGE DISTRICT, OR
KLAMATH FALLS FOREST ESTATES SPECIAL ROAD DISTRICT UNIT #2, OR
KLAMATH INTEROPERABILITY RADIO GROUP, OR
KLAMATH IRRIGATION DISTRICT, OR
KLAMATH RIVER ACRES SPECIAL ROAD DISTRICT, OR
KLAMATH S.W.C.D., OR
KLAMATH VECTOR CONTROL DISTRICT, OR
KNAPPA-SVENSEN-BURNSIDE R.F.P.D., OR
LA GRANDE CEMETERY MAINTENANCE DISTRICT, OR
LA GRANDE R.F.P.D., OR
LA PINE PARK & RECREATION DISTRICT, OR
LA PINE R.F.P.D., OR
LABISH VILLAGE SEWAGE & DRAINAGE, OR
LACOMB IRRIGATION DISTRICT, OR
LAFAYETTE AIRPORT COMMISSION, LA
LAFOURCHE PARISH HEALTH UNIT – DHH-OPH REGION 3
LAIDLAW WATER DISTRICT, OR
LAKE CHINOOK FIRE & RESCUE, OR
LAKE COUNTY 4-H & EXTENSION SERVICE DISTRICT, OR
LAKE COUNTY LIBRARY DISTRICT, OR
LAKE CREEK R.F.P.D. - JACKSON, OR
LAKE CREEK R.F.P.D. - LANE COUNTY, OR
LAKE DISTRICT HOSPITAL, OR
LAKE GROVE R.F.P.D. NO. 57, OR
LAKE GROVE WATER DISTRICT, OR
LAKE LABISH WATER CONTROL DISTRICT, OR
LAKE POINT SPECIAL ROAD DISTRICT, OR
LAKESIDE R.F.P.D. #4, OR
LAKESIDE WATER DISTRICT, OR
LAKEVIEW R.F.P.D., OR
LAKEVIEW S.W.C.D., OR
LAMONTAI IMPROVEMENT DISTRICT, OR
LANE FIRE AUTHORITY, OR
LANE LIBRARY DISTRICT, OR
LANE TRANSIT DISTRICT, OR
LANGELL VALLEY IRRIGATION DISTRICT, OR
LANGLOIS PUBLIC LIBRARY, OR
LANGLOIS R.F.P.D., OR
LANGLOIS WATER DISTRICT, OR
LAZY RIVER SPECIAL ROAD DISTRICT, OR
LEBANON AQUATIC DISTRICT, OR
LEBANON R.F.P.D., OR
LEWIS & CLARK R.F.P.D., OR
LINCOLN COUNTY LIBRARY DISTRICT, OR
LINCOLN S.W.C.D., OR
LINN COUNTY EMERGENCY TELEPHONE AGENCY, OR
LINN S.W.C.D., OR
LITTLE MUDDY CREEK WATER CONTROL, OR
LITTLE NESTUCCA DRAINAGE DISTRICT, OR
LITTLE SWITZERLAND SPECIAL ROAD DISTRICT, OR
LONE PINE IRRIGATION DISTRICT, OR
LONG PRAIRIE WATER DISTRICT, OR
LOOKINGGLASS OLALLA WATER CONTROL DISTRICT, OR
LOOKINGGLASS RURAL FIRE DISTRICT, OR
LORANE R.F.P.D., OR
LOST & BOULDER DITCH IMPROVEMENT DISTRICT, OR
LOST CREEK PARK SPECIAL ROAD DISTRICT, OR
LOUISIANA PUBLIC SERVICE COMMISSION, LA
LOUISIANA WATER WORKS
LOWELL R.F.P.D., OR
LOWER MCKAY CREEK R.F.P.D., OR
LOWER MCKAY CREEK WATER CONTROL DISTRICT, OR
LOWER POWDER RIVER IRRIGATION DISTRICT, OR
LOWER SILETZ WATER DISTRICT, OR
LOWER UMPQUA HOSPITAL DISTRICT, OR
LOWER UMPQUA PARK & RECREATION DISTRICT, OR
LOWER VALLEY WATER IMPROVEMENT DISTRICT, OR
LUCE LONG DITCH DISTRICT IMPROVEMENT CO., OR
LUSTED WATER DISTRICT, OR
LYONS R.F.P.D., OR
LYONS-MEHAMA WATER DISTRICT, OR
MADRAS AQUATIC CENTER DISTRICT, OR
MAKAI SPECIAL ROAD DISTRICT, OR
MALHEUR COUNTY S.W.C.D., OR
MALHEUR COUNTY VECTOR CONTROL DISTRICT, OR
MALHEUR DISTRICT IMPROVEMENT COMPANY, OR
MALHEUR DRAINAGE DISTRICT, OR
MALHEUR MEMORIAL HEALTH DISTRICT, OR
MALIN COMMUNITY CEMETERY MAINTENANCE DISTRICT, OR
MALIN COMMUNITY PARK & RECREATION DISTRICT, OR

MALIN IRRIGATION DISTRICT, OR
MALIN R.F.P.D., OR
MAPLETON FIRE DEPARTMENT, OR
MAPLETON WATER DISTRICT, OR
MARCOLA WATER DISTRICT, OR
MARION COUNTY EXTENSION & 4H SERVICE DISTRICT, OR
MARION COUNTY FIRE DISTRICT #1, OR
MARION JACK IMPROVEMENT DISTRICT, OR
MARION S.W.C.D., OR
MARY'S RIVER ESTATES ROAD DISTRICT, OR
MCDONALD FOREST ESTATES SPECIAL ROAD DISTRICT, OR
MCKAY ACRES IMPROVEMENT DISTRICT, OR
MCKAY DAM R.F.P.D. # 7-410, OR
MCKENZIE FIRE & RESCUE, OR
MCKENZIE PALISADES WATER SUPPLY CORPORATION, OR
MCMINNVILLE R.F.P.D., OR
MCNULTY WATER P.U.D., OR
MEADOWS DRAINAGE DISTRICT, OR
MEDFORD IRRIGATION DISTRICT, OR
MEDFORD R.F.P.D. #2, OR
MEDFORD WATER COMMISSION
MEDICAL SPRINGS R.F.P.D., OR
MELHEUR COUNTY JAIL, OR
MERLIN COMMUNITY PARK DISTRICT, OR
MERRILL CEMETERY MAINTENANCE DISTRICT, OR
MERRILL PARK DISTRICT, OR
MERRILL R.F.P.D., OR
METRO REGIONAL GOVERNMENT
METRO REGIONAL PARKS
METROPOLITAN EXPOSITION RECREATION COMMISSION
METROPOLITAN SERVICE DISTRICT (METRO)
MID COUNTY CEMETERY MAINTENANCE DISTRICT, OR
MID-COLUMBIA FIRE AND RESCUE, OR
MIDDLE FORK IRRIGATION DISTRICT, OR
MIDLAND COMMUNITY PARK, OR
MIDLAND DRAINAGE IMPROVEMENT DISTRICT, OR
MILES CROSSING SANITARY SEWER DISTRICT, OR
MILL CITY R.F.P.D. #2-303, OR
MILL FOUR DRAINAGE DISTRICT, OR
MILLICOMA RIVER PARK & RECREATION DISTRICT, OR
MILLINGTON R.F.P.D. #5, OR
MILO VOLUNTEER FIRE DEPARTMENT, OR
MILTON-FREEWATER AMBULANCE SERVICE AREA HEALTH DISTRICT, OR
MILTON-FREEWATER WATER CONTROL DISTRICT, OR
MIROCO SPECIAL ROAD DISTRICT, OR
MIST-BIRKENFELD R.F.P.D., OR
MODOC POINT IRRIGATION DISTRICT, OR
MODOC POINT SANITARY DISTRICT, OR
MOHAWK VALLEY R.F.P.D., OR
MOLALLA AQUATIC DISTRICT, OR
MOLALLA R.F.P.D. #73, OR
MONITOR R.F.P.D., OR
MONROE R.F.P.D., OR
MONUMENT CEMETERY MAINTENANCE DISTRICT, OR
MONUMENT S.W.C.D., OR
MOOREA DRIVE SPECIAL ROAD DISTRICT, OR
MORO R.F.P.D., OR
MORROW COUNTY HEALTH DISTRICT, OR
MORROW COUNTY UNIFIED RECREATION DISTRICT, OR
MORROW S.W.C.D., OR
MOSIER FIRE DISTRICT, OR
MOUNTAIN DRIVE SPECIAL ROAD DISTRICT, OR
MT. ANGEL R.F.P.D., OR
MT. HOOD IRRIGATION DISTRICT, OR
MT. LAKI CEMETERY DISTRICT, OR
MT. VERNON R.F.P.D., OR
MULINO WATER DISTRICT #1, OR
MULTNOMAH COUNTY DRAINAGE DISTRICT #1, OR
MULTNOMAH COUNTY R.F.P.D. #10, OR
MULTNOMAH COUNTY R.F.P.D. #14, OR
MULTNOMAH EDUCATION SERVICE DISTRICT
MYRTLE CREEK R.F.P.D., OR
NEAH-KAH-NIE WATER DISTRICT, OR
NEDONNA R.F.P.D., OR
NEHALEM BAY FIRE AND RESCUE, OR
NEHALEM BAY HEALTH DISTRICT, OR
NEHALEM BAY WASTEWATER AGENCY, OR
NESIKA BEACH-OPHIR WATER DISTRICT, OR
NESKOWIN REGIONAL SANITARY AUTHORITY, OR
NESKOWIN REGIONAL WATER DISTRICT, OR
NESTUCCA R.F.P.D., OR
NETARTS WATER DISTRICT, OR
NETARTS-OCEANSIDE R.F.P.D., OR
NETARTS-OCEANSIDE SANITARY DISTRICT, OR
NEW BRIDGE WATER SUPPLY DISTRICT, OR
NEW CARLTON FIRE DISTRICT, OR
NEW ORLEANS REDEVELOPMENT AUTHORITY, LA
NEW PINE CREEK R.F.P.D., OR
NEWBERG R.F.P.D., OR
NEWBERRY ESTATES SPECIAL ROAD DISTRICT, OR
NEWPORT R.F.P.D., OR
NEWT YOUNG DITCH DISTRICT IMPROVEMENT COMPANY, OR
NORTH ALBANY R.F.P.D., OR
NORTH BAY R.F.P.D. #9, OR
NORTH CLACKAMAS PARKS & RECREATION DISTRICT, OR
NORTH COUNTY RECREATION DISTRICT, OR
NORTH DOUGLAS COUNTY FIRE & EMS, OR
NORTH DOUGLAS PARK & RECREATION DISTRICT, OR
NORTH GILLIAM COUNTY HEALTH DISTRICT, OR
NORTH GILLIAM COUNTY R.F.P.D., OR
NORTH LAKE HEALTH DISTRICT, OR
NORTH LEBANON WATER CONTROL DISTRICT, OR
NORTH LINCOLN FIRE & RESCUE DISTRICT #1, OR
NORTH LINCOLN HEALTH DISTRICT, OR
NORTH MORROW VECTOR CONTROL DISTRICT, OR
NORTH SHERMAN COUNTY R.F.P.D, OR
NORTH UNIT IRRIGATION DISTRICT, OR
NORTHEAST OREGON HOUSING AUTHORITY, OR
NORTHEAST WHEELER COUNTY HEALTH DISTRICT, OR
NORTHERN WASCO COUNTY P.U.D., OR
NORTHERN WASCO COUNTY PARK & RECREATION DISTRICT, OR
NYE DITCH USERS DISTRICT IMPROVEMENT, OR
NYSSA ROAD ASSESSMENT DISTRICT #2, OR
NYSSA RURAL FIRE DISTRICT, OR
NYSSA-ARCADIA DRAINAGE DISTRICT, OR
OAK LODGE WATER SERVICES, OR
OAKLAND R.F.P.D., OR
OAKVILLE COMMUNITY CENTER, OR
OCEANSIDE WATER DISTRICT, OR

OCHOCO IRRIGATION DISTRICT, OR
OCHOCO WEST WATER AND SANITARY AUTHORITY, OR
ODELL SANITARY DISTRICT, OR
OLD OWYHEE DITCH IMPROVEMENT DISTRICT, OR
OLNEY-WALLUSKI FIRE & RESCUE DISTRICT, OR
ONTARIO LIBRARY DISTRICT, OR
ONTARIO R.F.P.D., OR
OPHIR R.F.P.D., OR
OREGON COAST COMMUNITY ACTION
OREGON HOUSING AND COMMUNITY SERVICES
OREGON INTERNATIONAL PORT OF COOS BAY, OR
OREGON LEGISLATIVE ADMINISTRATION
OREGON OUTBACK R.F.P.D., OR
OREGON POINT, OR
OREGON TRAIL LIBRARY DISTRICT, OR
OTTER ROCK WATER DISTRICT, OR
OWW UNIT #2 SANITARY DISTRICT, OR
OWYHEE CEMETERY MAINTENANCE DISTRICT, OR
OWYHEE IRRIGATION DISTRICT, OR
PACIFIC CITY JOINT WATER-SANITARY AUTHORITY, OR
PACIFIC COMMUNITIES HEALTH DISTRICT, OR
PACIFIC RIVIERA #3 SPECIAL ROAD DISTRICT, OR
PALATINE HILL WATER DISTRICT, OR
PALMER CREEK WATER DISTRICT IMPROVEMENT COMPANY, OR
PANORAMIC ACCESS SPECIAL ROAD DISTRICT, OR
PANTHER CREEK ROAD DISTRICT, OR
PANTHER CREEK WATER DISTRICT, OR
PARKDALE R.F.P.D., OR
PARKDALE SANITARY DISTRICT, OR
PENINSULA DRAINAGE DISTRICT #1, OR
PENINSULA DRAINAGE DISTRICT #2, OR
PHILOMATH FIRE AND RESCUE, OR
PILOT ROCK CEMETERY MAINTENANCE DISTRICT #5, OR
PILOT ROCK PARK & RECREATION DISTRICT, OR
PILOT ROCK R.F.P.D., OR
PINE EAGLE HEALTH DISTRICT, OR
PINE FLAT DISTRICT IMPROVEMENT COMPANY, OR
PINE GROVE IRRIGATION DISTRICT, OR
PINE GROVE WATER DISTRICT-KLAMATH FALLS, OR
PINE GROVE WATER DISTRICT-MAUPIN, OR
PINE VALLEY CEMETERY DISTRICT, OR
PINE VALLEY R.F.P.D., OR
PINEWOOD COUNTRY ESTATES SPECIAL ROAD DISTRICT, OR
PIONEER DISTRICT IMPROVEMENT COMPANY, OR
PISTOL RIVER CEMETERY MAINTENANCE DISTRICT, OR
PISTOL RIVER FIRE DISTRICT, OR
PLEASANT HILL R.F.P.D., OR
PLEASANT HOME WATER DISTRICT, OR
POCAHONTAS MINING AND IRRIGATION DISTRICT, OR
POE VALLEY IMPROVEMENT DISTRICT, OR
POE VALLEY PARK & RECREATION DISTRICT, OR
POE VALLEY VECTOR CONTROL DISTRICT, OR
POLK COUNTY FIRE DISTRICT #1, OR
POLK S.W.C.D., OR
POMPADOUR WATER IMPROVEMENT DISTRICT, OR
PONDEROSA PINES EAST SPECIAL ROAD DISTRICT, OR
PORT OF ALSEA, OR
PORT OF ARLINGTON, OR
PORT OF ASTORIA, OR
PORT OF BANDON, OR
PORT OF BRANDON, OR
PORT OF BROOKINGS HARBOR, OR
PORT OF CASCADE LOCKS, OR
PORT OF COQUILLE RIVER, OR
PORT OF GARIBALDI, OR
PORT OF GOLD BEACH, OR
PORT OF HOOD RIVER, OR
PORT OF MORGAN CITY, LA
PORT OF MORROW, OR
PORT OF NEHALEM, OR
PORT OF NEWPORT, OR
PORT OF PORT ORFORD, OR
PORT OF PORTLAND, OR
PORT OF SIUSLAW, OR
PORT OF ST. HELENS, OR
PORT OF THE DALLES, OR
PORT OF TILLAMOOK BAY, OR
PORT OF TOLEDO, OR
PORT OF UMATILLA, OR
PORT OF UMPQUA, OR
PORT ORFORD CEMETERY MAINTENANCE DISTRICT, OR
PORT ORFORD PUBLIC LIBRARY DISTRICT, OR
PORT ORFORD R.F.P.D., OR
PORTLAND DEVELOPMENT COMMISSION, OR
PORTLAND FIRE AND RESCUE
PORTLAND HOUSING CENTER, OR
POWDER R.F.P.D., OR
POWDER RIVER R.F.P.D., OR
POWDER VALLEY WATER CONTROL DISTRICT, OR
POWERS HEALTH DISTRICT, OR
PRAIRIE CEMETERY MAINTENANCE DISTRICT, OR
PRINEVILLE LAKE ACRES SPECIAL ROAD DISTRICT #1, OR
PROSPECT R.F.P.D., OR
QUAIL VALLEY PARK IMPROVEMENT DISTRICT, OR
QUEENER IRRIGATION IMPROVEMENT DISTRICT, OR
RAINBOW WATER DISTRICT, OR
RAINIER CEMETERY DISTRICT, OR
RAINIER DRAINAGE IMPROVEMENT COMPANY, OR
RALEIGH WATER DISTRICT, OR
REDMOND AREA PARK & RECREATION DISTRICT, OR
REDMOND FIRE AND RESCUE, OR
RIDDLE FIRE PROTECTION DISTRICT, OR
RIDGEWOOD DISTRICT IMPROVEMENT COMPANY, OR
RIDGEWOOD ROAD DISTRICT, OR
RIETH SANITARY DISTRICT, OR
RIETH WATER DISTRICT, OR
RIMROCK WEST IMPROVEMENT DISTRICT, OR
RINK CREEK WATER DISTRICT, OR
RIVER BEND ESTATES SPECIAL ROAD DISTRICT, OR
RIVER FOREST ACRES SPECIAL ROAD DISTRICT, OR
RIVER MEADOWS IMPROVEMENT DISTRICT, OR
RIVER PINES ESTATES SPECIAL ROAD DISTRICT, OR
RIVER ROAD PARK & RECREATION DISTRICT, OR
RIVER ROAD WATER DISTRICT, OR
RIVERBEND RIVERBANK WATER IMPROVEMENT DISTRICT, OR
RIVERDALE R.F.P.D. 11-JT, OR
RIVERGROVE WATER DISTRICT, OR
RIVERSIDE MISSION WATER CONTROL DISTRICT, OR

RIVERSIDE R.F.P.D. #7-406, OR
RIVERSIDE WATER DISTRICT, OR
ROBERTS CREEK WATER DISTRICT, OR
ROCK CREEK DISTRICT IMPROVEMENT, OR
ROCK CREEK WATER DISTRICT, OR
ROCKWOOD WATER P.U.D., OR
ROCKY POINT FIRE & EMS, OR
ROGUE RIVER R.F.P.D., OR
ROGUE RIVER VALLEY IRRIGATION DISTRICT, OR
ROGUE VALLEY SEWER SERVICES, OR
ROGUE VALLEY SEWER, OR
ROGUE VALLEY TRANSPORTATION DISTRICT, OR
ROSEBURG URBAN SANITARY AUTHORITY, OR
ROSEWOOD ESTATES ROAD DISTRICT, OR
ROW RIVER VALLEY WATER DISTRICT, OR
RURAL ROAD ASSESSMENT DISTRICT #3, OR
RURAL ROAD ASSESSMENT DISTRICT #4, OR
SAINT LANDRY PARISH TOURIST COMMISSION
SAINT MARY PARISH REC DISTRICT 2
SAINT MARY PARISH REC DISTRICT 3
SAINT TAMMANY FIRE DISTRICT 4, LA
SALEM AREA MASS TRANSIT DISTRICT, OR
SALEM MASS TRANSIT DISTRICT
SALEM SUBURBAN R.F.P.D., OR
SALISHAN SANITARY DISTRICT, OR
SALMON RIVER PARK SPECIAL ROAD DISTRICT, OR
SALMON RIVER PARK WATER IMPROVEMENT DISTRICT, OR
SALMONBERRY TRAIL INTERGOVERNMENTAL AGENCY, OR
SANDPIPER VILLAGE SPECIAL ROAD DISTRICT, OR
SANDY DRAINAGE IMPROVEMENT COMPANY, OR
SANDY R.F.P.D. #72, OR
SANTA CLARA R.F.P.D., OR
SANTA CLARA WATER DISTRICT, OR
SANTIAM WATER CONTROL DISTRICT, OR
SAUVIE ISLAND DRAINAGE IMPROVEMENT COMPANY, OR
SAUVIE ISLAND VOLUNTEER FIRE DISTRICT #30J, OR
SCAPPOOSE DRAINAGE IMPROVEMENT COMPANY, OR
SCAPPOOSE PUBLIC LIBRARY DISTRICT, OR
SCAPPOOSE R.F.P.D., OR
SCIO R.F.P.D., OR
SCOTTSBURG R.F.P.D., OR
SEAL ROCK R.F.P.D., OR
SEAL ROCK WATER DISTRICT, OR
SEWERAGE AND WATER BOARD OF NEW ORLEANS, LA
SHANGRI-LA WATER DISTRICT, OR
SHASTA VIEW IRRIGATION DISTRICT, OR
SHELLEY ROAD CREST ACRES WATER DISTRICT, OR
SHERIDAN FIRE DISTRICT, OR
SHERMAN COUNTY HEALTH DISTRICT, OR
SHERMAN COUNTY S.W.C.D., OR
SHORELINE SANITARY DISTRICT, OR
SILETZ KEYS SANITARY DISTRICT, OR
SILETZ R.F.P.D., OR
SILVER FALLS LIBRARY DISTRICT, OR
SILVER LAKE IRRIGATION DISTRICT, OR
SILVER LAKE R.F.P.D., OR
SILVER SANDS SPECIAL ROAD DISTRICT, OR
SILVERTON R.F.P.D. NO. 2, OR
SISTERS PARKS & RECREATION DISTRICT, OR
SISTERS-CAMP SHERMAN R.F.P.D., OR
SIUSLAW PUBLIC LIBRARY DISTRICT, OR
SIUSLAW S.W.C.D., OR
SIUSLAW VALLEY FIRE AND RESCUE, OR
SIXES R.F.P.D., OR
SKIPANON WATER CONTROL DISTRICT, OR
SKYLINE VIEW DISTRICT IMPROVEMENT COMPANY, OR
SLEEPY HOLLOW WATER DISTRICT, OR
SMITH DITCH DISTRICT IMPROVEMENT COMPANY, OR
SOUTH CLACKAMAS TRANSPORTATION DISTRICT, OR
SOUTH COUNTY HEALTH DISTRICT, OR
SOUTH FORK WATER BOARD, OR
SOUTH GILLIAM COUNTY CEMETERY DISTRICT, OR
SOUTH GILLIAM COUNTY HEALTH DISTRICT, OR
SOUTH GILLIAM COUNTY R.F.P.D. VI-301, OR
SOUTH LAFOURCHE LEVEE DISTRICT, LA
SOUTH LANE COUNTY FIRE & RESCUE, OR
SOUTH SANTIAM RIVER WATER CONTROL DISTRICT, OR
SOUTH SHERMAN FIRE DISTRICT, OR
SOUTH SUBURBAN SANITARY DISTRICT, OR
SOUTH WASCO PARK & RECREATION DISTRICT, OR
SOUTHERN COOS HEALTH DISTRICT, OR
SOUTHERN CURRY CEMETERY MAINTENANCE DISTRICT, OR
SOUTHVIEW IMPROVEMENT DISTRICT, OR
SOUTHWEST LINCOLN COUNTY WATER DISTRICT, OR
SOUTHWESTERN POLK COUNTY R.F.P.D., OR
SOUTHWOOD PARK WATER DISTRICT, OR
SPECIAL ROAD DISTRICT #1, OR
SPECIAL ROAD DISTRICT #8, OR
SPRING RIVER SPECIAL ROAD DISTRICT, OR
SPRINGFIELD UTILITY BOARD, OR
ST. PAUL R.F.P.D., OR
STANFIELD CEMETERY DISTRICT #6, OR
STANFIELD IRRIGATION DISTRICT, OR
STARR CREEK ROAD DISTRICT, OR
STARWOOD SANITARY DISTRICT, OR
STAYTON FIRE DISTRICT, OR
SUBLIMITY FIRE DISTRICT, OR
SUBURBAN EAST SALEM WATER DISTRICT, OR
SUBURBAN LIGHTING DISTRICT, OR
SUCCOR CREEK DISTRICT IMPROVEMENT COMPANY, OR
SUMMER LAKE IRRIGATION DISTRICT, OR
SUMMERVILLE CEMETERY MAINTENANCE DISTRICT, OR
SUMNER R.F.P.D., OR
SUN MOUNTAIN SPECIAL ROAD DISTRICT, OR
SUNDOWN SANITATION DISTRICT, OR
SUNFOREST ESTATES SPECIAL ROAD DISTRICT, OR
SUNNYSIDE IRRIGATION DISTRICT, OR
SUNRISE WATER AUTHORITY, OR
SUNRIVER SERVICE DISTRICT, OR
SUNSET EMPIRE PARK & RECREATION DISTRICT, OR
SUNSET EMPIRE TRANSPORTATION DISTRICT, OR
SURFLAND ROAD DISTRICT, OR
SUTHERLIN VALLEY RECREATION DISTRICT, OR
SUTHERLIN WATER CONTROL DISTRICT, OR
SWALLEY IRRIGATION DISTRICT, OR
SWEET HOME CEMETERY MAINTENANCE DISTRICT, OR
SWEET HOME FIRE & AMBULANCE DISTRICT, OR

SWISSHOME-DEADWOOD R.F.P.D., OR
TABLE ROCK DISTRICT IMPROVEMENT COMPANY, OR
TALENT IRRIGATION DISTRICT, OR
TANGENT R.F.P.D., OR
TENMILE R.F.P.D., OR
TERREBONNE DOMESTIC WATER DISTRICT, OR
THE DALLES IRRIGATION DISTRICT, OR
THOMAS CREEK-WESTSIDE R.F.P.D., OR
THREE RIVERS RANCH ROAD DISTRICT, OR
THREE SISTERS IRRIGATION DISTRICT, OR
TIGARD TUALATIN AQUATIC DISTRICT, OR
TIGARD WATER DISTRICT, OR
TILLAMOOK BAY FLOOD IMPROVEMENT DISTRICT, OR
TILLAMOOK COUNTY EMERGENCY COMMUNICATIONS DISTRICT, OR
TILLAMOOK COUNTY S.W.C.D., OR
TILLAMOOK COUNTY TRANSPORTATION DISTRICT, OR
TILLAMOOK FIRE DISTRICT, OR
TILLAMOOK P.U.D., OR
TILLER R.F.P.D., OR
TOBIN DITCH DISTRICT IMPROVEMENT COMPANY, OR
TOLEDO R.F.P.D., OR
TONE WATER DISTRICT, OR
TOOLEY WATER DISTRICT, OR
TRASK DRAINAGE DISTRICT, OR
TRI CITY R.F.P.D. #4, OR
TRI-CITY WATER & SANITARY AUTHORITY, OR
TRI-COUNTY METROPOLITAN TRANSPORTATION DISTRICT OF OREGON
TRIMET, OR
TUALATIN HILLS PARK & RECREATION DISTRICT
TUALATIN HILLS PARK & RECREATION DISTRICT, OR
TUALATIN S.W.C.D., OR
TUALATIN VALLEY FIRE & RESCUE
TUALATIN VALLEY FIRE & RESCUE, OR
TUALATIN VALLEY IRRIGATION DISTRICT, OR
TUALATIN VALLEY WATER DISTRICT
TUALATIN VALLEY WATER DISTRICT, OR
TUMALO IRRIGATION DISTRICT, OR
TURNER FIRE DISTRICT, OR
TWIN ROCKS SANITARY DISTRICT, OR
TWO RIVERS NORTH SPECIAL ROAD DISTRICT, OR
TWO RIVERS S.W.C.D., OR
TWO RIVERS SPECIAL ROAD DISTRICT, OR
TYGH VALLEY R.F.P.D., OR
TYGH VALLEY WATER DISTRICT, OR
UMATILLA COUNTY FIRE DISTRICT #1, OR
UMATILLA COUNTY S.W.C.D., OR
UMATILLA COUNTY SPECIAL LIBRARY DISTRICT, OR
UMATILLA HOSPITAL DISTRICT, OR
UMATILLA R.F.P.D. #7-405, OR
UMATILLA-MORROW RADIO AND DATA DISTRICT, OR
UMPQUA S.W.C.D., OR
UNION CEMETERY MAINTENANCE DISTRICT, OR
UNION COUNTY SOLID WASTE DISPOSAL DISTRICT, OR
UNION COUNTY VECTOR CONTROL DISTRICT, OR
UNION GAP SANITARY DISTRICT, OR
UNION GAP WATER DISTRICT, OR
UNION HEALTH DISTRICT, OR
UNION R.F.P.D., OR
UNION S.W.C.D., OR
UNITY COMMUNITY PARK & RECREATION DISTRICT, OR
UPPER CLEVELAND RAPIDS ROAD DISTRICT, OR
UPPER MCKENZIE R.F.P.D., OR
UPPER WILLAMETTE S.W.C.D., OR
VALE OREGON IRRIGATION DISTRICT, OR
VALE RURAL FIRE PROTECTION DISTRICT, OR
VALLEY ACRES SPECIAL ROAD DISTRICT, OR
VALLEY VIEW CEMETERY MAINTENANCE DISTRICT, OR
VALLEY VIEW WATER DISTRICT, OR
VANDEVERT ACRES SPECIAL ROAD DISTRICT, OR
VERNONIA R.F.P.D., OR
VINEYARD MOUNTAIN PARK & RECREATION DISTRICT, OR
VINEYARD MOUNTAIN SPECIAL ROAD DISTRICT, OR
WALLA WALLA RIVER IRRIGATION DISTRICT, OR
WALLOWA COUNTY HEALTH CARE DISTRICT, OR
WALLOWA LAKE COUNTY SERVICE DISTRICT, OR
WALLOWA LAKE IRRIGATION DISTRICT, OR
WALLOWA LAKE R.F.P.D., OR
WALLOWA S.W.C.D., OR
WALLOWA VALLEY IMPROVEMENT DISTRICT #1, OR
WAMIC R.F.P.D., OR
WAMIC WATER & SANITARY AUTHORITY, OR
WARMSPRINGS IRRIGATION DISTRICT, OR
WASCO COUNTY S.W.C.D., OR
WATER ENVIRONMENT SERVICES, OR
WATER WONDERLAND IMPROVEMENT DISTRICT, OR
WATERBURY & ALLEN DITCH IMPROVEMENT DISTRICT, OR
WATSECO-BARVIEW WATER DISTRICT, OR
WAUNA WATER DISTRICT, OR
WEDDERBURN SANITARY DISTRICT, OR
WEST EAGLE VALLEY WATER CONTROL DISTRICT, OR
WEST EXTENSION IRRIGATION DISTRICT, OR
WEST LABISH DRAINAGE & WATER CONTROL IMPROVEMENT DISTRICT, OR
WEST MULTNOMAH S.W.C.D., OR
WEST SIDE R.F.P.D., OR
WEST SLOPE WATER DISTRICT, OR
WEST UMATILLA MOSQUITO CONTROL DISTRICT, OR
WEST VALLEY FIRE DISTRICT, OR
WESTERN HEIGHTS SPECIAL ROAD DISTRICT, OR
WESTERN LANE AMBULANCE DISTRICT, OR
WESTLAND IRRIGATION DISTRICT, OR
WESTON ATHENA MEMORIAL HALL PARK & RECREATION DISTRICT, OR
WESTON CEMETERY DISTRICT #2, OR
WESTPORT FIRE AND RESCUE, OR
WESTRIDGE WATER SUPPLY CORPORATION, OR
WESTWOOD HILLS ROAD DISTRICT, OR
WESTWOOD VILLAGE ROAD DISTRICT, OR
WHEELER S.W.C.D., OR
WHITE RIVER HEALTH DISTRICT, OR
WIARD MEMORIAL PARK DISTRICT, OR
WICKIUP WATER DISTRICT, OR
WILLAKENZIE R.F.P.D., OR
WILLAMALANE PARK & RECREATION DISTRICT, OR
WILLAMALANE PARK AND RECREATION DISTRICT

WILLAMETTE HUMANE SOCIETY
WILLAMETTE RIVER WATER COALITION, OR
WILLIAMS R.F.P.D., OR
WILLOW CREEK PARK DISTRICT, OR
WILLOW DALE WATER DISTRICT, OR
WILSON RIVER WATER DISTRICT, OR
WINCHESTER BAY R.F.P.D., OR
WINCHESTER BAY SANITARY DISTRICT, OR
WINCHUCK R.F.P.D., OR
WINSTON-DILLARD R.F.P.D., OR
WINSTON-DILLARD WATER DISTRICT, OR
WOLF CREEK R.F.P.D., OR
WOOD RIVER DISTRICT IMPROVEMENT COMPANY, OR
WOODBURN R.F.P.D. NO. 6, OR
WOODLAND PARK SPECIAL ROAD DISTRICT, OR
WOODS ROAD DISTRICT, OR
WRIGHT CREEK ROAD WATER IMPROVEMENT DISTRICT, OR
WY'EAST FIRE DISTRICT, OR
YACHATS R.F.P.D., OR
YAMHILL COUNTY TRANSIT AREA, OR
YAMHILL FIRE PROTECTION DISTRICT, OR
YAMHILL SWCD, OR
YONCALLA PARK & RECREATION DISTRICT, OR
YOUNGS RIVER-LEWIS & CLARK WATER DISTRICT, OR
ZUMWALT R.F.P.D., OR

K-12 INCLUDING BUT NOT LIMITED TO:

ACADIA PARISH SCHOOL BOARD
BEAVERTON SCHOOL DISTRICT
BEND-LA PINE SCHOOL DISTRICT
BOGALUSA HIGH SCHOOL, LA
BOSSIER PARISH SCHOOL BOARD
BROOKING HARBOR SCHOOL DISTRICT
CADDO PARISH SCHOOL DISTRICT
CALCASIEU PARISH SCHOOL DISTRICT
CANBY SCHOOL DISTRICT
CANYONVILLE CHRISTIAN ACADEMY
CASCADE SCHOOL DISTRICT
CASCADES ACADEMY OF CENTRAL OREGON
CENTENNIAL SCHOOL DISTRICT
CENTRAL CATHOLIC HIGH SCHOOL
CENTRAL POINT SCHOOL DISTRICT NO.6
CENTRAL SCHOOL DISTRICT 13J
COOS BAY SCHOOL DISTRICT NO.9
CORVALLIS SCHOOL DISTRICT 509J
COUNTY OF YAMHILL SCHOOL DISTRICT 29
CULVER SCHOOL DISTRICT
DALLAS SCHOOL DISTRICT NO.2
DAVID DOUGLAS SCHOOL DISTRICT
DAYTON SCHOOL DISTRICT NO.8
DE LA SALLE N CATHOLIC HS
DESCHUTES COUNTY SCHOOL DISTRICT NO.6
DOUGLAS EDUCATIONAL DISTRICT SERVICE
DUFUR SCHOOL DISTRICT NO.29
EAST BATON ROUGE PARISH SCHOOL DISTRICT
ESTACADA SCHOOL DISTRICT NO.10B
FOREST GROVE SCHOOL DISTRICT
GEORGE MIDDLE SCHOOL
GLADSTONE SCHOOL DISTRICT
GRANTS PASS SCHOOL DISTRICT 7
GREATER ALBANY PUBLIC SCHOOL DISTRICT
GRESHAM BARLOW JOINT SCHOOL DISTRICT
HEAD START OF LANE COUNTY
HIGH DESERT EDUCATION SERVICE DISTRICT
HILLSBORO SCHOOL DISTRICT
HOOD RIVER COUNTY SCHOOL DISTRICT
JACKSON CO SCHOOL DIST NO.9
JEFFERSON COUNTY SCHOOL DISTRICT 509-J
JEFFERSON PARISH SCHOOL DISTRICT
JEFFERSON SCHOOL DISTRICT
JUNCTION CITY SCHOOLS, OR
KLAMATH COUNTY SCHOOL DISTRICT
KLAMATH FALLS CITY SCHOOLS
LAFAYETTE PARISH SCHOOL DISTRICT
LAKE OSWEGO SCHOOL DISTRICT 7J
LANE COUNTY SCHOOL DISTRICT 4J
LINCOLN COUNTY SCHOOL DISTRICT
LINN CO. SCHOOL DIST. 95C
LIVINGSTON PARISH SCHOOL DISTRICT
LOST RIVER JR/SR HIGH SCHOOL
LOWELL SCHOOL DISTRICT NO.71
SALEM-KEIZER PUBLIC SCHOOLS 24J
MARION COUNTY SCHOOL DISTRICT 103
MARIST HIGH SCHOOL, OR
MCMINNVILLE SCHOOL DISTRICT NOAO
MEDFORD SCHOOL DISTRICT 549C
MITCH CHARTER SCHOOL
MONROE SCHOOL DISTRICT NO.1J
MORROW COUNTY SCHOOL DIST, OR
MULTNOMAH EDUCATION SERVICE DISTRICT
MULTISENSORY LEARNING ACADEMY
MYRTLE PINT SCHOOL DISTRICT 41
NEAH-KAH-NIE DISTRICT NO.56
NEWBERG PUBLIC SCHOOLS
NESTUCCA VALLEY SCHOOL DISTRICT NO.101
NOBEL LEARNING COMMUNITIES
NORTH BEND SCHOOL DISTRICT 13
NORTH CLACKAMAS SCHOOL DISTRICT
NORTH DOUGLAS SCHOOL DISTRICT
NORTH WASCO CITY SCHOOL DISTRICT 21
NORTHWEST REGIONAL EDUCATION SERVICE DISTRICT
ONTARIO MIDDLE SCHOOL
OREGON TRAIL SCHOOL DISTRICT NOA6
ORLEANS PARISH SCHOOL DISTRICT
PHOENIX-TALENT SCHOOL DISTRICT NOA
PLEASANT HILL SCHOOL DISTRICT
PORTLAND JEWISH ACADEMY
PORTLAND PUBLIC SCHOOLS
RAPIDES PARISH SCHOOL DISTRICT
REDMOND SCHOOL DISTRICT
REYNOLDS SCHOOL DISTRICT
ROGUE RIVER SCHOOL DISTRICT
ROSEBURG PUBLIC SCHOOLS
SCAPPOOSE SCHOOL DISTRICT 1J
SAINT TAMMANY PARISH SCHOOL BOARD, LA
SEASIDE SCHOOL DISTRICT 10
SHERWOOD SCHOOL DISTRICT 88J
SILVER FALLS SCHOOL DISTRICT 4J
SOUTH LANE SCHOOL DISTRICT 45J3
SOUTHERN OREGON EDUCATION SERVICE DISTRICT
SPRINGFIELD PUBLIC SCHOOLS
SUTHERLIN SCHOOL DISTRICT
SWEET HOME SCHOOL DISTRICT NO.55
TERREBONNE PARISH SCHOOL DISTRICT
THE CATLIN GABEL SCHOOL
TIGARD-TUALATIN SCHOOL DISTRICT
UMATILLA MORROW ESD
WEST LINN WILSONVILLE SCHOOL DISTRICT
WILLAMETTE EDUCATION SERVICE DISTRICT

WOODBURN SCHOOL DISTRICT
YONCALLA SCHOOL DISTRICT
ACADEMY FOR MATH ENGINEERING & SCIENCE (AMES), UT
ALIANZA ACADEMY, UT
ALPINE DISTRICT, UT
AMERICAN LEADERSHIP ACADEMY, UT
AMERICAN PREPARATORY ACADEMY, UT
BAER CANYON HIGH SCHOOL FOR SPORTS & MEDICAL SCIENCES, UT
BEAR RIVER CHARTER SCHOOL, UT
BEAVER SCHOOL DISTRICT, UT
BEEHIVE SCIENCE & TECHNOLOGY ACADEMY (BSTA) , UT
BOX ELDER SCHOOL DISTRICT, UT
CBA CENTER, UT
CACHE SCHOOL DISTRICT, UT
CANYON RIM ACADEMY, UT
CANYONS DISTRICT, UT
CARBON SCHOOL DISTRICT, UT
CHANNING HALL, UT
CHARTER SCHOOL LEWIS ACADEMY, UT
CITY ACADEMY, UT
DAGGETT SCHOOL DISTRICT, UT
DAVINCI ACADEMY, UT
DAVIS DISTRICT, UT
DUAL IMMERSION ACADEMY, UT
DUCHESNE SCHOOL DISTRICT, UT
EARLY LIGHT ACADEMY AT DAYBREAK, UT
EAST HOLLYWOOD HIGH, UT
EDITH BOWEN LABORATORY SCHOOL, UT
EMERSON ALCOTT ACADEMY, UT
EMERY SCHOOL DISTRICT, UT
ENTHEOS ACADEMY, UT
EXCELSIOR ACADEMY, UT
FAST FORWARD HIGH, UT
FREEDOM ACADEMY, UT
GARFIELD SCHOOL DISTRICT, UT
GATEWAY PREPARATORY ACADEMY, UT
GEORGE WASHINGTON ACADEMY, UT
GOOD FOUNDATION ACADEMY, UT
GRAND SCHOOL DISTRICT, UT
GRANITE DISTRICT, UT
GUADALUPE SCHOOL, UT
HAWTHORN ACADEMY, UT
INTECH COLLEGIATE HIGH SCHOOL, UT
IRON SCHOOL DISTRICT, UT
ITINERIS EARLY COLLEGE HIGH, UT
JOHN HANCOCK CHARTER SCHOOL, UT
JORDAN DISTRICT, UT
JUAB SCHOOL DISTRICT, UT
KANE SCHOOL DISTRICT, UT
KARL G MAESER PREPARATORY ACADEMY, UT
LAKEVIEW ACADEMY, UT
LEGACY PREPARATORY ACADEMY, UT
LIBERTY ACADEMY, UT
LINCOLN ACADEMY, UT
LOGAN SCHOOL DISTRICT, UT
MARIA MONTESSORI ACADEMY, UT
MERIT COLLEGE PREPARATORY ACADEMY, UT
MILLARD SCHOOL DISTRICT, UT
MOAB CHARTER SCHOOL, UT
MONTICELLO ACADEMY, UT
MORGAN SCHOOL DISTRICT, UT
MOUNTAINVILLE ACADEMY, UT
MURRAY SCHOOL DISTRICT, UT
NAVIGATOR POINTE ACADEMY, UT
NEBO SCHOOL DISTRICT, UT
NO UT ACAD FOR MATH ENGINEERING & SCIENCE (NUAMES), UT
NOAH WEBSTER ACADEMY, UT
NORTH DAVIS PREPARATORY ACADEMY, UT
NORTH SANPETE SCHOOL DISTRICT, UT
NORTH STAR ACADEMY, UT
NORTH SUMMIT SCHOOL DISTRICT, UT
ODYSSEY CHARTER SCHOOL, UT
OGDEN PREPARATORY ACADEMY, UT
OGDEN SCHOOL DISTRICT, UT
OPEN CLASSROOM, UT
OPEN HIGH SCHOOL OF UTAH, UT
OQUIRRH MOUNTAIN CHARTER SCHOOL, UT
PARADIGM HIGH SCHOOL, UT
PARK CITY SCHOOL DISTRICT, UT
PINNACLE CANYON ACADEMY, UT
PIUTE SCHOOL DISTRICT, UT
PROVIDENCE HALL, UT
PROVO SCHOOL DISTRICT, UT
QUAIL RUN PRIMARY SCHOOL, UT
QUEST ACADEMY, UT
RANCHES ACADEMY, UT
REAGAN ACADEMY, UT
RENAISSANCE ACADEMY, UT
RICH SCHOOL DISTRICT, UT
ROCKWELL CHARTER HIGH SCHOOL, UT
SALT LAKE ARTS ACADEMY, UT
SALT LAKE CENTER FOR SCIENCE EDUCATION, UT
SALT LAKE SCHOOL DISTRICT, UT
SALT LAKE SCHOOL FOR THE PERFORMING ARTS, UT
SAN JUAN SCHOOL DISTRICT, UT
SEVIER SCHOOL DISTRICT, UT
SOLDIER HOLLOW CHARTER SCHOOL, UT
SOUTH SANPETE SCHOOL DISTRICT, UT
SOUTH SUMMIT SCHOOL DISTRICT, UT
SPECTRUM ACADEMY, UT
SUCCESS ACADEMY, UT
SUCCESS SCHOOL, UT
SUMMIT ACADEMY, UT
SUMMIT ACADEMY HIGH SCHOOL, UT
SYRACUSE ARTS ACADEMY, UT
THOMAS EDISON - NORTH, UT
TIMPANOGOS ACADEMY, UT
TINTIC SCHOOL DISTRICT, UT
TOOELE SCHOOL DISTRICT, UT
TUACAHN HIGH SCHOOL FOR THE PERFORMING ARTS, UT
UINTAH RIVER HIGH, UT
UINTAH SCHOOL DISTRICT, UT
UTAH CONNECTIONS ACADEMY, UT
UTAH COUNTY ACADEMY OF SCIENCE, UT
UTAH ELECTRONIC HIGH SCHOOL, UT
UTAH SCHOOLS FOR DEAF & BLIND, UT
UTAH STATE OFFICE OF EDUCATION, UT
UTAH VIRTUAL ACADEMY, UT
VENTURE ACADEMY, UT
VISTA AT ENTRADA SCHOOL OF PERFORMING ARTS AND TECHNOLOGY, UT
WALDEN SCHOOL OF LIBERAL ARTS, UT
WASATCH PEAK ACADEMY, UT
WASATCH SCHOOL DISTRICT, UT
WASHINGTON SCHOOL DISTRICT, UT
WAYNE SCHOOL DISTRICT, UT
WEBER SCHOOL DISTRICT, UT
WEILENMANN SCHOOL OF DISCOVERY, UT

HIGHER EDUCATION

ARGOSY UNIVERSITY
BATON ROUGE COMMUNITY COLLEGE, LA
BIRTHINGWAY COLLEGE OF MIDWIFERY
BLUE MOUNTAIN COMMUNITY COLLEGE
BRIGHAM YOUNG UNIVERSITY - HAWAII
CENTRAL OREGON COMMUNITY COLLEGE
CENTENARY COLLEGE OF LOUISIANA
CHEMEKETA COMMUNITY COLLEGE
CLACKAMAS COMMUNITY COLLEGE
COLLEGE OF THE MARSHALL ISLANDS
COLUMBIA GORGE COMMUNITY COLLEGE
CONCORDIA UNIVERSITY
GEORGE FOX UNIVERSITY
KLAMATH COMMUNITY COLLEGE DISTRICT
LANE COMMUNITY COLLEGE
LEWIS AND CLARK COLLEGE
LINFIELD COLLEGE
LINN-BENTON COMMUNITY COLLEGE
LOUISIANA COLLEGE, LA
LOUISIANA STATE UNIVERSITY
LOUISIANA STATE UNIVERSITY HEALTH SERVICES
MARYLHURST UNIVERSITY
MT. HOOD COMMUNITY COLLEGE
MULTNOMAH BIBLE COLLEGE
NATIONAL COLLEGE OF NATURAL MEDICINE
NORTHWEST CHRISTIAN COLLEGE
OREGON HEALTH AND SCIENCE UNIVERSITY
OREGON INSTITUTE OF TECHNOLOGY
OREGON STATE UNIVERSITY
OREGON UNIVERSITY SYSTEM
PACIFIC UNIVERSITY
PIONEER PACIFIC COLLEGE
PORTLAND COMMUNITY COLLEGE
PORTLAND STATE UNIVERSITY
REED COLLEGE
RESEARCH CORPORATION OF THE UNIVERSITY OF HAWAII
ROGUE COMMUNITY COLLEGE
SOUTHEASTERN LOUISIANA UNIVERSITY
SOUTHERN OREGON UNIVERSITY (OREGON UNIVERSITY SYSTEM)
SOUTHWESTERN OREGON COMMUNITY COLLEGE
TULANE UNIVERSITY
TILLAMOOK BAY COMMUNITY COLLEGE
UMPQUA COMMUNITY COLLEGE
UNIVERSITY OF HAWAII BOARD OF REGENTS
UNIVERSITY OF HAWAII-HONOLULU COMMUNITY COLLEGE
UNIVERSITY OF OREGON-GRADUATE SCHOOL
UNIVERSITY OF PORTLAND
UNIVERSITY OF NEW ORLEANS
WESTERN OREGON UNIVERSITY
WESTERN STATES CHIROPRACTIC COLLEGE
WILLAMETTE UNIVERSITY
XAVIER UNIVERSITY
UTAH SYSTEM OF HIGHER EDUCATION, UT
UNIVERSITY OF UTAH, UT
UTAH STATE UNIVERSITY, UT
WEBER STATE UNIVERSITY, UT
SOUTHERN UTAH UNIVERSITY, UT
SNOW COLLEGE, UT
DIXIE STATE COLLEGE, UT
COLLEGE OF EASTERN UTAH, UT
UTAH VALLEY UNIVERSITY, UT
SALT LAKE COMMUNITY COLLEGE, UT
UTAH COLLEGE OF APPLIED TECHNOLOGY, UT

STATE AGENCIES

ADMIN. SERVICES OFFICE
BOARD OF MEDICAL EXAMINERS
HAWAII CHILD SUPPORT ENFORCEMENT AGENCY
HAWAII DEPARTMENT OF TRANSPORTATION
HAWAII HEALTH SYSTEMS CORPORATION
OFFICE OF MEDICAL ASSISTANCE PROGRAMS
OFFICE OF THE STATE TREASURER
OREGON BOARD OF ARCHITECTS
OREGON CHILD DEVELOPMENT COALITION
OREGON DEPARTMENT OF EDUCATION
OREGON DEPARTMENT OF FORESTRY
OREGON DEPT OF TRANSPORTATION
OREGON DEPT. OF EDUCATION
OREGON LOTTERY
OREGON OFFICE OF ENERGY
OREGON STATE BOARD OF NURSING
OREGON STATE DEPT OF CORRECTIONS
OREGON STATE POLICE
OREGON TOURISM COMMISSION
OREGON TRAVEL INFORMATION COUNCIL
SANTIAM CANYON COMMUNICATION CENTER
SEIU LOCAL 503, OPEU
SOH- JUDICIARY CONTRACTS AND PURCH
STATE DEPARTMENT OF DEFENSE, STATE OF HAWAII
STATE OF HAWAII
STATE OF HAWAII, DEPT. OF EDUCATION
STATE OF LOUISIANA
STATE OF LOUISIANA DEPT. OF EDUCATION
STATE OF LOUISIANA, 26TH JUDICIAL DISTRICT ATTORNEY
STATE OF UTAH

[Name]

FLOWBIRD Services and Level II Support Agreement

[Date]

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1. PARTIES TO AGREEMENT / PERIOD OF PERFORMANCE

1.1 This Agreement, dated as of [date], is made by and between Flowbird America Inc. ("Flowbird") a corporation organized and existing under the laws of the State of Delaware, having an office at 40 Twosome Drive, Suite 7, Moorestown, NJ 08057, USA and [NAME] ("NAME" or "Customer"). (Individually referred to as the "Party", collectively to as the "Parties".)

1.2 WHEREAS Region 14 ESC (hereinafter defined and referred to as "Principal Procurement Agency"), on behalf of itself and OMNIA Partners, Public Sector, Inc., a Delaware corporation ("OMNIA Partners") awarded Flowbird a Master Agreement for the provision of parking meters, software, systems and related products and services; and

1.3 WHEREAS, the parties desire to enter into this Agreement for the purpose of setting forth the terms and conditions which shall govern the provision of the services rendered by Flowbird, supplementing those in the Master Agreement

1.2 Flowbird is to provide the services listed below to the Customer upon the terms and conditions stated herein commencing [effective date] for an initial period of twelve (12) months (the "Initial Period'). At the end of the Initial Period, the Agreement shall be automatically renewed for the following twelve (12) month period (the "Automatic Renewal Period") upon the same terms and conditions unless (i) one Party gives written notice of non-renewal to the other party or (ii) Flowbird advises Customer of a price increase, at least sixty (60) calendar days prior to the end of the Initial Period.

1.3 After the Initial Period of the agreement, each Renewal Period may be subject to a cost increase in accordance with the pricing provided in the Master Agreement.

1.4 Failure of the Parties to agree to new pricing within sixty (60) calendar days prior to the end of the Initial Period and/or any subsequent Renewal Period will entitle Flowbird to terminate the Agreement.

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2. SCOPE OF SERVICES TO BE PERFORMED BY FLOWBIRD

The following services (the "Services") will be provided by Flowbird under this Agreement.

CONNECTIVITY SERVICES	LIST PRICE PER MONTH	TERMINALS
☒[Pay-N-Display, Pay-By-Space, Pay-By-Plate] Work Spaces • Action required • Terminal Out-of-Order • Communications Problems • Maintenance Performed • Consumables • Cash Collections • Cash-In-Terminals • Parking Activity • Ticket Sales Analysis • Transactions by Payment ☐ Pay-By-Space • Enforcement web site • Enforcement ☐ Standard Work Spaces • Maintenance • Collections • Transactions • Control ☐ Customer Telephone Support	[$XX] per machine	**[StradaPAL]** Number of units: **[x]**
☐ Software Customization • Tariff Editor • Download module	[$xxx.xx] per machine	**[StradaPAL]** Number of units: **[x]**

WARRANTY SERVICES	LIST PRICE PER YEAR	TERMINALS
☐ Extended Parts Warranty *Refer to Appendix D*	[$xxx.xx] per machine	**[StradaPAL]** Number of units: **[x]**
☐ Preventative Maintenance Visit (s): 2 per year *Refer to Appendix E*	[$xxx.xx] per machine	**[StradaPAL]** Number of units: **[x]**

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CLOUD BASED SERVICES	LIST PRICE PER MONTH	TERMINALS
☐Validation codes	[$xxx.xx] per machine	**[StradaPAL]** Number of units: **[x]**
☐ Extend by Text	[$xxx.xx] per machine	**[StradaPAL]** Number of units: **[x]**
☐ CBORD	[$xxx.xx] per machine	**[StradaPAL]** Number of units: **[x]**
☐ CITY NEWS	[$xxx.xx] per machine	**[StradaPAL]** Number of units**: [x]**

OTHER SERVICES	LIST PRICE PER MONTH	TERMINALS
☐ FLOWBIRD.app (Refer to *Appendix F if elected by Customer*)	[$0.xx] per transaction with $0,xx going to [NAME]	**[StradaPAL]**

3. PAYMENT TERMS

☑ [Monthly, Quarterly, Annually, Other] billing

☑ 30 Day Payment Terms from receipt of invoice

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4. GENERAL TERMS AND CONDITIONS

4.1. FLOWBIRD DELIVERY OF SERVICES UNDER AGREEMENT

4.1.1 Flowbird will provide Level II Remote Technical Support when Customer consistent with Level I training and diagnosis/Service materials is not able to adequately service the Multi-space meters,

4.1.2 Flowbird will provide the Services with care and skill consistent with applicable industry standards.

4.1.3 Flowbird will maintain a properly staffed Level II Remote Call-in Service operation to assist Customer with the full range of diagnostics and repairs activities. Support will be available during Flowbird's regular business hours (Monday-Friday 8:00am/8:00pm EST) excluding holidays.

4.1.4 Flowbird will maintain a log of all Service incidents which will document the service problem, and relevant hardware/network environment as applicable and contact information. This log will be available to Customer upon reasonable request.

4.1.5 Flowbird will take all technical and commercially reasonable measures to provide a resolution within four (4) business hours of receipt of Customer's request for assistance.

4.1.6 Flowbird will escalate back office support requests to Level III if, within four (4) business hours, a resolution is not implemented.

4.1.7 Flowbird will convene regular Service review meetings with Customer to review Service history.

4.1.8 Flowbird will guard and maintain the confidentiality of all, logins, passwords and personal identification provided in connection with the Services against unauthorized use of the Services.

4.1.9 Flowbird will be entitled to subcontract in part or whole performance of the Services to be provided under this Agreement with prior written consent of Customer, such written consent not being unreasonably withheld.

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4.2. CUSTOMER PARTICIPATION

4.2.1 Customer is responsible for Level I Technical Service and maintenance for all machines as specified in *Appendix C.*

4.2.2 Prior to requesting Level II support services, Customer will have attempted to service the Multi-space meters, consistent with Level I training and diagnosis/Service materials and encountered issues that it cannot resolve.

4.2.3 Customer will submit all requests into Flowbird's Technical Support using the contact method specified in *Appendix A* and provide all necessary information to permit Flowbird to perform the required services. Customer will update Flowbird in writing of any changes to such information (especially any change of address) and be available to work with the Flowbird's support resource assigned to the support request.

4.2.4 Customer will maintain a local supply of spare parts sufficient to meet the desired repair timelines. The standard Return of Materials Authorization procedure is attached in *Appendix B*.

4.2.5 Customer will protect technical information and know-how from unnecessary disclosure, maintain the confidentiality of all logins, passwords and personal identification used in connection with the Services and generally safeguard such information to ensure that there is no unauthorized use of the Services.

4.3. ADDITIONAL WORK

The following Services are not within the scope of this Agreement. Upon request, Flowbird will provide to Customer a technical and cost proposal to provide related requested additional services ("Additional Work"). Prior to performance, Customer shall authorize in writing the scope of such Additional Work and compensation payable to Flowbird for the full performance of the Additional Work.

4.3.1 Evaluation or Procurement of new software or hardware.

4.3.2 Evaluation or approval of new software or hardware for use by the Customer in conjunction with Flowbird products or Services including Customer and third party systems.

4.3.3 Deployment of a new software release at the machine.

4.3.4 Tariff or parameters changes.

4.3.5 Additional training for Customer technicians with respect to basic maintenance, troubleshooting, repairs, component replacement and operations such as programming and inventory.

4.3.6 Providing of a qualified technician, on mutual agreed upon date and duration to perform On-Site Level II support or remedial maintenance. At least two (2) weeks advance notice is required to ensure that Level II on-site support. To insure Flowbird's proposal properly addresses Customer's needs, Flowbird requests that Customer identify at the time of the request the issues that need to be addressed during the on-site visit and have available the necessary spare parts and consumables needed to restore the Multi-space meter up to Flowbird specification.

4.3.7 Assistance with Parkfolio back office or Multi-space meters usage when unsupported or non-standard hardware or software has resulted in unexpected behavior of otherwise reliable systems.

4.3.8 Adaptive maintenance: Defined as activities relating to upgrades or conversions of Parkfolio back office application, the Multi-space meters or its associated operating environment, in which the Flowbird products are functioning.

4.3.9 Modifications, updates or enhancements to original application required or desirable on account of changes in Customer's organization or business needs (such as a reorganization or change in the business practice) that may make the current specification obsolete..

4.3.10 Re-training of staff and any additional new hire training after initial training.

4.3.11 Removal, reinstallation or relocation of the Multi-space meters.

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4.4. FEES – INVOICING AND PAYMENT OBLIGATIONS

In consideration for receiving the Services and/or Additional Work, Customer shall pay to Flowbird the fees as set forth in the Article 2 Scope of Services above or agreed to pursuant to Article 4.3 above, as follows:

4.4.1 Flowbird will invoice the Customer as set forth in Article 3 above which invoice is due and payable within thirty (30) days of receipt.

4.4.2 In the event that there is an increase in the number of units being provided under this Agreement, then a Service charge based on the monthly per machine charge in effect at the time of installation shall be added to Customer's invoice.

4.4.3 Absent prior notification to and approval of the Customer, the total amount payable to Flowbird under this Agreement for the Initial twelve (12) month Period of the Agreement, plus any subsequent Renewal Periods of twelve (12) months, shall not exceed [Amount to be defined] per twelve month period. This amount will be increased accordingly upon article 4.4.2. This amount is excluding any applicable taxes relating to the base Service provided under the terms of this Agreement.

4.4.4 To the extent that a disagreement arises in connection with the sum due and owing under the Agreement, Customer agrees to pay the undisputed amount of the invoice within the contractual deadline set forth in the 4.4.1 above.

4.4.5 If amounts due and owing Flowbird remain unpaid past the due date, Flowbird shall be entitled to interest of five percent (5.00%) commencing on the due date of the payment.

4.4.6 If amounts due and owing Flowbird remain unpaid for sixty (60) calendar days from the due date, Flowbird shall be entitled to terminate the Agreement with immediate effect by serving written notice to the Customer.

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4.5. TERMINATION

4.5.1 Termination for Non-Appropriation of Funds. This Agreement shall terminate without penalty at such time as appropriated funds are not available to satisfy the obligations of Customer hereunder. The failure of Customer to make an appropriation in any given year shall not be deemed a breach of this Agreement, nor give rise to any cause of action by Flowbird for legal or equitable relief. Customer shall provide Flowbird written notice sixty (60) calendar days prior to such non-appropriation termination and shall pay to Flowbird all sums due and owing under the Agreement as of the date the non-appropriation termination becomes effective.

4.5.2 Termination for Convenience. Notwithstanding any other provision of this Agreement, Customer may terminate this Agreement (in whole or in part) without cause sixty (60) days following delivery of a written Notice of Termination to Flowbird.

4.5.2.1 Upon receipt of a Notice of Termination, and except as otherwise agreed between Flowbird and Customer, Flowbird shall immediately proceed with the following actions:

4.5.2.1.1 Stop work as specified in the Notice

4.5.2.1.2 Place no further orders for materials, services, or facilities, except as necessary to complete any part of the Agreement not subject to termination.

4.5.2.1.3 Cancel all cancelable orders and terminate all subcontracts to the extent they relate to the Work terminated

4.5.2.1.4 Assign to Customer, and deliver to the work site, any non-cancelable orders for material and equipment that is not capable of use except in the performance of this Agreement.

4.5.2.1.5 Take all reasonable measures to mitigate Customer's liability under this section.

4.5.2.1.6 Complete performance of non-terminated work

4.5.2.2 Upon termination of the Agreement without cause, Customer shall immediately pay Flowbird all amounts due and owing under the Agreement up to the date of termination and all non-cancelable costs for material and equipment that cannot be used other than in connection with this Agreement.

4.5.3 Other Termination. Without prejudice to any other rights or remedies to which the Parties may be entitled, either Party may:

4.5.3.1 Terminate the Agreement in the event of a material breach of this Agreement which is not remedied within thirty (30) calendar days of notification to the other Party in writing to remedy such breach which notification will set forth in reasonable detail the nature of the alleged breach;

4.5.3.2 Immediately upon (i) appointment of a receiver or administrator over the other Party or its assets or if the other Party is subject to bankruptcy, liquidation or any analogous proceedings under laws of any competent jurisdiction or (ii) the other Party suspends or ceases, or threatens to suspend or cease, to perform all or a substantial part of its Work under this Agreement;

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4.5.3.3 Upon the occurrence of a Force Majeure event (a circumstance not within the control of the Affected Party) but only if and to the extent that such circumstance despite the exercise of reasonable diligence cannot be prevented, avoided or substantially mitigated by the Party and such circumstance materially and adversely affects that Party's ability to perform its obligations under this Agreement for an uninterrupted period of no less than three (3) months. In such event, the Affected Party shall promptly notified the Other Party of its intention to terminate the Agreement which termination shall have full force and effect three (3) business days after receipt of notice. Neither Party will be liable to the Other Party for damages.

4.5.4 Upon termination of the Agreement by Customer for any reason under 4.5.3, Flowbird shall be paid any amounts owed under the Agreement up to the date of termination.

4.5.5 Flowbird shall not by reason of the termination of this Agreement be liable to Customer or be subject to consequential, incidental, indirect or special damages or for costs associated with substituted performance.

4.6. INTELLECTUAL PROPERTY

4.6.1 Customer agrees that all Intellectual Property Rights, confidential know-how, tools, methods, skills, trade secrets, graphics, logos and trade names used by Flowbird in performing its obligations under this Agreement ("Intellectual Property Rights") are, and will remain, the property of Flowbird (or the third-party who has granted Flowbird the right to use such rights) and nothing in this Agreement or Flowbird's performance under this Agreement will be deemed to transfer to Customer any such Intellectual Property Rights of Flowbird or any third-party.

4.6.2 Customer acknowledges that the name "Flowbird" and any other trademark, brand name, trade name and logotype associated with the Products or services of Flowbird (hereinafter referred to as "Flowbird Trademarks") whether or not registered, are and shall remain the property of the owner of the Trademarks, being Flowbird or one of its affiliates, and that Customer has no right, title or interest in Flowbird Trademarks during the term of this Agreement or thereafter except as provided otherwise herein.

4.6.3 The Parties both agree that except as otherwise provided herein, neither Party shall utilize the intellectual property rights of the other.

4.6.4 Flowbird shall defend or, at its option, settle any claim or action brought against Customer alleging that the use of the Services as provided under the Agreement and as used within the scope of the Services granted to Customer, infringes the Intellectual Property Rights of a third-party, provided that (i) this infringement claim is not attributable (a) to a use other than in accordance with this Agreement regardless of whether the use is in combination with any service(s) not furnished by Flowbird, or (b) to the use of a non-current release of the Software and that (ii) Customer gives reasonable notice and cooperation to Flowbird in connection with the defense of such claim, makes no admission or settlement in respect of such claim and that Flowbird directs and controls such defense.

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4.6.5 Software licensing: Flowbird will provide Customer a license to use Pay Station software and Parkfolio back office. Flowbird does not provide software or licensing for software being used with Flowbird products that is not part of the Flowbird Pay Station, Parkfolio back office, or other Flowbird products provided by Flowbird to Customer under this Agreement. Customer shall provide such software and licensing as needed.

4.7. PROPRIETARY AND CONFIDENTIAL INFORMATION

4.7.1 Proprietary Information (hereafter "Proprietary Information") means object code, source code and any benchmark tests for the Services, pricing and other information Identified as proprietary, but excludes: (a) information made available to the general public without restriction by the disclosing Party or by an authorized third-party, (b) information known to the receiving Party independent of disclosures by the disclosing Party, (c) information independently developed by the receiving Party without access to or use of the disclosing Party's Proprietary Information, or (d) information related to the Agreement that the receiving Party may be required to disclose pursuant to the applicable Freedom of Information statutes or pursuant to subpoena or other lawful process initiated by a governmental authority or by the disclosing Party, provided that the receiving Party notifies the disclosing Party of the lawful process to allow the disclosing Party to appear before the governmental authority and protect its interests, and such disclosure complies with applicable law.

4.7.2 Confidential Information (hereafter "Confidential Information") means non-disclosable data, but shall exclude (a) information known to the receiving Party independent of disclosures by the disclosing Party, (b) information independently developed by the receiving Party without access to or use of the disclosing Party's confidential information, or (c) Information related to the Agreement that the receiving Party is required to disclose pursuant to applicable Freedom of Information statutes or pursuant to subpoena or other lawful process initiated by a governmental authority or by the disclosing Party, provided that the receiving Party notifies the disclosing Party of the lawful process in a timely manner to allow the disclosing Party to appear before the governmental authority and protect its interests, and such disclosure complies with applicable law.

4.7.3 The Parties shall use reasonable efforts to protect each other's Proprietary and Confidential Information from disclosure. Neither Party is entitled to disclose the other Party's Confidential or Proprietary Information without prior written consent of the other Party, which may be withheld in the other Party's sole and absolute discretion. Provided the other Party's prior written consent has been obtained, the Party requesting consent may disclose in confidence the other Party's Confidential or Proprietary Information on a need-to-know basis to such Party's contractors and subcontractors as have executed a non-disclosure agreement, and the Party making that disclosure shall be responsible for that person's compliance with these restrictions on disclosure and use.

4.7.4 Upon termination of this Agreement, the Parties shall securely dispose of all information received and shall make no further use of it. The termination shall not serve to release any Party from its obligations regarding confidentiality under this article which shall remain in force for a period of two (2) years after the date of termination.

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4.7.5 As a municipal corporation, Customer may have an obligation to disclose public records pursuant to applicable Freedom of Information statutes. To avoid disclosure of Flowbird Proprietary Information, any documents that contain trade secrets will be clearly marked "Proprietary" prior to submission to Customer. Upon citizen request for disclosure of Proprietary Information pursuant to the applicable statues, sufficient notice shall be provided to Flowbird to permit Flowbird to contest such disclosure.

4.8. LIABILITY AND WARRANTY

4.8.1 This clause sets out the liability of Flowbird in its entirety (including any liability for the acts or omissions of its employees, agents, consultants and subcontractors) to Customer in respect of any claims relating to (i) Flowbird's performance of the Agreement (ii) any breach of this Agreement (iii) any use made by the Customer of the Services, or (iv) any representation, statement or act or omission (including negligence) of Flowbird arising under or in connection with this Agreement.

4.8.2 Notwithstanding any other provision of this Agreement to the contrary or rule of law or statute, in no event shall Flowbird be liable to Customer for (i) any special, indirect, incidental or consequential loss, costs, damages, charges or expenses; or (ii) loss of profits, business, contracts, business opportunities, income, or anticipated savings; or (iii) damage to reputation or (iv) loss or corruption of data or information; or (v) any degradation which occurs in relation to the network or associated software or hardware of the Customer as a result of the performance of the Services.

4.8.3 Flowbird Multi-space meters communicate through public cellular communication networks. Flowbird shall not be liable to Customer for any loss, costs, damages, charges or expenses arising from failures, defects or limitations of the cellular communication network or any product or service supplied by a third-party in connection with the cellular communication network. The cellular providers may experience capacity, interference, equipment and other problems; may make unannounced changes to their Services which impact communications; may limit, restrict or end the Services. Flowbird's sole obligation under this Agreement in connection with the cellular communication network is to treat communications problems that impact Multi-space meters performance as a priority issue and work with the cellular provider to expeditiously resolve the problem.

4.8.4 Data is saved in accordance with current data protection and back up standards. However, complete security cannot be guaranteed. In the event of data loss or data errors, Flowbird shall not be held liable unless the data loss or data error was solely the direct result of gross negligence on the part of Flowbird.

4.8.5 Flowbird shall have no liability to Customer for malfunction of third-party systems, acts or omissions of a third-party, infiltration or disruption of Flowbird services by a third-party by any means, including without limitation, DDoS attacks, software viruses, Trojan horses, worms, time bombs or any software programs or technology designed to disrupt or delay the Flowbird's services.

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4.8.6 Flowbird's maximum aggregate total liability for damages arising out of or relating to this Agreement, exclusive of claims by third-parties, shall not exceed an amount equivalent to twenty-five (25%) percent of the remaining contract value in the year in which the damages occurred.

4.8.7 Flowbird makes no warranty express or implied that all security threats, breaches and vulnerabilities will be detected and/or avoided. Flowbird may be required to reduce or suspend Services for limited periods to enable technical or maintenance operations to be conducted or upgraded or as the result of an imminent threat of material harm. Flowbird will use best efforts to minimize inconvenience to the Customer caused by such reduction or temporary suspension of Services.

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4.9. EXTENSION OF TIME FOR FORCE MAJEURE

4.9.1 In the event of a Force Majeure incident which does not result in termination of the Agreement per Article 4.5.3.3 above, the end date of this Agreement shall be extended by the period of time that such circumstance materially and adversely impaired or prevented a Party's ability to perform its obligations under this Agreement (the "Affected Period"). Immediately upon termination of the Affected Period, the Affected Party shall resume performance. The Party seeking to obtain a Force Majeure extension of time must immediately notify the other Party in writing of the nature, details and anticipated effect and duration of the Force Majeure incident.

4.10. GOVERNING LAW AND JURISDICTION

4.10.1 This Agreement made in two original counterparts in the English language shall be governed by and construed in accordance with the laws of the State of ['New York' or Municipality].

4.10.2 All disputes or claims arising under or in connection with this Agreement shall, in the first instance, be subject to amicable resolution by the Parties. In the event the dispute or claim cannot satisfactorily be resolved amicably, the Parties agree to submit such disputes or claim to binding arbitration. Arbitration shall be held in Moorestown, New Jersey. The commercial arbitration rules of the American Arbitration Association shall apply. Any judgment, decision, or award by the arbitrators shall be final and binding on the Parties and may be enforced in any court having jurisdiction over a Party against whom any such judgment, decision, or award is to be enforced. The Parties shall bear their own costs and expenses (including attorney's fees) for any arbitration, unless otherwise directed by the arbitrator.

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4.11. CONTRACT DOCUMENTS

4.11.1 The contract documents which govern the dealings between the Parties are as follows, listed by order of precedence:

- Changes, modifications, amendments and extension of this Agreement
- The Agreement including its Appendices,
- The Sales Agreement between the parties.
- The Principal Procurement Agency and OMNIA Partners Master Agreement.

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4.12. NOTICES

4.12.1 Addresses may be changed by either Party from time to time and shall be notified to the other Party. All notices and other communication hereunder shall be deemed to have been given as of the date of delivery by hand, or five (5) working days after posting when mailed by registered or certified mail, postage prepaid, or twenty-four (24) hours after dispatch if sent by facsimile during business hours of the receiving Party. Refusal to accept delivery has the same effect as receipt.

4.12.2 Notices or other communications to either Party shall be made in writing and addressed to the relevant Party at its address as stated below:

PARKEON INC. d/b/a FLOWBIRD	**[NAME]**
40 TWOSOME DRIVE, UNIT #7	_____
MOORESTOWN, NJ 08057	_____
USA	USA
Attention: Mr. Lionel DEPERROIS	Attention: _____

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4.13. GENERAL

4.13.1 This Agreement including appendices and changes, modifications, amendments and extension thereto represents the entire agreement between the Parties.

4.13.2 This Agreement supersedes and cancels all other agreements, written or oral, between the Parties relating to the Services.

4.13.3 The failure of any Party to insist upon strict performance of any of the terms or conditions herein, irrespective or the length of time for which such failure shall continue, shall not be a waiver of that Party's right to demand strict compliance in the future. No consent or waiver, express or implied, to or of any breach or default in the performance of any obligation under this Agreement shall constitute a consent or waiver to or of any other breach or default in the performance of the same or any other obligation of this Agreement. No waiver or consent shall be effective unless in writing and signed by the Party against whom such waiver or consent is asserted.

4.13.4 The terms and conditions of this Agreement shall be binding only upon written agreement signed by the duly qualified representatives of each Party.

4.13.5 The Parties may amend or modify this Agreement at any time, provided that such amendment(s) or modification(s) make specific reference to this Agreement, and are executed in writing by a duly authorized representative of both Parties. Such amendment(s) or modification(s) shall not invalidate this Agreement, nor relieve or release the Parties from their obligations under this Agreement.

4.13.6 Neither Party shall be bound by any condition, definition, guarantee or representation other than those set forth in this Agreement.

4.13.7 Nothing contained in this Agreement is intended to, or shall be construed in any manner, as creating or establishing the relationship of employer and employee between the Parties. Flowbird shall at all times remain an independent contractor with respect to the Services to be performed under this Agreement. The Customer shall not be obligated to provide workers' compensation insurance, health or accident insurance to cover Flowbird for any type of loss which might result to Flowbird or its employees, in connection with the performance of the Services set forth in this Agreement. The Customer shall not pay any contribution to Social Security, unemployment insurance, federal or state withholding taxes, nor provide any other contributions or benefits which might otherwise be expected in an employer-employee relationship, it being specifically agreed that Flowbird is not an employee of the Customer.

4.13.8 Provided the other Party's prior written consent has been obtained, each Party shall have the right to make reference to the name, trademarks and logo of the other Party (provided that such reference shall not refer to the content of this Agreement) in any marketing literature, on all websites, on any media and any commercial documents and brochures of the other Party.

4.13.9 The Party representatives who execute this Agreement hereby represent and warrant that they have full and complete authority to act on behalf of Flowbird and Customer, respectively, and that their signatures below, the terms and provisions hereof, constitute valid and enforceable obligations of each.

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4.13.10 In the event any portion of this agreement is declared or adjudged to be invalid or unconstitutional, such declaration or adjudication shall not affect the remaining provisions of the Agreement, as if such invalid or unconstitutional provision was not originally a part of the Agreement.

IN WITNESS WHEREOF, THE DULY AUTHORIZED REPRESENTATIVES OF THE PARTIES HAVE EXECUTED THIS AGREEMENT.

Approved as to Legality and Form:

For [NAME] Date: _____/_____/_____ Name: [Customer contact] as Title: [JobTitle] Signature: _____ By signing I confirm that, - I have read, understood and accepted the general terms and conditions of this agreement.	**For PARKEON Inc d/b/a FLOWBIRD** Date: _____/_____/_____ Name: Lionel DEPERROIS as Title: Chief Operations Officer for PARKEON INC. Signature: _____ By signing I confirm that, - I have read, understood and accepted the general terms and conditions of this agreement.

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APPENDIX A

LEVEL II REMOTE TECHNICAL SUPPORT

Flowbird will provide Level II Remote Technical Support between the hours of 8:00AM and 8:00PM EST Monday through Friday excluding company holidays. The primary method of contacting Flowbird is via email:

parkfolio_support@parkeon.com

A request number will be generated and can be referred to in correspondence and discussions to the issue.

In a situation where Level I Service is exhausted and is of an urgent nature you may contact Flowbird Level II Remote Technical Support via telephone at

Toll free: **1 (800) 732 - 6868 x 244**.

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APPENDIX B

FLOWBIRD RETURN MATERIALS AUTHORIZATION ('RMA')

Email us at:

SalesAdmin@parkeon.com

Phone: Please call 1-800-732-6868 x 245
Hours of operation: Monday – Friday: 8:00 AM – 5:00 PM Eastern Standard Time

All requests for parts, machine changes and miscellaneous sales should be directed to the above contact point. For parts being returned for repair or replacement a Return Material Authorization **(RMA)** is required PRIOR to the physical return of the product:

1. Flowbird will issue an RMA number and provide shipping instructions.
2. Customer will ship the defective parts back to Flowbird and clearly mark the outside of the carton or the shipping label with the RMA number. Each assigned RMA is limited to 20 individual items.
3. Customer agrees to properly wrap each defective part and package them securely within a box to assure no further damage will occur to these parts.
4. Customer is responsible for freight charges on items being returned to Flowbird. Flowbird is responsible for standard ground freight charges of replacements.
5. Once Flowbird has received the defective parts, replacement parts will be shipped within 72 hours via two (2) business-day delivery if parts are covered under standard warranty. If parts are covered under a Flowbird Service Contract, replacement parts will be shipped within 24 hours via two (2) business-day delivery
6. Flowbird will cross reference all parts against its warranty/contract database and determine if the part is covered. Customer will be notified if parts are not covered under warranty and will be advised of available options by the Sales Administration Dept.
7. Customer is responsible for testing of parts before returning. Flowbird will inspect and test parts to determine reason for return. If any parts are determined to be functional with no problem found or found functional after a standard cleaning procedure, Customer will be charged $175.00 dollars per unit for Preventative Maintenance charge to clean and restock.
8. Customer is responsible for all replacement charges for parts out of warranty or not covered under contract.
9. Customer is responsible for all expedited shipping charges.
10. Customer should ship all return parts to Flowbird and reorder on a regular weekly basis in order to provide a smooth flow of replacement parts and eliminate the need for expedited requests. Bulk RMAs (> 20 items) or multiple RMAs per week will result in processing and handling delays.

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APPENDIX C

LEVEL I TECHNICAL SERVICE AND MAINTENANCE

Customer is responsible, through its trained staff, for performing Level I Technical service and maintenance for all Pay Stations covered through this Agreement, as follows.

Technical Services

1. Open Pay Station and remove and/or replace internal components as necessary.
2. Execute self-diagnostic and other repair processes, as shown in service training and described in the Service Guide and other documentation provided in conjunction with and at the time of training.
3. Install programming changes to the Pay Station using the maintenance procedures that are available at the maintenance keyboard on the Pay Station and explained during Level I service training.
4. Maintain a log of repair activities performed by the technicians, which will be available for reference purposes during a call to Level II Technical Support.
5. Ensure that the staff servicing Flowbird's Pay Stations have successfully completed the full training program provided by Flowbird and maintain the certification level of all staff who service the Pay Stations or operate ParkFolio back office software system.
6. Complete all prescribed Level I diagnostics and repair steps prior to escalating a service issue to Level II support.
7. Ensure that only trained Level I service staff initiate support requests to the Level II helpdesk.
8. Use its own qualified IT resource to provide desktop client, server, network, and infrastructure services necessary to maintain the proper functioning of the ParkFolio system.
9. Provide all information required to open a support request with Flowbird Level II Service and be available to work with the Flowbird support resource assigned to the support request.
10. Timely complete the recommended Pay Station preventative maintenance process to maximize useful life of the parts within the Pay Station.
11. Maintain the concrete mounting pad and mounting hardware per installation specifications.
12. Maintain all electrical installation accessories other than those that form an integral part of the Pay Stations as well as electrical connections to the Pay Stations
13 Maintain a supply of locally-available parts sufficient to meet desired repair timelines. These parts will be supplied to Flowbird as needed for Level II On-Site Operation.
14. Maintain a log of all parts replacements which will be made available to Flowbird upon demand.
15. Archive data and historical analysis for data older than 90 days.

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Parkfolio Services

1. Maintain desktop and file server computers, LAN connections, internet connections and other aspects of the operating environment in a manner that allows the operation of and compatibility with the Parkfolio software.
2. Require all staff using Parkfolio to have successfully completed the full Parkfolio training program as provided by Flowbird.
3. Design, customize and generate reports using data in Parkfolio.
4. Complete all prescribed Level I diagnosis and repair steps prior to escalating issues for Level IObtain appropriate Information Technology or Information Services resources to provide server, network, firewall, and infrastructure support services, including Web server, authentication software, WebObjects' Monitor, software installation, application installation on production servers, database connections, and database changes.
5. Provide all information required to open a support request for Flowbird Level II support and be available to work with Flowbird support resource assigned to the support request.

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APPENDIX D

EXTENDED PARTS WARRANTY

Note : To enrol in this program, the appropriate option must be checked in section 2.

The Extended Parts Warranty program provides the Customer an insurance program for the most frequently used and most costly parts. Subscribing to this program provides replacement to these parts at no additional cost, for the duration of the agreement. If a special circumstance requires a part listed below to be purchased, a written explanation will be provided to the customer for approval prior to the shipment of the part.

The Customer will replace defective part(s) as part of its normal Level I diagnosis and repair process. Following the **R**eturn **M**aterial **A**uthorization (RMA), detailed in Appendix B, the Customer will ship any parts that require repairs back to Flowbird. During this process, a sales order will be generated for the replacement part(s) from this RMA.

Flowbird will replace parts with repaired or refurbished parts that are tested to insure that they meet the performance specifications of a new part. Replacement parts warranty is ninety (90) days or to the end of the support agreement period for the unit the part is installed in whichever comes first. This warranty does not include “wear and usage items” such as paper and batteries. Labor is not covered under this hardware part replacement agreement.

Parts included in this Extended Parts Warranty are :

- Main Board
- Bank note Acceptor (on STRADA BNA model)
- Coin Selector
- Banking Card Reader
- Main Display
- Printer
- Modem
- Coin Escrow
- User Interface Button Board
- Electronic Lock
- Mechanical Lock
- Electronic interfaces

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To maximize multi-space meters uptime, Flowbird recommends to the Customer to order and maintain at any time a spare parts lot. Flowbird can provide guidance to the Customer regarding a suggested number of parts to be included in this spare parts lot and will also provide a pricing proposal.

Any repair of damage resulting from acts of vandalism, accident (vehicle impact), failures in the electrical supply to the multi-space meters, flooding, operator errors (e.g. but not limited to : no ticket stock, no coin box fitted, wrong time/date), lack of Level I preventative maintenance, misuse or the use of non-approved ticket stock on the Multi-space meters are not covered under this agreement. Flowbird will provide estimates of this repair cost upon receipt of a written request from the Customer. The terms “vandalism” or “vandalized” shall mean any willfull damage caused which affects the appearance or operation of the Multi-space meters or interferes with the normal use of the Multi-space meters.

Alterations made to the equipment by the Customer may result in this warranty being voided in its entirety. Flowbird makes the final determination of the extent of any warranty impact due to the modification of the equipment by the Customer.

For avoidance of doubt, obsolescence of components is not covered by this agreement.

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Flowbird Responsibilities

1. Flowbird reserves the right to assess at Customer’s costs all the machines at the start of this agreement to make sure that meters conditions conform to standard operational conditions. After this assessment, all meters found with troubles will have to be repaired at Customer’s costs. Customer’s failure to perform the required fix will result in the exclusion of the machine(s) from the scope of this agreement.
2. Return a repaired or refurbished part that is equal in quality to the part received.

Customer Responsibilities

In addition to Level I responsibilities

1. Complete all the necessary Level I diagnosis steps before determining that a part is faulty and in need of repair.
2. Follow all RMA instructions including frequency of shipping and quantity limitation per shipment.
3. Complete the recommended Multi-space meters preventative maintenance process and intervals to maximize useful life of the parts within the machines.
4. Replace any Multi-space meters when no longer capable of repair, for whatever reason. (Excluding the fault or negligence of Flowbird)
5. Remove, reinstall or relocate the Multi-space meters as needed.

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APPENDIX E

PREVENTATIVE MAINTENANCE

Note : To enrol in this program, the appropriate option must be checked in section 2.

Preventative maintenance is critical for the continued maintenance of the Multi-space meters. The following checks should be carried out according to the frequency of use of the pay stations. Flowbird recommends a comprehensive preventative maintenance be completed at least every 6 months.

The preventative maintenance includes the following activities :

- Check the functionality of the **printer** and **escrow block**,
- Clean the **printer** using Flowbird recommended cleaning kits,
- Check the functionality of the **credit card reader**,
- Clean the **credit card reader** using Flowbird recommended cleaning kits,
- Check the **coin selector** operation,
- Clean the **coin selector** using Flowbird recommended cleaning kits,
- Check the operation of the **bill note acceptor** (STRADA BNA model only),
- Clean the **bill note acceptor** using Flowbird recommended cleaning kits (STRADA BNA model only),
- Test **battery** voltages,
- Lubricate **locks** and hinge mechanisms,
- Check the **housing** general conditions,
- Check the condition of all **external buttons**, **controls** and other **user interfaces**,
- Check the operation of the **graphic display**,
- Perform general **housekeeping** of the pay station maintenance compartment.
- Check the operation of the machine.

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APPENDIX F
FLOWBIRD.app - MOBILE PHONE SOLUTION

Flowbird offers a service called FLOWBIRD.app. This Service is used to make remote payment for municipal parking, and Flowbird, via the FLOWBIRD.app platform, is the technical intermediary between a parking user (‘User”) of the FLOWBIRD.app Service and Customer. The FLOWBIRD.app platform allows for the User’s payment of parking time from a mobile phone or a computer, consistent with the options chosen by the Customer.

ARTICLE 1 - PURPOSE

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The purpose of this Agreement is to define the rights and obligations of Flowbird and Customer with respect to Flowbird's provisions of FLOWBIRD.app Service.

ARTICLE 2 - ATTACHMENTS

The document is comprised of the following attachments:

- ANNEX 1 - Scope of the FLOWBIRD.app Service
- ANNEX 2 - Price conditions
- ANNEX 3 - Service levels
- ANNEX 4 - Corporate Style Guide

ARTICLE 3 – DESCRIPTION OF THE FLOWBIRD.APP SERVICE

FLOWBIRD.app is a service rendered by Flowbird; it enables Users having activated the Service to make remote payments for parking.

The FLOWBIRD.app Service makes possible:

- Registration by the User for the FLOWBIRD.app Service,
- Payment for parking rights by User via mobile phone or a computer,
- Processing of electronic money flows up to the remittance of parking payments to the Customer merchant banking account in accordance with the approved time limit,
- Access to certain information by parking enforcement officers, through the use of portable terminals (PDAs) or by API monitoring,
- Access by User to his/her account and history of his/her transactions,
- Access by Customer to the monitoring of the issuance and sale of parking rights,
- Customer's assistance as regards to the use and handling of complaints,

The roles of each of the parties is further defined as follows:

- Customer defines the parking policy.
- Flowbird makes available and manages:
    - The FLOWBIRD.app Mobile Payment Service platform, which registers users and is used for transactional interface at the time of purchase of the parking rights;
    - The processing of all of the "parking business" functionalities and the data concerning the monitoring of online parking rights.
- Flowbird shall provide access to the payment platform used for Internet payment transactions via credit card.

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- Customer shall verify electronic payments.

ARTICLE 4 – FINANCIAL CONDITIONS

4.1 In addition to the parking fee charged by Customer, User will pay a Service Fee for the use of the FLOWBIRD.app Service as defined in *Annex 2*. The parking fee plus the Service Fee will be sent to the Customer's bank through their selected merchant bank processor. The Customer is responsible for any fees charged by their merchant bank processor.

4.2 Flowbird will invoice Customer on a monthly basis to collect the Service Fee and Customer will pay Flowbird all such Service Fees that it collects.

4.3 The Service Fees shall be payable within twenty days of invoice date.

4.4 Flowbird reserves the right to suspend services and/or to terminate the agreement in the event of a payment delay in excess of 60 days.

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ARTICLE 5 – FLOWBIRD'S COMMITMENTS

5.1 Flowbird undertakes to provide the expertise and care necessary to provide the FLOWBIRD.app Service, as well as to follow relevant accepted industry practices and to achieve a level of quality that is consistent with market standards.

5.2 Flowbird warrants that the FLOWBIRD.app Service will be available and meet or exceed the standards contained in the Service Level Agreement defined in Annex 3.

However, Flowbird may in its sole discretion suspend the provision of the FLOWBIRD.app Service in the following situations:

- Suspension of the FLOWBIRD.app Service with advance notice of one working day, by any written means:
  - Installation of updates
  - Maintenance of the System and/or scheduled Maintenance
  - Service Fee payment delay in excess of 60 days.
- Suspension of the FLOWBIRD.app Service without advance notice:
  - Risks for the smooth functioning or safety of the infrastructures or equipment,
  - Technical or maintenance work by Flowbird on its infrastructures or equipment,
  - Fraud detected or reported,
  - Suspected or reported wrongful, fraudulent, unlawful use of the FLOWBIRD.app Service,
  - Failure to perform by a third-party and necessary to the rendering of the FLOWBIRD.app Service, including, but not limited to, the suppliers and operators of the telecommunications network.
  - And, more generally, in all emergency situations.

Regardless of the circumstances, Flowbird shall inform Customer of any suspension as soon as reasonably possible.

5.3 Back office

Flowbird shall provide Customer access to the Back Office tools enabling Customer to have access to the information and to the management reports on the transactions executed by the Users of the FLOWBIRD.app Service.

These tools draw on the infrastructure and platform managed and hosted by Flowbird. The platform is accessible by Customer through an Extranet. The conditions for the availability of these tools are defined in Annex 1.

Flowbird shall collect information regarding Users' payments and shall make this information available on the Platform for Customer use. Flowbird shall continue to be the owner of this information.

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5.4 Changes to the Services

Flowbird may occasionally, at its own initiative and in its sole discretion, change all or some of the functions or any component of the Service or make any modification (hereinafter referred to as "Modification") in order to improve the performance, service quality, or to correct errors or preserve the competitiveness of the Service. Before making such a Modification, Flowbird shall inform the Customer by e-mail of said Modification.

ARTICLE 6 – CUSTOMER'S OBLIGATION

6.1 Customer must carry out all operations that are necessary prior to the launch of the FLOWBIRD.app Service and on an on-going basis, in particular:

- Opening and maintenance of the remote selling account throughout the duration of the agreement,
- Supply of all of the city data for parameterisation of the solution (mapping of parking payment terminals, prices, zone, etc.)
- Setting up of the system to verify electronic tickets and supply interface data, if applicable
- Training of the city's employees
- And, more generally, transmit to Flowbird any information useful to the implementation of the FLOWBIRD.app Service.

It is hereby stipulated that the above list is given for indicative purposes and that it can be supplemented at the start of the project based on Customer's specific characteristics.

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6.2 Customer undertakes to render the FLOWBIRD.app Service in accordance with Flowbird's recommendations and pursuant to the terms and conditions of the FLOWBIRD.app Service, provided to the User on the FLOWBIRD.app application and on the FLOWBIRD.app web site.

6.3 Customer undertakes not to use or authorise a third-party to exploit the information obtained from the use of the FLOWBIRD.app Service for purposes other than those related to the FLOWBIRD.app Service.

6.4 Customer acknowledges that the FLOWBIRD.app Service is paid for by credit card. Any transfer of information associated with the payment shall take place in a secure context. In particular, at the time of a payment, a credit card number and its validity date are transferred in a secure context using protocols in force, on the server of the service provider chosen by Flowbird.

In this connection and pursuant to standard terms of the service provider chosen by Flowbird, Customer acknowledges the importance of complying with the security rules.

For complete information on the security rules to be followed, Customer can refer to the PCI DSS (Payment Card Industry Data Security Standards) available, for example, on the Internet site of Visa or MasterCard, or from Financial Institutions.

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In addition, Customer undertakes to:

- Ensure the application of the security patches on all of its machines, as well as setting up the machines' secure configurations.
- Never store on any type of medium information that is sensitive, such as credit card numbers or visual cryptograms (CVCs/CVVs)
- Protect all of its passwords and change these regularly, in particular, the password needed to obtain access to the Account of the payment service provider
- Protect access to its servers and its applications, as well to its technical infrastructure in general, in particular, using the firewall and antivirus.
- Establish secure application development procedures

The platform of Flowbird's payment service provider shall supply several automatic or manual methods permitting Flowbird to monitor consistency between the payments handled by the payment service provider and its own sales system. The system permits, notably:

- online consultation of transactions via Customer's Account,
- via SHA-1 key systems, to ensure the consistency of the payment data,
- the sending of payment notification e-mails,
- the use of other electronic means of notification in real or deferred time.

Customer undertakes to establish and apply adequate procedures for monitoring the proper execution of payments.

Flowbird strongly recommends Customer set up as many monitoring mechanisms as possible, in particular, in the case of e-commerce applications, and Flowbird reserves the right to limit the financial possibilities of the Account of the payment services provider (types of transactions permitted, maximum number of transactions per period, etc.) if it deems Customer's checks and/or monitoring insufficient. The mechanisms for checks and monitoring used, and/or the activation or non-activation of the security options are freely chosen by Customer, and cannot under any circumstances give rise to Flowbird's liability.

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ARTICLE 7 – MARKETING AND PROMOTION

Customer authorizes Flowbird to engage in marketing, business analytics and advertising campaigns for the promotion of the FLOWBIRD.app Service, including but not exclusive communication and promotion by press, flyers, city Internet site, affixing of information stickers on places of sale (on parking payment terminals, or in their absence, on any other medium visible from parking places) in a manner consistent with the Corporate Style Guide and the definition of the zone codes.

To this end, Flowbird hereby grants Customer a non-exclusive license during the term of this Agreement for the purposes of using the FLOWBIRD.app name and logo in the conditions defined below:
Flowbird shall provide to Customer graphical materials (logo, visuals, etc.) needed in order to organize the promotion and showcasing of the FLOWBIRD.app Service to Users. Customer is authorized to modify these items, if applicable, within the limits defined by Flowbird 's written instructions and in accordance with the Corporate Style Guide enclosed in Annex 4. In such case, Customer must obtain Flowbird's written approval prior to any use of said items.
Upon the expiry of the Agreement, whatever the reason, Customer shall return to Flowbird as soon as requested all of the items that were handed over to it pursuant to this Article.

ARTICLE 8 – INFORMATION REGARDING USERS

In accordance with the terms of this Agreement and those of applicable laws Flowbird shall keep full files of all of the information and data collected from Users. Flowbird shall obtain and use this information only in accord with applicable laws in force and any amendment to this Act and shall not give or disclose this information, in any circumstances, to third parties, except for the information that has been expressly approved by Customer or is required to be produced pursuant to subpoena or court order. Flowbird shall comply with all of the provisions concerning data processing and freedoms and shall apply these accordingly to its technical facilities.

Each Party undertakes, as regards the Service rendered, to comply with all of the provisions of applicable law. No data and in particular personal data, may be used by either Party for any purpose other than the strict performance of the Agreement. Flowbird undertakes to implement mechanisms to monitor access to these data.

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ARTICLE 9 - SUSPENSION

Flowbird reserves the right to suspend, limit or to partially or completely restrict the supply of and/or access to the Service after having so notified Customer by any means, notably:

- In the event of a breach of one of Customer's obligations indicated in the Agreement
- In the event of a failure to make timely payment of the amounts due, and in the absence of a challenge, duly reasoned and sent to Flowbird by registered mail with return
- In the event of non-conforming use of the Products or Services
- And, more generally, if the Agreement provides for this.

The resumption of the Service after suspension and/or limitation due to Customer's act or fault can give rise to the invoicing of Resumption of Service Fees. In the event of a suspension and/or a limitation, regardless of the cause, Customer shall continue to be bound by its obligations; it is understood that the suspension shall not give rise to the cessation of the invoicing of said fees.

In addition, Flowbird shall be authorized to suspend, limit or restrict the Service for any improvement or preventive or curative maintenance work, or if Flowbird is required to follow an order, an instruction, a demand from the Government, a regulatory authority or from any competent administrative or local authority.

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ANNEX 1

SCOPE OF THE FLOWBIRD.app SERVICE

FUNCTIONAL AND TECHNICAL SCOPE

The FLOWBIRD.app Service permits:

- The registration of users for the service via:
  - Applications for IOS and Android smartphones
  - Internet/Mobile Internet browser and access to the dedicated site `www.FLOWBIRD.appstore.com` and `m.FLOWBIRD.appstore.com`
- The obtaining and payment of parking rights by users who use their mobile phone or a computer via:
  - Applications for IOS and Android smartphones
  - Internet/Mobile Internet
- The obtaining of payment confirmation from the web site;
- The obtaining of expiry imminent notification via push notification if option chosen by the user;
- The possibility to extend the ticket in progress, in accordance with pricing rules in force as established by Customer;
- The secure processing of electronic money flows up to the remittance of payments to the Customer;
- Access to the information necessary to the verifying of the vehicles parked, by the parking enforcement officers having portable terminals (PDAs) beforehand that are connected either via the monitoring application or by the making available of an API;
- Access by users to their account and to the history of their transactions;
- Access by the Customer to the financial information and to the monitoring of parking rights sales transactions;
- Assisting users in using the FLOWBIRD.app Service;
- The handling of complaints communicated by the Customer;
- Informing the user of the city price;
- Access to FAQs, as well as to a usage tutorial.

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INFRASTRUCTURE

The FLOWBIRD.app Service is provided in SaaS mode.

Flowbird shall supply:

- access to the FLOWBIRD.app Service platform that registers users and is the transactional interface at the time of the purchase of the parking rights by Smartphone (IOS and Android), Internet application and Mobile Internet.
- access to the payment monitoring information;
- myParkfolio interface for the reporting of information concerning the Transactions executed on all of the distribution channels and permitting the financial and statistical consolidation of the data concerning the parking rights delivered by the distribution channels set up.

Flowbird manages the connection to the payment platform that is used for Internet payment transactions.

REGULATORY CONSIDERATIONS

Flowbird shall ensure the conformity of the FLOWBIRD.app Service to Payment Card Industry Security Standards ("PCI-DSS") and the maintenance of all of the accreditations required by outside firms, excluding all of the systems that are not directly under its control.

IMPLEMENTATION AND EXPLOITATION PROCEDURE

INITIALIZATION

1. Flowbird shall allocate to each of the on-street parking zones and to each street in which the parking zone is authorized, a certain number of unique parking zone codes.
2. Flowbird shall agree with the Customer on a timetable for the commencement of the service at a launch meeting.
3. Flowbird shall provide the following to the Customer at least 20 days prior to the agreed date for the commencement of the service:
   a. The telephone number of customer service;
   b. The list of the parking zone numbers allocated for each of the parking payment terminals, provided with their address for the introduction of the FLOWBIRD.app Service.
4. Flowbird shall provide either standard items enabling the Customer to create its communications media, or the standard models made by Flowbird; a brochure or leaflet, a model of stickers to be affixed on parking payment terminals, recommendations for the affixing of said stickers, access to the Internet site and suggestions for contributing content and visuals.

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5. Flowbird undertakes to process all of the data with the strictest possible confidentiality.

6. Customer undertakes to perform the following obligations:

   a. To supply, as a pre-condition to the activation of the Service all of the information necessary for the parameterisation and personalisation of the Service and to inform Flowbird in writing, of any change of this information (in particular and not limited to, any moving of a parking payment terminal to a new address, or pricing modification). Customer is alone responsible for the consequences caused by a failure to supply or to make available this information; in particular, Customer shall furnish:

      i. A copy of the contract of adherence to the merchant contract mentioning its identifier at the acquirer (MerchantID)
      ii. List of the names of zones
      iii. GPS coordinates of the zones in question
      iv. Names and titles of the users of the monitoring service
      v. Agreement on communication to the public (stickers, flyers and any promotional content)
      vi. Agreement on any communications content (label, websites, naming review, etc.)
      vii. Agreement on the list of applicable rates
      viii. Confirmation of use of the monitoring API supplied by Flowbird; any use of another interface shall be quantified and be the subject of a specific timetable.

   b. To supply to Flowbird the contact information of the person responsible for the Customer for the implementation and exploitation of the service, and to inform Flowbird immediately in the event of any change.

   c. To authorise Flowbird to use the parking data for statistical purposes

   d. To ensure the security and conformity of the use of the system by its agents.

   e. To restrict the dissemination and to maintain the confidentiality of all of the logins, passwords and identification of the personnel, used with respect to the Service and, more generally, to protect this information so as to avoid any use by unauthorized persons.

   f. To only use the Service in accordance with the instructions given by Flowbird, for its proper management.

   g. To test the conformity of the system made available in accordance with the recommendations or specifications supplied by Flowbird.

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ACTIVATION OF THE SERVICE

1. The Service shall be activated on an agreed date for the launch of the Service (mentioned on the Service registration form), insofar as the preconditions are satisfied and the activation date is realistic. In the event of the non-satisfaction or incomplete satisfaction of the preconditions, Flowbird shall suggest a new date for the activation of the Service, which must be consistent with the date on which the preconditions will be satisfied
2. During the activation of the Service the Customer must ensure the full availability of a manager, who is an employee of the Customer and has knowledge of and access to all information associated with the Service.
3. After activation, Flowbird shall notify the Customer of the official launch of the Service.

SUPPORT

Flowbird shall provide a support service in accordance with the conditions described in *Annex 3*, "Service Availability and Levels".

In this connection, Flowbird shall:

1. Provide access to the technical support service to assist the Customer to reply to and advise the user on the questions associated with the FLOWBIRD.app Service;
2. Ensure that the technical support is available during business hours 8:00AM and 8:00PM EST Monday through Friday excluding company holidays;
3. Ensure that the technical support can be reached via a telephone number at the local call rate;
4. Monitor the performance and supply of the FLOWBIRD.app Service.

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UPGRADE MAINTENANCE

Flowbird is entitled to modify the Service

Flowbird shall be responsible for the corrective and upgrade maintenance of the FLOWBIRD.app Service. In this case, Flowbird can suspend the supply of the Service in the conditions defined in this agreement.

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ANNEX 2

PRICING CONDITIONS

SERVICE FEES

The Service Fee is [$0.xx] per transaction to the end user, with [$0.xx] going to the City.

REVISION OF PRICES

Flowbird reserves the right to increase or decrease the Service Fee on an annual basis. Written notification will be provided to Customer at least 30 days prior to a price revision.

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ANNEX 3

SERVICE AVAILABILITY AND LEVELS (SLA)

This SLA defines the Service Level to which Flowbird is committed and the financial liability of Flowbird to Customer in the event of the non-attainment of the Service Level. This SLA pertains specifically to the FLOWBIRD.app Service.

As regards the service levels as defined in following Articles 4 and 6, the average response time and/or the average availability are understood as average values calculated for all Customers for the given period.

ARTICLE 1 - MAINTENANCE OF THE FLOWBIRD.APP SERVICE

1.1 Flowbird shall send Customer an e-mail informing the latter of any major modification having an impact on the functionalities of Customer's account. This e-mail shall contain a description of these modifications.

1.2 Flowbird shall do its utmost to deliver good backward compatibility of the new versions of the interfaces that can be used by the Customer's applications.

1.3 The procedures described in Articles 1.1 and 1.2 above do not apply to urgent corrections of bugs or made for reasons of security or required directly or indirectly by Financial Institutions, or governmental or legal authorities.

1.4 Unavailability associated with the maintenance of the Service shall, if possible, be scheduled during periods of low traffic. In principle, this maintenance shall not exceed an average of 4 hours per month. However, this average monthly maintenance duration can be exceeded once each quarter, by at most 8 hours. Customer shall be informed in writing at least 48 hours prior to the beginning of the maintenance activities, except in the case of Article 1.3 above.

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ARTICLE 2 - MONITORING OF THE SERVICE

2.1 The Service is monitored in two ways:

- Active monitoring: Flowbird 's automatic procedures, which periodically test the availability of the main system and its functionalities. These active monitoring processes include the alert and escalation mechanisms needed for Flowbird's technical support department to be informed as quickly as possible.
- Passive monitoring: Customer is able to notify, 24 hours a day, an incident associated with the use of the Service. Outside the Help Desk's working hour time slots, this notification shall be made by e-mail to the address info@FLOWBIRD.appstore.com

2.2 Customer undertakes not to use the active monitoring system in order to avoid a possible disturbance of the Service's performance due to unnecessary overload.

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ARTICLE 3 - AVAILABILITY OF THE SERVICE

During the days and time slots in which parking is not free of charge, Flowbird shall take measures to enable:

- The User Service to be operational 24 hours a day, except for scheduled maintenance.
- Transactional flows to be recorded every day without loss of data
- The Service to be open to users during paid parking times, except for scheduled maintenance.
- The Service via the Internet site for users to be operational 24 hours a day, except for scheduled maintenance.
- The management and monitoring service via the interfaces connected to the system to be operational, Monday to Friday, from 8:00AM to 8:00PM EST, excluding company holidays.
- The service for the verifying carried out by parking enforcement officers to be operational throughout the activity period of the services of the City's Police force (working hours).
- The Service for access by law enforcement personnel to be operational 24 hours a day, except for scheduled maintenance.

Unavailability of the Service is defined as the period during which the majority of Customer's users are unable to place new authorisation or payment transactions via the Service. It is also agreed that the service shall be considered unavailable if the response time as defined in Article 4 below exceeds 60 seconds for the majority of the Customer's users.

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3.1 Flowbird offers 98% availability of the Service, on a monthly basis, although the situations mentioned in Article 3.2 are excluded. Customer can, if it expressly requests this, obtain the transmission of an SLA report covering a given month, to enable it to monitor the level of performance compared to the SLA.

3.2 Unavailability excludes the following situations, which therefore do not give rise to the right to any compensation:

- Errors following the configuration based on incorrect information supplied by Customer,
- Supply by Customer or its users of incorrect or incomplete data needed by Flowbird to properly execute a transaction,
- Scheduled unavailability due to maintenance, insofar as executed in accordance with Article 1 of this SLA,
- Failures by Customer or by its users to comply with Flowbird 's procedures,
- Malfunction of the equipment of Customer or of its users,
- Unavailability of telecommunications lines,
- Unavailability of Internet access,
- Unavailability of the acquirer's authorisation equipment,
- Force majeure,
- Unavailability resulting from a bug that could have been easily detected by Customer during the test phase, if it had carried out a few basic tests during the Service's pre-activation period.

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3.3 Notification and beginning of an incident

Customer shall inform Flowbird of the existence of an incident:

- During working hours: by telephone and by assistance request ticket. (See *Article 5*, Technical assistance below) The unavailability time shall commence as of the moment in which the assistance request ticket is created. In the event that the receiving procedure that permits the creation of assistance request tickets is unavailable, the unavailability time shall commence as of the telephone call to the Flowbird technical support department.
- Outside working hours: by e-mail, only to the address info@FLOWBIRD.appstore.com. The unavailability time is only counted over the Technical Support's time slot worked, i.e. 8:00AM to 8:00PM EST, Monday to Friday excluding company holidays.

3.4 If the duration of the incident is less than 15 minutes, the unavailability time is not counted for the purposes of the application of Article 3.

3.5 If two (2) consecutive unavailability periods of less than 15 minutes, occurring for an identical reason, are separated by a short period of availability (less than 15 minutes AND a total duration of less than the duration of the periods of unavailability), the two unavailability periods shall be considered as a single unavailability period, commencing with the beginning of the first unavailability period and ending at the end of the last unavailability period.

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ARTICLE 4 - RESPONSE TIME

4.1 Flowbird guarantees an average monthly response time of its online payment authorization process of less than twenty (20) seconds for all of its debit or credit card transactions. However, certain exceptions could exist, associated with specific acquirer connections. In that case, Flowbird would indicate it to Customer on a case-by-case basis. This applies only to online transactions transmitted individually to the Flowbird payment service provider and excludes any transaction consolidation mechanism.

4.2 Response time is measured from time of receipt of the payment request by Flowbird until the sending by Flowbird of the result of the payment request to the initiator of this request.

ARTICLE 5 - TECHNICAL ASSISTANCE

Technical assistance is provided by telephone (see the service telephone numbers available on the contact page) and by e-mail, from 8:00AM until 8:00PM EST, excluding legal holidays and Company published holidays.

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ARTICLE 6 - SEVERITY LEVEL AND RESOLUTION

Flowbird undertakes to restore basic functionalities, or at least, to communicate an action plan for resolution, within the time limits defined below. The time limit is assessed as of the time that Flowbird becomes aware of the problem. If the analysis of a problem concludes that the latter results from improper use of the system or of a part of the system by the Customer, Flowbird shall maintain the level of severity and shall strive to keep to the time limit defined below. In such a case, Flowbird nevertheless reserves the right to apply a specific price for this resolution and to increase the intervention time.

		Intervention time commitment vs. Technical Support Working hours	
Severity	Description	During	Outside
CRITICAL	A problem, the impact of which on Customer's commercial operations is critical, namely, if it is not possible to make parking purchases via FLOWBIRD.app.	4 hours	4 hours as of the subsequent working hours
MAJOR	- A problem of configuration or updating having an impact on the supervisory functionalities (loss or modification) or triggering a loss or a modification of key information. - A problem having an impact on access to the supervisory service	6 hours	6 hours as of the subsequent working hours
MINOR	A problem giving rise to the loss or modification of non-major information.	24 hours	36 hours
SUPERFICIAL	A configuration modification request, or any other problem, the impact of which on Customer's commercial operations is limited.	36 hours	48 hours

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ANNEX 4

CORPORATE STYLE GUIDE

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SALES AGREEMENT BETWEEN …….. AND FLOWBIRD AMERICA INC.

AGREEMENT BETWEEN …….. AND FLOWBIRD AMERICA INC. FOR PROVISION OF ……..

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This Agreement is made and entered into this _____ day of _____, 202 , by and between Flowbird America Inc., (hereinafter "Contractor") and Client……(hereinafter "The Client")

WITNESSETH

WHEREAS, a Request for Proposals ("RFP") was issued by Region 14 ESC (hereinafter defined and referred to as "Principal Procurement Agency"), on behalf of itself and OMNIA Partners, Public Sector, Inc., a Delaware corporation ("OMNIA Partners"), for the provision of parking meters, software, systems and related products and services; and **WHEREAS,** the Principal Procurement Agency and OMINA Partners have determined that the proposal submitted by Contractor qualifies as the best proposal and that Contractor should be awarded a Master Agreement to provide the requested services; and

WHEREAS, the parties desire to enter into this Agreement for the purpose of setting forth the terms and conditions which shall govern the provision of services and goods rendered by Contractor, supplementing those in the Master Agreement.

NOW THEREFORE, for and in consideration of the mutual promises and covenants contained herein and for other good and valuable consideration, the parties hereby agree as follows:

1. SCOPE OF SERVICES. The goods and services to be provided in connection with this Agreement are outlined in Exhibit B of this agreement. Said goods and services shall be provided in accordance with the applicable terms and conditions set forth in the Client solicitation, and it is understood and agreed among the parties that in the event of a variance between the terms and conditions of this Agreement and any amendment thereto and the terms and conditions contained either in the solicitation document or the Response thereto, the order of precedence shall be as follows: (1) This Agreement; (2) the Client's solicitation; (3) the Contractor's response.

All associated costs and pricing are outlined in the Master Agreement.

Flowbird Services and Level 2 support agreement is outlined in exhibit C

This Agreement shall not be binding upon the parties until it has been executed by both parties.

2. COMPENSATION

During the term of this Agreement, Client shall compensate the Contractor in accordance with the Pricing Schedule attached hereto and incorporated herein by reference as Exhibit A. which includes all reimbursable expenses. All other fees reflected on Exhibit A shall be directly invoiced monthly by Contractor to Client in accordance with the INVOICES section set forth below.

3. INVOICES

The Contractor shall submit original invoices for all fees to be invoiced on a monthly basis as reflected on Exhibit A, or copies of original invoices certified as such by the Contractor, on the Contractor's letterhead and in form and substance reasonably acceptable by the Client and with all reasonably necessary supporting documentation, to the Client. The invoice shall describe the services provided, list the price per unit, reflect any applicable terms of payment, and show the contract number to which it relates.

Invoices shall be submitted to: ……

The Client shall remit payment based on the Contractor's invoice within thirty (30) days after receipt of accurate invoice. If Contractor fails to receive timely payment as set forth herein, then Client shall pay interest on overdue

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sums in the amount of 1.5% per month compounded daily until actual payment of the overdue sum. Client shall pay the interest together with the overdue sum.

4. TAX PAYMENTS

Prices set forth in the Pricing Schedule are exclusive of sales, use and other taxes. If Client claims exemption from Federal Excise, State and Local Taxes, it must provide tax exemption certificates to the Contractor.

5. TITLE & RISK

Risk of loss of any goods hereunder shall not pass to the Client until the Client actually receives and takes possession of the goods at the point or points of delivery. Title shall pass upon payment in full for goods.

6. PATENT INDEMNIFICATION

The Contractor warrants that any goods/services furnished hereunder do not infringe or violate any patent, trademark, copyright, trade secret, or any other proprietary right of any third party; that it shall defend all suits that may arise with respect thereto; and that it shall indemnify, defend, save and hold harmless the Client, its officials, employees, agents, successors and assigns, from and against all liabilities, suits, claims, damages, costs or expenses, including without limitation attorney and expert witness fees, for or by reason of any actual or alleged claim the goods/services purchased by Client hereunder infringe any patent, copyright, or is a violation of trade secret disclosure laws, whether by reason of the Contractor's purchase or otherwise. This indemnification obligation shall survive the expiration or termination of this Agreement.

7. SHIPMENTS

Partial shipments may be allowed unless otherwise stated in writing by Client. The Contractor shall not ship excess quantities without the Client's prior written approval. Contractor shall not be liable for any delay in delivery of goods that is caused by events outside of its control or Client’s failure to provide adequate delivery instructions.

8. ENTIRE AGREEMENT

This Agreement, In addition to the Master Agreement, constitutes the full and final understanding of the parties with respect to the subject matter hereof and supersedes and replaces any and all prior or contemporaneous agreements or understandings, whether written or oral, express or implied, between the parties with respect to the subject matter of the Agreement. This Agreement is solely for the benefit of Client and Contractor.

9. HEADINGS

Titles and headings used herein are for the convenience of reference only and shall be disregarded completely in the interpretation and validity of this Agreement or any of its terms.

10. MODIFICATION AND AMENDMENT

This Agreement shall be amended or modified only by a written document signed by the parties hereto, in accordance with applicable laws and regulations.

11. CHANGES

The parties hall have the right at any time to propose written changes to the work performed hereunder. Any difference in price or other terms resulting from such proposed changes shall be negotiated in good faith and agreed between the parties before such changes become effective and this Agreement is modified in accordance

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with paragraph 10.

12. RIGHTS IN DATA

The Contractor agrees that Client data or compilations thereof produced under this Agreement shall remain the property of the Client and shall not be published by the Contractor or any other party without the express prior written consent of the Client. In implementing the foregoing, the Contractor hereby grants and assigns to the Client all rights and claims of whatever nature, whether now or hereafter, arising in and to such Client data and compilations thereof and shall cooperate fully with the Client in any steps the Client may take to obtain copyrights, trademark or like protections with respect thereto.

13. INTELLECTUAL PROPERTY

Subject to Article 12 above, any intellectual property provided or prepared by Contractor in connection with this Agreement shall remain the exclusive property of Contractor, except that Contractor shall supply to Client a non-exclusive non-transferable license solely to the extent required for use by the Client of deliverables provided hereunder, and performance of maintenance by Client and its authorized agents upon the deliverables provided hereunder, for the time that the deliverables remain in service for their intended use. Customer agrees that intellectual property licensed shall be used solely for the limited purposes described in this paragraph, and shall be kept confidential by the Client, its employees, and authorized agents as applicable pursuant to this paragraph. Client acknowledges that, in respect of any third party intellectual property rights, the Client's use of such rights is conditional upon Contractor obtaining a written license from the relevant licensor on such terms as will entitle Contractor to license such rights to Client.

14. EMPLOYMENT OF CLIENT WORKERS

The Contractor shall not engage, on a full, part-time or any other basis during the term of this Agreement, any professional or technical personnel who are or have been at any time during the term of this Agreement in the employ of the Client.

15. CONTRACTOR'S PERSONNEL

The Contractor certifies that it presently has adequate qualified personnel to perform all services required under this Agreement and that all work performed under this Agreement shall be supervised by the Contractor. Contractor will make its personnel aware of and cause them to comply with the Client's policies that have been made known to Contractor while performing pursuant to this Agreement. The Contractor further certifies that all of its employees assigned to perform any work hereunder shall have such knowledge and experience as required to perform the duties assigned to them. Any employee of the Contractor who, in the reasonable opinion of the Client, is incompetent, whose conduct becomes detrimental to the work, or whom the Client deems to be unsatisfactory for any reason, shall immediately be removed from association with the services hereunder per the Client's request. Upon such request, the Contractor shall use all reasonable efforts to promptly replace such employee(s) with substitute employee(s) having appropriate skills and training.

The Contractor shall be solely liable and responsible for providing to, or on behalf of, all persons performing work pursuant to this Agreement, all employee compensation and benefits. The Client shall have no liability or responsibility for the payment of any salaries, wages, unemployment benefits, health, welfare and disability benefits, Federal and local taxes, or other compensation, benefits or taxes for any personnel provided on behalf of the Contractor. In addition, the Contractor shall be solely liable and responsible for any and all workers' compensation benefits to any person as a result of injuries arising from or connected with any work performed by or on behalf of the Contractor pursuant to this Agreement.

16. INDEPENDENT CONTRACTORS

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Nothing in this Agreement shall be deemed or construed to represent that the Contractor, or any of the Contractor's employees or agents, are the agents, representatives, or employees of the Client. The Contractor acknowledges that it is an independent contractor over the details and means for performing the services hereunder. Anything in this Agreement which may appear to give the Client the right to direct the Contractor as to the details of the performance of its obligations hereunder or to exercise a measure of control over the Contractor is solely for purposes of compliance with local, state and federal regulations and means the Contractor will follow the desires of the Client only as to the intended results of the scope of this Agreement.

It is further expressly agreed and understood by the Contractor that neither it nor its employees or agents shall hold itself out contrary to the terms of this paragraph, and the Client shall not be liable for any representation, act or omission of the Contractor contrary to the provisions hereof..

17. TERMINATION

1. It shall be cause for the immediate termination of this Agreement for cause if:
    a. the Client reasonably determines that the Contractor or any of its principals, partners or corporate officers, if a corporation, including the corporation itself, has plead or been found guilty of a criminal violation, whether state or federal, involving governmental sales or purchases, including but not limited to the rigging of bids, price fixing, misappropriation of government funds, or any other collusive and illegal activity pertaining to bidding and governmental contracting; or
    b. the Contractor has filed bankruptcy, has been adjudicated bankrupt, become insolvent or made an assignment for the benefit of creditors, or a receiver, or similar officer is appointed to take charge of all or part of the Contractor's assets.
    c. the Client fails to make timely payment of sums due under this Purchase Order and then fails to cure such default by making payment of all sums owed and due within ten (10) business days of written notice to cure. (The Contractor, without limitation of its other rights and remedies including the right to later terminate for cause, may elect to suspend performance in the event of uncured nonpayment.)
    d. a party commits a material breach of its obligations under this Agreement and (if such breach is remediable) then fails to remedy that breach within thirty (30) days after receipt of notice in writing to do so from the other party.
    e. a party abandons performance of this Agreement.
2. Upon termination for cause the Client shall pay the seller for all outstanding invoices and an invoice shall be issued for goods and services provided but not previously invoiced, which invoice shall be immediately payable.
3. The Client may, in its sole discretion, suspend and/or terminate this Agreement for convenience upon giving 30 business days prior written notice to the Contractor. In the event a purported termination for cause by the Client is in error, then such termination shall be deemed to be a termination for convenience under this section. In the event of termination for convenience or wrongful termination for cause deemed a termination for convenience, the Contractor shall be entitled to receive compensation for any work performed in accordance with the Agreement up to the termination date, together with its reasonable termination costs and lost profits with respect to this Agreement.

18. CONFLICT OF INTEREST

Neither party shall engage in any conduct or activity in the performance of this Agreement that constitutes a conflict of interest under applicable federal, state or local laws, rules and regulations.

The Contractor covenants that it has no public or private interest, and shall not acquire, any interest, directly or indirectly, which would conflict in any manner with the performance required under this Agreement, and the Contractor covenants that no gratuities, in the form of entertainment, gifts, or otherwise, were offered or given by

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the Contractor or any agent or representative of the Contractor, to any officer, official, agent or employee of the Client, in an effort to secure the Agreement or favorable treatment with respect to any determinations concerning the performance of the Agreement. The Contractor warrants that no part of the total contract amount provided herein shall be paid directly or indirectly to any officer or employee of the Client as wages, compensation, or gifts in exchange for acting as officer, agent, employee, subcontractor or consultant to the Contractor in connection with any work contemplated or performed relative to this Agreement. For breach or violation of this provision, the Client shall have the right to recover or withhold the full amount of such gratuities.

19. GENERAL COMPLIANCE WITH LAWS

The Contractor certifies that it is qualified or will take steps necessary to qualify to do business in the State of _____ and that it shall take such action as, from time to time, may be necessary to remain so qualified and shall comply with federal, state and local laws applicable to performance of this Agreement.

20. NON-DISCRIMINATION

The Contractor hereby agrees to comply with Title VI and Title VII of the Civil Rights Act of 1964 and all other federal, state or local laws prohibiting discrimination, which provide in whole or in part, that no person shall be excluded from participation in, or be denied benefits of, or be otherwise subjected to discrimination in the performance of this Agreement or in the Contractor's employment practices on the grounds of handicap and/or disability, age, race, color, religion, sex, national origin, or any other classification protected by Federal, State or statutory law. The Contractor shall, upon request, show proof of such nondiscrimination, and shall post in conspicuous places available to all employees and applicants notices of nondiscrimination. The Client reserves the right to investigate any claims of illegal discrimination by the Contractor and in the event a finding of discrimination is made and upon written notification thereof, the Contractor shall take all necessary steps to cure and rectify such action to the reasonable satisfaction of the Client.

21. NOT USED

22. SEVERABILITY

If any terms or provisions of this Agreement are held to be illegal, invalid or unenforceable as a matter of law, such provision shall be fully severable, and the remaining provisions of this Agreement shall remain in full force and effect and continue to be binding and shall not be affected by such provision or by its severance here from. Furthermore, in lieu of such unlawful, invalid, or unenforceable provision, the parties may negotiate in good faith to replace such provision with a valid, legal and enforceable provision that most closely approximates the parties' original intent.

23. NO WAIVER OF CONTRACTUAL RIGHT

No term or provision of this Agreement, or of any document executed pursuant hereto, shall be held to be waived, modified or deleted unless in writing and executed by the parties hereto . No delay or failure of a party to enforce any right or provision of this Agreement or in any document executed pursuant hereto shall operate as a waiver or relinquishment of that party’s right to subsequently enforce and compel strict compliance with such provision or any other provision herein or in any document related hereto and specifically identified as a waiver of any succeeding breach thereto or of any other provision herein contained.

24. ORGANIZATION STATUS AND AUTHORITY

The Contractor represents and warrants that it is a corporation, limited liability company, partnership, or other entity duly organized, validly existing and in good standing under the laws of the state of Delaware; it has the power and authority to own its properties and assets and is duly qualified to carry on its business in every jurisdiction wherein

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such qualification is necessary. The execution, delivery and performance of this Agreement by the Contractor has been duly authorized by all requisite action and will not violate any provision of law, any order of any court or other agency of government, the organizational documents of the Contractor, any provision of any indenture, agreement or other instrument to which the Contractor is a party, or by which the Contractor's respective properties or assets are bound, in conflict with, result in a breach of, or constitute (with due notice or lapse of time or both) a default under any such indenture, agreement or other instrument, or result in the creation or imposition of any lien, charge or encumbrance of any nature whatsoever upon any of the properties or assets.

Each person executing this Agreement on behalf of the parties represents that: he/she is lawfully authorized to sign the Agreement on behalf of the party he/she represents and execution of the Agreement was duly and regularly authorized by the party's governing body.

25. WARRANTY

The Contractor warrants to the Client that all goods/work shall be free from defects in design and faulty or improper workmanship and shall be in strict compliance with the terms of this Agreement. Contractor specifically warrants that, if Client gives notice in writing during the warranty period within a reasonable time of discovery that some or all goods or services provided hereunder do not comply with the warranty provided under the paragraph, and Contractor is provided with proof of the same and reasonable opportunity to investigate including examination of such goods/services, then Contractor shall, at its option, repair or replace the defective goods or services, or refund the price paid for such goods or services. Excluded hereunder are without limitation non-conformances, defects and damage arising from ordinary wear and tear, abuse, negligence, vandalism, willful damage or abnormal working conditions, or due to failure to follow Contractor's oral or written instruction with respect to storage, installation, commissioning, use or maintenance. This warranty shall be effective for a period of one (1) year from the date of successful verification testing of the system The warranty shall survive the termination or expiration of this Agreement. THIS WARRANTY IS THE SOLE AND EXCLUSIVE WARRANTY GIVEN BY CONTRACTOR WITH RESPECT TO THE GOODS AND SERVICES PROVIDED HEREUNDER. ALL OTHER REPRESENTATIONS OR WARRANTIES, EXPRESS OR IMPLIED, ARE EXPRESSLY DISCLAIMED, INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS OF PURPOSE, OR ANY IMPLIED WARRANTIES CLAIMED TO ARISE FROM TRADE USAGE, CUSTOM OR COURSE OF DEALING. THE REMEDY PROVIDED IN THIS PARAGRAPH CONSTITUTES THE SOLE AND EXCLUSIVE REMEDY FOR BREACH OF THIS WARRANTY. IN NO EVENT WILL SELLER BE LIABLE FOR INDIRECT OR CONSEQUENTIAL DAMAGES UNDER ANY THEORY.

26. DISPUTE RESOLUTION

In the event of any dispute(s), controversy, or claim arising out of or relating to this Agreement or the breach thereof, the parties agree that they shall first use their best efforts in an attempt to settle the dispute through negotiations involving themselves or their representatives as they each deem appropriate.

27. FORCE MAJEURE

The Contractor shall not be deemed in default hereunder, nor shall the Contractor be responsible for any delay, interruption, or cessation in the performance of its obligations under this Agreement where such failure of performance is the result of any force majeure event, including, but not limited to, acts of God, riots, wars, strikes, epidemics, acts of governmental authorities or acts of nature or other similar cause beyond its control.

28. SUCCESSORS AND ASSIGNS

This Agreement shall be binding upon and inure to the benefit of the
parties hereto and their respective heirs, legal representatives, successors and assigns.

29. NOTICES

All notices and other communications required or permitted to be given hereunder shall be written and

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hand delivered with signed receipt; delivered by facsimile; delivered by a nationally recognized overnight courier; or mailed via certified U.S. mail, postage prepaid and return receipt requested. All notices shall be deemed received and effectively given as follows: (i) if by hand delivery, on the date of delivery; (ii) if by fax, on the day the fax transmission is received at the receiving location and receipt is telephonically confirmed by the sender; (iii) if by delivery via U.S. mail, on the date of receipt appearing on a return receipt card; or (iv) if by overnight courier, on the date receipt is confirmed by such courier service. All notices must be addressed to the respective party at the following addresses or to such other person or address as either party may designate in writing and deliver as provided herein:

To the CONTRACTOR: Flowbird America Inc. 40 Twosome Drive, Suite 7, Moorestown, NJ 08057; Attn: ……..; Phone: 856.234.8000; Fax: 856.234.7178

To the CLIENT: [To be inserted]

30. CONFIDENTIALITY

The parties including their employees, consultants, agents, affiliates, assigns and successors shall keep in strict confidence all technical or commercial know-how, specifications, inventions, proprietary information, processes or initiatives which are of a confidential nature that may have been disclosed to one another in connection with this Agreement. In the event one party receives a subpoena or other validly issued administrative or judicial process requesting the other's confidential information, the first party shall provide prompt actual notice to the other party of such receipt, so as to provide the other party with a reasonable opportunity to intervene in the proceeding before the time that first party is required to comply with such subpoena or other process.

31. LIMITATION OF LIABILITY

Neither party shall be liable to the other party for consequential (which shall be deemed to include but not be limited to lost parking revenue), incidental, exemplary or special damages of any nature and under any legal theory. Contractor's total liability to Client in connection with or as arising under this Agreement shall be limited to 25% of the total price set forth in the Pricing Schedule. This paragraph shall survive termination of this Agreement.

32. NUMBER AND GENDER

Unless the context requires otherwise, (i) use of a specific gender imports the other gender(s); and (ii) use of the singular imports the plural and vice versa.

33. SURVIVAL

The parties hereto acknowledge that provisions that require or contemplate performance or observance after expiration or termination of this Agreement shall survive the expiration or termination of this Agreement and continue in full force and effect.

34. DRAFTER

This Agreement is the result of arm's length negotiations between the parties and shall be construed to have been drafted by both parties such that any ambiguities in this Agreement shall not be construed against either party.

35. COUNTERPARTS

This Agreement may be signed in multiple counterparts and/or counterpart signature pages, each of which shall be deemed an original, and all of which when taken together shall constitute one and the same instrument. Signed signature pages may be transmitted by facsimile, and any such signature shall have the same legal effect as an original.

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36. GOVERNING LAW, JURISDICTION AND VENUE

The terms and conditions of this Agreement shall be construed in accordance with and governed by the laws of the State of New Jersey. All actions, whether sounding in contract or in tort, relating to the validity, construction, interpretation and enforcement of this Agreement shall be instituted and litigated in courts within the State of New Jersey, without regard to conflicts of laws principles. In accordance herewith, the parties to this Agreement submit to the jurisdiction of courts within the State of New Jersey.

37.

Left blank intentionally

38. INSURANCE REQUIREMENTS FOR A CERTIFICATE OF INSURANCE

I. Commercial General Liability (Primary and Non Contributory)

A. Limits of Liability
Bodily Injury and Property Damage Liability
Each Occurrence $ 1,000,000
General Aggregate Limit $ 2,000,000
Products/Completed Operations $ 1,000,000
Personal and Advertising Injury $ 1,000,000

II. Business Automobile Liability

A. Limits of Liability
Bodily Injury and Property Damage Liability
Combined Single Limit
Any Auto
Including Hired, Borrowed or Non-Owned Autos
Any One Accident $ 1,000,000

III. Worker's Compensation
A. Limits of Liability [Sum?]

IV. Employer's Liability
A. Limits of Liability
$1,000,000 for bodily injury caused by an accident, each accident.
$1,000,000 for bodily injury caused by disease, each employee
$1,000,000 for bodily injury caused by disease, policy limit
V. Umbrella Policy (Excess Follow Form)

A. Limits of Liability
Bodily Injury and Property Damage Liability
Each Occurrence $ 2,000,000
Aggregate $ 2,000,000

39. ATTORNEY'S FEES

If any action at law or in equity is necessary due to a dispute and/or to enforce or interpret the terms of this Agreement, the parties will bear their own attorneys' fees and court costs.

DRAFT

FLOWBIRD proprietary and confidential document. FLOWBIRD written consent required prior to release of any part hereof

IN WITNESS WHEREOF, the parties, by and through their duly authorized representatives, have executed this Agreement, effective as of the day and year first above written.

CLIENT	**FLOWBIRD AMERICA INC.**
By: _____	By: _____
Name: _____	Name: _____
Title: _____	Title: _____

Exhibit A Pricing

DRAFT

FLOWBIRD proprietary and confidential document. FLOWBIRD written consent required prior to release of any part hereof

Exhibit B Scope of Services

DRAFT

FLOWBIRD proprietary and confidential document. FLOWBIRD written consent required prior to release of any part hereof

Exhibit C Flowbird Services and Level 2 support agreement

DRAFT

FLOWBIRD proprietary and confidential document. FLOWBIRD written consent required prior to release of any part hereof

CITY OF FLAGSTAFF

STAFF SUMMARY REPORT

To: The Honorable Mayor and Council

From: Anja Wendel, Senior Assistant City Attorney AW

Co-Submitter: Bryce Doty

Date: 02/26/2025

Meeting Date: 03/04/2025

TITLE:

Consideration and Approval of Settlement: Settlement of the condemnation proceeding, *City of Flagstaff v. Hanson et al.* (S0300CV202200547) related to acquisition of property for the Lone Tree Overpass Project.

STAFF RECOMMENDED ACTION:

1. Approve settlement of the condemnation proceeding pursuant to the terms discussed in Executive Session; and
2. Authorize the City Manager, City Attorney, or its outside legal counsel to execute all documents and take other actions as are necessary to finalize the settlement.

Executive Summary:

The City has been seeking to acquire certain real property identified as Coconino County Assessor Parcel No. 104-01-097D and located at 510 E. Brannen Avenue for the Lone Tree Overpass Project ("the Property") for several years. The City followed its standard process for property acquisition. This involved obtaining appraisal from an independent appraiser, making an offer to purchase the property and pay just compensation based on appraised value, and negotiating with the property owner. In 2022, when the parties were unable to agree upon a purchase price, the City filed a condemnation proceeding. The parties now desire to settle the litigation, which will result in City obtaining title to the Property.

The City has provided relocation assistance to Flag Ice (the business that was operating on the Property), and Flag Ice has been relocated.

Financial Impact:

The settlement will be funded from the Lone Tree Overpass Project (Account #047-10-112-3054-6), FY 2024-25 budget $31,436,856).

Policy Impact:

None.

Previous Council Decision or Community Discussion:

The City Council has previously:

- Adopted an ordinance authorizing acquisition of the Property;
- Approved a contract with its general contractor for the Lone Tree Overpass Project, to include the provision of relocation benefits under the federal Uniform Relocation Act, at a public meeting;
- Authorized the filing of a condemnation proceeding at a public meeting;
- Held an Executive Session on February 11, 2025 related to acquisition of the Property including possible settlement of the condemnation proceeding.

Options and Alternatives to Recommended Action:
1. Approve settlement.
2. Do not approve settlement, continue litigation, and provide direction to staff regarding next steps.

Connection to PBB Priorities and Objectives:
N/A

Connection to Regional Plan:
N/A

Connection to Carbon Neutrality Plan:
N/A

Connection to 10-Year Housing Plan:
N/A

Connection to Division Specific Plan:
N/A

Attachments:

CITY OF FLAGSTAFF

STAFF SUMMARY REPORT

To: The Honorable Mayor and Council

From: Edward Schenk, Water Services Manager - Stormwater

Co-Submitter: Shannon Long

Date: 02/26/2025

Meeting Date: 03/04/2025

TITLE:

Consideration and Approval of Contract: Cooperative Purchase Contract with J Banicki Construction for Stormwater Asset Repairs in the amount of $193,494.28.

STAFF RECOMMENDED ACTION:

1. Approve the Cooperative Purchase Contract with J Banicki Construction for Stormwater Asset Repairs for an amount of $193,494.28; and
2. Request that the City Manager to execute the necessary documents.

Executive Summary:

This Cooperative Purchase Contract will repair, or replace, seven (7) drainage scuppers (examples attached) that have been damaged from previous year's snowplow operations, wear and tear, or other mechanisms. In most of the seven cases, this will consist of new concrete, metal scuppers, and appropriate corrections to the drainage to allow for positive flow.

Financial Impact:

Project Name: Stormwater Asset Repairs (FY24-25 scupper repairs)
Cost: $193,494.28
Account Number Budgeted: 206-08-331-1257-0-4237
FY Budgeted Amount: $1,800,000
Grant Funded: No
Funding Source: Stormwater fund

Policy Impact:

N/A

Previous Council Decision or Community Discussion:

N/A

Options and Alternatives to Recommended Action:

1. Approve the Cooperative Purchase Contract with J Banicki Construction; or
2. Direct staff to purchase repairs through another procurement method; or
3. Defer maintenance.

Background and History:

The City of Flagstaff identified J Banicki Construction as the best vendor for this bundle of repair projects for the Stormwater Section due to their expertise with stormwater infrastructure, current staffing in the Flagstaff

region (having recently completed the Highway 180 culvert and the JW Powell bridge), cost, and the ability to mobilize quickly. Staff are utilizing an existing agency contract through the Coconino County Flood Control District (RFQ 2023-105) to procure this project. The Coconino County Flood Control District conducted a competitive and open procurement process through Request for Quotes RFQ 2023-105 that resulted in Contract No. RFQ 2023-105 with J Banicki. The City's Procurement team deemed this cooperative purchase to be valid.

Connection to PBB Priorities and Objectives:
High Performance Governance: Serve the public by providing high quality customer service
Sustainable: Innovative Infrastructure. Deliver outstanding service to residents through a healthy, well maintained infrastructure system

Connection to Regional Plan:
Goal WR 1: Maintain a sustainable water budget incorporating regional hydrology, ecosystem needs, and social and economic well-being.
Goal WR 2: Manage a coordinated system of water, wastewater and reclaimed water utility service facilities and resources at the City Level and identify funding to pay for new resources.
Policy WR2.2: Maintain and develop facilities to provide reliable, safe and cost-effective water, wastewater, and reclaimed water services.
Goal WR 3: Satisfy current and future human water demands and the needs of the natural environment through sustainable and renewable water resources and strategic conservation measures.
Goal WR6: Protect, preserve, and improve the quality of surface water, groundwater, and reclaimed water in the region.

Connection to Carbon Neutrality Plan:
WS-1 Improve water infrastructure and expand water reuse

Connection to 10-Year Housing Plan:
N/A

Connection to Division Specific Plan:
Water Service Strategic Plan 2025 Goals:
Goal 5: Accelerate Infrastructure Maintenance and Replacement

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Attachments: Cooperative Contract Examples

COOPERATIVE PURCHASE CONTRACT
Contract No. 2025-177

This Cooperative Purchase Contract is made and entered into this _____ day of _____, 20_____by and between the City of Flagstaff, Arizona, a political subdivision of the State of Arizona ("City") and J Banicki Construction Inc, an Arizona C Corporation ("Contractor").

RECITALS:

A. Contractor is a fully authorized vendor of **Stormwater Asset Repairs;**

B. The Coconino County Flood Control District conducted a competitive and open procurement process through Request for Quotes **RFQ 2023-105** that resulted in Contract No. **RFQ 2023-105** with Contractor ("Agency Contract"); and

C. The City has authority to enter into a cooperative purchase contract with Contractor utilizing the Agency Contract.

AGREEMENT:

NOW THEREFORE, in consideration for the mutual promises contained herein, the Parties agree as follows:

1. Materials and or Services Purchased: Contractor shall provide to the City the materials and/or services, as specified in the Scope of Work attached as *Exhibit A*, and in accordance with the Agency Contract. A general description of materials and/or services being purchased is:

Stormwater Asset Repairs

2. Specific Requirements of City: Contractor shall comply with all specific purchase and delivery requirements and/or options of City, as specified in the Scope of Work attached as *Exhibit A* and incorporated by reference.

3. Terms and Conditions of Agency Contract Apply: All provisions of the Agency Contract documents attached as *Exhibit B*, including any amendments, are incorporated in and shall apply to this Contract as though fully set forth herein. Contractor is responsible for promptly notifying City in writing of any changes to the Agency Contract, including, specifically changes in price for materials and/or services.

4. Payment:

   4.1 Payment to Contractor for the materials and/or services not to exceed one hundred ninety-three thousand four hundred ninety-four dollars and twenty-eight cents **($193,494.28)** made in accordance with the price list and terms set forth in the Agency Contract.

   4.2 Any adjustment to the Payment amount must be approved by mutual written consent of the parties through a formal amendment. The City Manager or his/her designee may approve an amendment if the amendment price increase is less than $100,000; otherwise, City Council approval is required.

5. Certificates of Insurance: All insurance provisions of the Agency Contract shall apply, including any requirement to name the City as an additional insured. Prior to commencing performance under this Contract, Contractor shall furnish City with a copy of the current Certificate of Insurance required by the Agency Contract.

6. Term and Renewal: This Cooperative Purchase Contract shall commence upon execution by the Parties and shall continue for a period of one (1)-year with an option for one (1), sixty (60)-day renewal period presuming that the underlying Agency Contract has not expired or been terminated.

7. Notice: Any formal notice required under the Contract shall be in writing and sent by certified mail and email as follows:

To the City:
Ed Schenk
City of Flagstaff
211 W. Aspen Ave.
Flagstaff, AZ 86001
Edward.Schnek@flagstaffaz.gov

To Contractor:
Lonnie Ferguson
J Banicki Construction
4720 E Cotton Gin Loop Suite 240
Phoenix, Az 85040
LFerguson@banicki.com

With a copy to:
Emily Markel
City of Flagstaff
211 W. Aspen Ave.
Flagstaff, AZ 86001
Emily.Markel@flagstaffaz.gov

(Remainder of Page Intentionally Blank)

9. Authority: Each Party warrants that it has authority to enter into the Contract and perform its obligations hereunder, and that it has taken all actions necessary to enter into the Contract.

J BANICKI CONSTRUCTION:

By:_____

Title:_____

CITY OF FLAGSTAFF

By:_____

Title:_____

ATTEST:

_____
City Clerk

APPROVED AS TO FORM:

_____
City Attorney's Office

Notice to Proceed issued:_____, 20___

Last Updated January 6, 2025

Stormwater Asset Repairs Rev. #1

J Banicki Construction

4720 E. Cotton Gin Loop, Suite 240
Phoenix, Arizona 85040 **LIC#: A ROC091410**
Contact: **Lonnie Ferguson**
Phone: **602-469-3032**
Email: **LFerguson@Banicki.com**

Quote To:	City of Flagstaff, Water Services	Job Name:	Stormwater Asset Repairs
Attention:	Shannon Long	Owner:	City of Flagstaff, Water Services
Address:	2323 N. Walgreens St.	Address:	2323 N. Walgreens St.
City State Zip:	Flagstaff, AZ 86004	City State Zip:	Flagstaff, AZ 86004
Email:	shannon.long@flagstaffaz.gov	Phone:	928-310-8593
Phone:	928-310-8593	Date:	01/29/2025
Fax:			

Revision #1

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT
	LOCATION 1-DODGE & EMPIRE				
100	Mobilization	1.00	LS	2,355.00	2,355.00
110	Quality Control	1.00	LS	900.00	900.00
120	Traffic Control	1.00	LS	802.00	802.00
130	Variable Pre-warner Message Board-Not Included	1.00	LS		
140	Flaggers-Not Included	1.00	LS		
150	Off-Duty Officer-Not Included	1.00	LS		
160	Remove and replace iron and concrete on catch basi	1.00	LS	19,548.00	19,548.00
	Location 1 Subtotal				**23,605.00**
170	Payment and Performance Bond	1.00	LS	236.05	236.05
180	Sales Tax-Flagstaff 9.181% X 65% = 5.968%	1.00	LS	1,422.83	1,422.83
	Location 1 Total				**25,263.88**
	LOCATION 2-LAKE MARY RD				
200	Mobilization	1.00	LS	1,810.00	1,810.00
210	Quality Control	1.00	LS	900.00	900.00
220	Traffic Control	1.00	LS	7,468.00	7,468.00
230	Variable Pre-warner Message Board-Not Included	1.00	LS		
240	Flaggers-Not Included	1.00	LS		
250	Off-Duty Officer-Not Included	1.00	LS		
260	Remove fill to allow flow and replace missing scup	1.00	LS	18,540.00	18,540.00
	Location 2 Subtotal				**28,718.00**
270	Bond	1.00	LS	287.18	287.18
280	Sales Tax-Flagstaff 9.181% X 65% = 5.968%	1.00	LS	1,731.03	1,731.03
	Location 2 Total				**30,736.21**
	LOCATION 5- SHULLENBARGER DR				
500	Mobilization	1.00	LS	2,355.00	2,355.00
510	Quality Control	1.00	LS	900.00	900.00

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT
520	Traffic Control	1.00	LS	1,696.00	1,696.00
530	Variable Pre-warner Message Board-Not Included	1.00	LS		
540	Flaggers	1.00	LS	2,385.00	2,385.00
550	Off-Duty Officer-Not Included	1.00	LS		
560	Repair collapsing concrete pad and angle iron at c	1.00	LS	20,513.00	20,513.00
	Location 5 Subtotal				**27,849.00**
570	Bond	1.00	LS	278.49	278.49
580	Sales Tax-Flagstaff 9.181% X 65% = 5.968%	1.00	LS	1,678.65	1,678.65
	Location 5 Total				**29,806.14**
	LOCATION 6- HOLLAND RD				
600	Mobilization	1.00	LS	2,355.00	2,355.00
610	Quality Control	1.00	LS	900.00	900.00
620	Traffic Control	1.00	LS	1,696.00	1,696.00
630	Variable Pre-warner Message Board-Not Included	1.00	LS		
640	Flaggers	1.00	LS	2,386.00	2,386.00
650	Off-Duty Officer-Not Included	1.00	LS		
660	Replace missing concrete and angle iron at catch b	1.00	LS	20,116.00	20,116.00
	Location 6 Subtotal				**27,453.00**
670	Bond	1.00	LS	274.53	274.53
680	Sales Tax-Flagstaff 9.181% X 65% = 5.968%	1.00	LS	1,654.78	1,654.78
	Location 6 Total				**29,382.31**
	LOCATION 8- BUTLER AVE				
800	Mobilization	1.00	LS	2,900.00	2,900.00
810	Quality Control	1.00	LS	900.00	900.00
820	Traffic Control	1.00	LS	3,318.00	3,318.00
830	Variable Pre-warner Message Board	1.00	LS	3,191.00	3,191.00
840	Flaggers-Not Included	1.00	LS		
850	Off-Duty Officer	1.00	LS	7,455.00	7,455.00
860	Remove and replace warped scupper plates, inlet an	1.00	LS	29,121.00	29,121.00
	Location 8 Subtotal				**46,885.00**
870	Bond	1.00	LS	468.85	468.85
880	Sales Tax-Flagstaff 9.181% X 65% = 5.968%	1.00	LS	2,826.08	2,826.08
	Location 8 Total				**50,179.93**
	LOCATION 9- N FIRST ST				
900	Mobilization	1.00	LS	993.00	993.00
910	Quality Control-Not Included	1.00	LS		
920	Traffic Control	1.00	LS	560.00	560.00
930	Variable Pre-warner Message Board-Not Included	1.00	LS		
940	Flaggers-Not Included	1.00	LS		
950	Off-Duty Officer-Not Included	1.00	LS		
960	Remove and replace scupper	1.00	LS	10,183.00	10,183.00
	Location 9 Subtotal				**11,736.00**
970	Bond	1.00	LS	117.36	117.36
980	Sales Tax-Flagstaff 9.181% X 65% = 5.968%	1.00	LS	707.41	707.41
	Location 9 Total				**12,560.77**
	LOCATION 10- E APPALACHIAN RD				

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT
1000	Mobilization	1.00	LS	1,266.00	1,266.00
1010	Quality Control	1.00	LS	900.00	900.00
1020	Traffic Control	1.00	LS	710.00	710.00
1030	Variable Pre-warner Message Board-Not Included	1.00	LS		
1040	Flaggers-Not Included	1.00	LS		
1050	Off-Duty Officer-Not Included	1.00	LS		
1060	Replace missing scupper plate	1.00	LS	11,667.00	11,667.00
	Location 10 Subtotal				**14,543.00**
1070	Bond	1.00	LS	145.43	145.43
1080	Sales Tax-Flagstaff 9.181% X 65% = 5.968%	1.00	LS	876.61	876.61
	Location 10 Total				**15,565.04**

GRAND TOTAL **$193,494.28**

NOTES:

See Scope Clarifications and Assumptions.

J. Banicki Construction, Inc.
4720 E. Cotton Gin Loop, Ste. 240
Phoenix, AZ 85040
Lic # A ROC 091410
480-921-8016 (phone)
480-921-9456 (fax)

Date: 1/29/2025

Scope Clarifications and Assumptions
City of Flagstaff – Stormwater Asset Repairs

General:

- J. Banicki Construction, Inc. (Banicki) proposes to furnish labor, equipment and materials in accordance with the City of Flagstaff – Stormwater Asset Repairs package. Package consists of 7 locations detailed in the 9-page document.
- All work, specified in the attached proposal will be completed in a workmanlike manner according to standard industry practices.
- Utility fees are not included in Banicki's pricing.
- MAG standard specifications and details are being used for this estimate. Concrete to be MAG A or MAG AA at contractor's option.
- ADOT details 15.20 page 2 and 15.40 page 2 have been referenced for some of the catch basin angle iron.
- This pricing is based upon the assumption that all locations in this proposal as outlined will be awarded to Banicki Construction.

Bid Items: 100, 200, 500, 600, 800, 900, 1000 Mobilization

- This item includes cost of equipment mobilization and de-mobilization for Banicki to each location.
- Includes cost of removing and returning from a central construction yard on a daily basis.

Bid Items: 110, 210, 510, 610, 810, 910, 1010 Quality Control

- Cost includes one set of cylinders per location.
- No QC at location 9. No concrete required at this location.

Bid Items: 120, 220, 520, 620, 820, 920, 1020 Traffic Control

- Shoulder closure only at location 1.
- Shoulder and sidewalk closure at locations 9 and 10.
- Daily single lane drop to move bike path southbound and sidewalk closure location 2.
- Daily flagger setup at locations 5 and 6.
- Daily lane closure and sidewalk closure at location 8. ADOT permits probably required.

Bid Items: 130, 230, 530, 630, 830, 930, 1030 Variable Message Board

- Variable message boards not included at locations 1, 2, 5, 6, 9 and 10.
- 3 variable pre-warner message boards are being utilized for 7 calendar days at location 8.

Bid Items: 140, 240, 540, 640, 840, 940, 1040 Flaggers

- No flaggers are included at locations 1, 2, 8. 9, 10.
- One flagger included while doing work at locations 5 and 6.

Bid Items: 150, 250, 550, 650, 850, 950, 1050 Off-Duty Officer

- No off-duty officer included at locations 1, 2, 5, 6, 9 and 10.
- One off-duty officer included at locations 8.

Bid Item: 160 Remove and replace iron and concrete on catch basin inlet

- Remove, haul off and dispose debris and replace iron and concrete on catch basin inlet.

.

J. Banicki Construction, Inc.
4720 E. Cotton Gin Loop, Ste. 240
Phoenix, AZ 85040
Lic # A ROC 091410
480-921-8016 (phone)
480-921-9456 (fax)

Bid Item: 260 Remove fill to allow flow and replace missing scupper plate

- Remove, haul off and dispose debris and replace two sidewalk panels for new scupper plate and angles.

Bid Item: 560 Repair collapsing concrete pad and angle iron at catch basin curb opening

- Remove, haul off and dispose debris. Repair collapsing concrete pad and radius.

Bid Item: 660 Replace missing concrete and angle iron at catch basin opening

- Replace missing concrete and angle iron at catch basin opening.

Bid Item: 860 Remove and replace warped scupper plates, inlet angle iron and surrounding concrete

- Remove, haul off and dispose debris and replace 20 LF of curb, gutter and sidewalk.
- Furnish and install new angle iron and scupper plates.
- ADOT permit included.

Bid Item: 960 Remove and replace scupper plate

- Furnish and install custom measured scupper plate to fit on existing angles.
- Excludes complete re-build of scupper.

Bid Item: 1060 Replace missing scupper plate

- Furnish and install scupper plate and angles.

Exclusions:

- Hazardous material removal.
- Environmental fees and testing.
- Unforeseen site conditions.
- Permits other than ADOT permit mentioned above.
- Cleaning storm sewers up stream or down stream of repair sites.

COCONINO
COUNTY ARIZONA

AGENDA ITEM COVER SHEET

Agenda Key: 38357

DATE: June 2, 2023

Meeting Date: 06/06/2023

FROM: Lucinda Andreani, Deputy County Manager/Flood Control Director

SUBMITTER: SPOOYOUMA

SUBJECT: Consideration and possible action to approve an Agreement with J. Banicki Construction, Inc., for Job Order Contracting (JOC) General Construction Services to the Flood Control District for projects up to $2,000,000.00 for a five-year period from the date of approval through June 30, 2028. Flood Control District

NOTES:

RFQ 2023-105
JOC
J. Banicki Construction

JOB ORDER CONTRACT

Between

Coconino County Flood Control District

and

J. Banicki Construction, Inc.

Effective From: June 6, 2023 To: June 30, 2028

[AWARDED PURSUANT TO REQUEST FOR QUALIFICATIONS RFQ 2023-105]

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EXHIBIT A: FEDERALLY FUNDED PROJECT REQUIREMENTS
EXHIBIT B: JOC TASK MATRIX
EXHIBIT C: PERFORMANCE BOND
EXHIBIT D: PAYMENT BOND

JOB ORDER CONTRACT

THIS JOB ORDER CONTRACT is entered into and made effective June 6, 2023 (the "Effective Date") by and between the Coconino County Flood Control District, a political subdivision of the State of Arizona (the "District") and J. BANICKI CONSTRUCTION, INC., an Arizona corporation with offices at 4720 E. Cotton Gin Loop, Suite 240 Phoenix, Arizona 85040 (the "Contractor").

RECITALS

A. The District intends to contract to construct a number of Projects that will be constructed as Job Orders.

B. The Contractor has represented to the District the ability to provide or procure construction and design services and based on this representation the District engages the Contractor for these services.

AGREEMENT

NOW THEREFORE, for and in consideration of the introduction and recitals above, which are incorporated herein by reference, the mutual covenants and considerations hereinafter contained, and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, it is agreed by and between the District and the Contractor as follows:

ARTICLE 1 - DEFINITIONS

1.1 "Construction Documents" means the plans, technical specifications and any approved Shop Drawings related to the Work.

1.2 "Contract" means this agreement including its attachments and all Job Orders that may be issued hereunder, and any modifications to this agreement, its attachments and its Job Orders.

1.3 "Contract Amendment" means a written modification to this Contract, executed by the District and the Contractor.

1.4 "Contract Documents" means the following items and documents in descending order of precedence executed by the District and the Contractor: (i) Job Orders, including any amendments thereto; (ii) Contract Amendments; (iii) this Contract, including all exhibits and attachments; (iv) the Request for Qualifications issued in conjunction with this Contract; (v) the Contractor's Proposal in response to the Request for Qualifications; and (vi) the Contractor Statement of Qualifications.

1.5 "Contract Services" means the services required of the Contractor by the Contract Documents.

1.6 "Contract Time" means the time set forth in Section 4 subject to Contract Amendments approved in accordance with this Contract.

1.7 "Contractor's Representative" means the Contractor's duly authorized representative specifically authorized to act for the Contractor by executing the Contract and any modifications thereto. The Contractor's duties include administration of the Contract on behalf of the Contractor and performance of the Work.

1.8 "Cost of the Work" means the direct costs necessarily incurred by the Contractor in the proper performance of the Work. The Cost of the Work shall include direct labor costs, subcontract costs, costs of materials and equipment incorporated in the completed construction, costs of other materials and equipment, temporary facilities, permit and license fees, materials testing, and related items. The Cost of the Work shall not include the Contractor's construction fee, general conditions costs, and taxes.

1.9 "Critical Path" means the time set forth in the Schedule (as described in Section 4.2) that represents the minimum time necessary to complete the sequence of dependent tasks in a Job Order.

1.10 "Day(s)" means calendar day(s) unless otherwise specifically noted in the Contract Documents.

1.11 "Differing Site Conditions" means concealed or latent physical conditions or subsurface conditions at the Site that: (i) materially differ from the conditions indicated in the Job Order; or (ii) are of an unusual nature, differing materially from the conditions ordinarily encountered and generally recognized as inherent in the Work.

1.12 "District's Authorized Representative" means the firm or person or their properly authorized delegates designated by the District to oversee the Work.

1.13 "Engineer" means the architectural or engineering firm, if any, designated by the District to prepare plans and specifications for the Work and perform other design or submittal services as required by the District. If an Engineer is not designated, the Engineer's duties will be performed by the person or entity designated by the District's Authorized Representative.

1.14 "Final Acceptance" means the completion of a Job Order as prescribed in Section 3.7 below.

1.15 "Job Order" means a specific written agreement between the District and the Contractor for specified Work to be performed under this Contract, including a scope of Work, the Job Order Price, the Job Order Time and any special conditions that may apply. The Job Order includes the Construction Documents and any applicable special provisions included therein.

1.16 "Job Order Payment Request" means the District form used by the Contractor to request progress payments for Job Orders in accordance with Section 6 below.

1.17 "Job Order Price" means the sum of: (i) the maximum cost of the Work for a Job Order; (ii) the Contractor's construction fee; (iii) the general conditions fee; (iv) taxes, bonds, insurances costs; (v) and contingency as proposed and approved.

1.18 "Job Order Time" means the time set forth in a Job Order specifying when the Contractor will perform the Work from the Job Order Notice-to-Proceed to Substantial Completion.

1.19 "Legal Requirements" means all applicable federal, state and local laws, codes, ordinances, rules, regulations, orders and decrees of any government or quasigovernmental entity having jurisdiction over a Site or any Work, including, but not limited to: (i) requirements of the respective "Authority Having Jurisdiction" (Coconino County, the District or the City of Flagstaff or other jurisdiction depending on location and permitting); (ii) Coconino County's Engineering Design & Construction Criteria and Construction Standards; (iii) ADOT Standards and Specifications, current edition(s); (iv) MAG Standards and Specifications, current editions/revisions; and (v) Manual of Uniform Traffic Control Devices (MUTCD), current edition.

1.20 "Project" means the Work as carried out at a particular Site pursuant to a Job Order.

1.21 "Purchase Order" means the written documentation from the District confirming the scope of Work and agreed-upon compensation for a Job Order.

1.22 "Shop Drawings" mean drawings, diagrams, schedules and other data specially prepared for the Work by the Contractor or a Subcontractor, manufacturer, supplier or distributor to illustrate some portion of the Work.

1.23 "Site" means the land or premises upon which the Work pursuant to a Job Order is to be performed.

1.24 "Subcontract" as used herein means any Contract, including purchase orders (other than one involving an employer-employee relationship) entered into by the Contractor calling for equipment, supplies or services required for Contract performance, including any modifications thereto.

1.25 "Subcontractor" or "Subconsultant" means any person or entity retained by the Contractor as an independent contractor to perform a portion of the Work and shall include materialmen and suppliers.

1.26 "Substantial Completion" means the Work has been completed in accordance with the Contract Documents to the extent that the District can use or occupy the entire Project, or the designated portion of the Project for the use intended without any outstanding, concurrent construction at the Site, except as may be required to complete or correct punch list items.

1.27 "Work" means any or all of the services that are set forth in any Job Order and all labor, services, incidental expenses and material necessary or incidental thereto.

ARTICLE 2 - CONTRACTOR'S SERVICES AND RESPONSIBILITIES

2.1 General Provisions.

A. General Information. This is a fixed unit price, indefinite quantity type Contract for the performance of a broad range of construction, repair and maintenance work on an as-needed basis as may be required by the District. The specific work requirements will be identified in Job Orders to be issued by the District. Contract Services will include, but are not limited to the following:

- Provide preconstruction services
- Serve as the general contractor during construction
- Coordinate and manage subcontractors during construction
- Coordinate with franchise utilities
- Attend public meetings and provide notifications (when required)
- Arrange for procurement of materials and equipment
- Schedule and manage Site operations
- Use a collaborative process
- Provide quality controls
- Bond and insure the construction of certain projects based on cost or risk
- Comply with all federal, state and local permitting requirements
- Maintain a safe work site for all project participants
- Provide commissioning
- Prepare and turn over record drawings (when required)
- Provide operations and maintenance manuals (when required)
- Provide repairs to existing District infrastructure and District assets

B. General Scope of Work. The District requires general contracting (flood control) construction services for minor and major construction projects, maintenance, renovations, repairs, additions, demolition, re-constructions and alteration services to District facilities, roadways, and District infrastructure. The Contractor will be required to furnish all materials, equipment and personnel necessary to manage and accomplish each project.

(1) All work performed by the Contractor shall meet all applicable state and local codes and the Contractor shall be required to obtain all required permits and inspections.

(2) Job Orders will include, but are not limited to tasks such as construction and repair of on-forest watershed restoration measures, construction and repair work in support of Forest Restoration, construction and repair of flood water detention & retention facilities, floodwater conveyance channels, box and other forms of culverts/crossings, storm drain systems and inlets, bridges, catch basins, rock riprap, gabion baskets, excavation, drainages, and associated roadway grading, surfacing, placement of aggregate base, millings, asphalt pavement, roadway striping, concrete work, tree removal, traffic control, and utility relocations.

(3) Job Order proposals shall include, unless waived by the District, a completed "JOC Task Matrix" in the form attached as Exhibit B hereto and incorporated herein by reference.

C. Work Authorization. Any Work required under this Contract shall be authorized by issuance of formal, written Job Orders, as follows:

(1) As the need exists (as determined by the District) for performance under the terms of this Contract, the District will notify the Contractor of an existing requirement.

(2) Upon the receipt of this notification, the Contractor shall respond within two working days, or as otherwise agreed, by: (a) visiting the proposed Site in the company of the District; or (b) establishing contact with the District to further define the scope of the requirement.

(3) After mutual agreement on the scope of the Work, the Contractor shall then prepare a proposal for accomplishment of the task unless the Contractor, in its sole discretion, elects not to undertake the Work. If the Work is declined, the Contractor will so notify the District in a timely manner.

(4) The Contractor's proposal shall be submitted within 10 Days unless otherwise agreed.

(5) Upon receipt of the Contractor's proposal, the District will review the proposal for completeness and will reach agreement with the Contractor on pricing, schedule, and all other terms, prior to issuance of a Job Order.

(6) In the event the District does not issue a Job Order after receipt of the Contractor's proposal, the District is not obligated to reimburse the Contractor for any costs incurred in the preparation of the proposal.

D. Scheduling of Work.

(1) For each Job Order, the District will issue a Notice to Proceed. The first day of performance under a Job Order shall be the effective date specified in the Notice to Proceed. Any preliminary work started or material ordered or purchased before receipt of the Notice to Proceed shall be at the risk and expense of the Contractor. The Contractor shall diligently prosecute the Work to completion within the Job Order Time. The period of performance includes allowance for mobilization, holidays, weekend days, normal inclement weather, and cleanup. Therefore, claims for delay based on these elements will not be allowed.

(2) Placement of materials and equipment on the Site shall be made with a minimum of interference to neighboring property and the District's operations and personnel.

(3) The Contractor shall take all precautions to ensure that no damage will result from its operations to private or public property. All damages shall be repaired or replaced by the Contractor at no cost to the District.

(4) The Contractor shall be responsible for providing all necessary traffic control, such as street blockages, traffic cones, flagmen, etc., as required for each Job Order. Proposed traffic control methods shall be submitted to the District for approval.

E. Quality Assurance/Quality Control Program. The Contractor shall submit, for the District approval, a quality assurance/quality control plan within 15 calendar days after issuance of the initial Job Order. This plan should address all aspects of quality control including responsibility for surveillance of work, documentation, trend analysis, corrective action and interface with the District's inspectors.

F. Shop Drawings. The Contractor's duties under the Contract include the preparation of Shop Drawings or sketches necessary to permit orderly construction of the District's design plans. The Contractor agrees to provide detailed design drawings and plans if requested by the District.

G. Commencement of the Work. Performance of the Work shall be undertaken only upon execution of a Job Order by both parties and delivery of a Purchase Order and Notice to Proceed by the District. In response to Job Orders that may be mutually agreed upon and issued periodically by the District, the Contractor shall, in accordance with the Contract Documents, except as may be specified elsewhere in the Contract Documents, furnish all necessary labor, materials, tools, supplies, equipment, transportation, supervision, management, and perform all operations necessary and required for survey, design and construction services related to the Work, which will be defined and further described as to specific project requirements in each Job Order. The Work shall be performed in accordance with the requirements set forth in each Job Order.

H. Quality Standards. The Work shall be performed in a good, workmanlike and substantial manner and to the satisfaction of the District and under the direction and supervision of the District's Authorized Representative, or the District's properly authorized agents within the care and skill of a qualified contractor in Flagstaff, Arizona.

I. Hours of Work.

(1) Standard hours of work will be from 7:00 AM to 4:00 PM, Monday through Friday, unless alternate standard hours are agreed to and adopted; all hours worked on Saturdays, Sundays and holidays will be considered nonstandard hours.

(2) Non-standard hours worked by the Contractor to regain schedule or for the Contractor's convenience shall not be entitled to additional compensation.

J. Minor Design by Contractor. Minor design services may be required for some Job Orders. For those Job Orders that may require design services, the Contractor shall seek the services of an Arizona registered design professional to prepare plans for permitting.

(1) The selected design professional shall maintain at least $1,000,000 Professional Liability Coverage.

(2) All documents prepared by the selected design professional are subject to review by the District. Review by the District does not relieve any design professional from the professional liability associated with the documents they have prepared.

K. Contractor Supervisor. The Contractor's Representative shall be reasonably available to the District and shall have the necessary expertise and experience required to supervise

the Contract Services. A Contractor's Representative will be assigned for each Job Order. The Contractor's Representative shall communicate regularly with the District and shall be vested with the authority to act on behalf of the Contractor.

L. Federally Funded Project Requirements. For Projects designated by the District as being funded, in whole or in part, by federal funding, the Contractor shall adhere to the Federally Funded Project Requirements set forth in Exhibit A attached hereto and incorporated herein by reference.

M. No Guarantee of Job Orders. This Contract embodies the agreement of the District and the Contractor to terms and conditions that will govern any Work described under a Job Order that may be issued by the District and agreed to by the Contractor. Nothing herein shall be construed as requiring the District to issue any Job Order, nor requiring the Contractor to accept same, it being the intent that both parties must mutually agree to any specific Work before a Job Order may be issued.

2.2 Subcontractor Selection Plan. The Contractor must prepare and submit a Subcontractor selection plan with its response to the District's request for a Job Order.

A. Qualifications-Based Selection Required. The Subcontractor selection plan must provide a process to select Subcontractors based on qualifications alone or on a combination of qualifications and price and shall not select subcontractors based on price alone.

B. No Deviation from Approved Plan. The approved Subcontractor selection plan must be adhered to for the duration of the Contract. Deviation from or changes to the approved plan must be submitted to and approved by the District.

C. District Right to Object. The District reserves the right to reject the Contractor's selection of Subcontractors on individual projects. Failure to include the subcontractor list in the price proposal submitted for each Job Order shall be cause for rejection of the proposal as non-responsive.

2.3 Government Approvals and Permits.

A. Permit Responsibility. Unless otherwise provided in a Job Order, the Contractor shall obtain or assist the District in obtaining all necessary permits, approvals and licenses required for the prosecution of the Work from any government or quasi-government entity having jurisdiction over the Project. **The Contractor is specifically reminded of the need to obtain the necessary environmental permits or file the necessary environmental notices.**

B. Copies of Permits. Copies of these permits and notices must be provided to the District's Authorized Representative prior to starting the permitted activity. This provision does not constitute an assumption by the District of an obligation of any kind for violation of said permit or notice requirements.

C. Temporary Utilities. The Contractor is responsible for the cost of water meter(s), water and sewer taps, fire lines and taps, and all water bills on the project meters until

Final Acceptance of the Project. Arrangements for construction water are the Contractor's responsibility.

2.4 Pre-Construction Conference.

A. Timing of Conference. After execution of a Job Order by the District and the Contractor, but prior to issuance of a Purchase Order and prior to issuance of a Notice to Proceed and the commencement of any Work pursuant to such Job Order, a pre-construction conference will be scheduled.

B. Purpose of Conference. The purpose of this conference is to establish a working relationship between the Contractor, utility firms, and other interested entities. The agenda will include: critical elements of the Work and Schedule; submittal schedule; access to Site and protocol for admission; hours of construction operation, if different from the standard hours set forth in this Contract; designation of a staging area; specific quality requirements for equipment and material; requirements for catalog cuts, technical data, samples, Shop Drawings and incidental design; the presence of hazardous materials; coordination with the involved utility firms regarding temporary services and shutoffs; safety issues/concerns and procedures; date on which price proposal is due; cost breakdown of major lump sum items; payment application and processing; level of record drawings required; and emergency telephone numbers for all representatives involved in the course of construction.

C. Mandatory Attendance. The Contractor shall ensure attendance by the Contractor's Representative, the job superintendent, and the Contractor's safety officer.

D. Notice to Proceed Established. The Job Order Notice to Proceed date will be established.

2.5 Control of Work.

A. Supervision; Inspection. Unless otherwise provided in the Job Order to be the responsibility of the District or a separate contractor, the Contractor shall provide through itself or Subcontractors the necessary supervision, labor, inspection, testing, start-up, material, equipment, machinery, temporary utilities and other temporary facilities necessary to permit the Contractor to complete the Work according to the requirements in this Contract and the Job Order.

B. Requisite Skill. The Contractor shall perform all construction activities efficiently and with the requisite expertise, skill and competence to satisfy the requirements of the Job Order. The Contractor shall at all times exercise complete and exclusive control over the means, methods, sequences and techniques of construction.

C. On-Site Supervision. The Contractor's superintendent, or suitable designee, shall be present at the Site at all times that construction activities are taking place.

(1) All elements of the Work, such as concrete work, pipe work, etc., shall be under the direct supervision of the Contractor's foreman or designated representative on the Site who shall have the authority to take actions required to properly carry out that particular element of the Work.

(2) In the event of noncompliance of this subsection, the District may require the Contractor to stop or suspend the Work, in whole or in part, until the required supervision is provided.

D. Manufacturer Approval. Where the Job Order requires that a particular product be installed and/or applied by an applicator approved by the manufacturer, it is the Contractor's responsibility to ensure the Subcontractor employed for such work is approved by the manufacturer.

E. Materials Measurements. Before ordering materials or doing work, the Contractor and each Subcontractor shall verify measurements at the Site and shall be responsible for the correctness of such measurements. No extra charge or compensation will be allowed because of differences between actual dimensions and the dimensions indicated on the drawings; differences shall be submitted to the District for resolution before proceeding with the Work.

F. Field Measurements. The Contractor shall take field measurements and verify field conditions and shall carefully compare such field measurements and conditions and other information known to the Contractor with the Job Order before commencing activities. Errors, inconsistencies or omissions discovered shall be reported to the District at once.

G. Construction Grades; Lines; Benchmarks. The Contractor shall establish and maintain all building and construction grades, lines, levels, and benchmarks, and shall be responsible for accuracy and protection of same. This work shall be performed or supervised by a licensed civil engineer or surveyor.

H. Unsuitable Personnel. Any person employed by the Contractor or any Subcontractor who, in the opinion of the District, does not perform work in a proper, skillful and safe manner or is intemperate or disorderly shall, at the written request of the District, be removed from the Project by the Contractor or Subcontractor employing such person, and shall not be employed again in any portion of Project without the written approval of the District. The Contractor or Subcontractor shall defend and hold the District harmless from damages or claims which may occur in the enforcement of this section.

I. Responsibility for Subcontractors. The Contractor assumes responsibility to the District for the proper performance of the work of Subcontractors and any acts and omissions in connection with such performance. Nothing in the Contract Documents is intended or deemed to create any legal or contractual relationship between the District and any Subcontractor, including but not limited to any third-party beneficiary rights.

J. Coordination. The Contractor shall coordinate the activities of all Subcontractors. If the District performs other work on the Project or at the Site with separate contractors under the District's control, the Contractor agrees to reasonably cooperate and coordinate its activities with those of such separate contractors so that the Project can be completed in an orderly and coordinated manner without unreasonable disruption.

2.6 Control of Work Site.

A. Debris; Construction Waste. Throughout all phases of construction, including suspension of the Work, the Contractor shall keep the Site reasonably free from debris, trash and construction wastes to permit the Contractor to perform its construction services efficiently, safely and without interfering with the use of adjacent land areas. Upon Substantial Completion of the Work, or a portion of the Work, the Contractor shall remove all debris, trash, construction wastes, materials, equipment, machinery and tools arising from the Work or applicable portions thereof to permit the District to occupy the Project or a portion of the Project for its intended use.

B. Dust Control. The Contractor shall take whatever steps, procedures or means to prevent any dust nuisance due to construction operations. The dust control measures shall be maintained at all times to the satisfaction of the District and in accordance with the requirements of any governmental entity having jurisdiction over air quality of the Project.

C. Site Storage. Only materials and equipment which are to be used directly in the Work shall be brought to and stored on the Site by the Contractor. When equipment is no longer required for the Work, it shall be removed promptly from the Site. Protection of construction materials and equipment stored at the Site from weather, theft, damage and all other adversity is solely the responsibility of the Contractor.

D. Sanitary Facilities. During construction, the Contractor shall supply the Site with a minimum of one portable chemical toilet, or more as necessary or directed by the District for larger projects.

2.7 Specifications and Drawings.

A. Copy on Site; Order of Priority. The Contractor shall keep on the Work Site a copy of the drawings and/or specifications and shall at all times give the District's Authorized Representative access thereto. Anything mentioned in the specifications and not shown on the drawings, or shown on the drawings and not mentioned in the specifications, shall be of like effect as if shown or mentioned in both. In case of differences between drawings and specifications, the drawings shall govern. In case of discrepancy either in the figures, in the drawings, or in the specifications, the matter shall be promptly submitted to the District's Authorized Representative, who shall promptly submit them to the District Engineer for a determination in writing. Any adjustment by the Contractor without such a determination shall be at its own risk and expense.

B. Term Usage. Wherever in the specifications or upon the drawings the words "directed," "required," "ordered," "designated," "prescribed," or words of like import are used, it shall be understood that the "direction," "requirement," "order," "designation," or "prescription," of the District or the District's Authorized Representative is intended and similarly the words "approved," "acceptable," "satisfactory," or words of like import shall mean "approved by," or "acceptable to," or "satisfactory to" the District or the District's Authorized Representative, unless otherwise expressly stated. Where "as shown," "as indicated," "as detailed," or words of similar import are used, it shall be understood that the reference is made to the drawings accompanying

the Contract unless stated otherwise. The word "provided" as used herein shall be understood to mean "provide complete in place," that is "furnished and installed."

C. Omissions. Omissions from the drawings or specifications or the mis-description of details of work which are manifestly necessary to carry out the intent of the drawings and specifications, or which are customarily performed, shall not relieve the Contractor from performing such omitted or mis-described details of the Work but they shall be performed as if fully and correctly set forth and described in the drawings and specifications.

D. Contractor Obligation to Inspect. The Contractor shall check all District-furnished drawings immediately upon receipt and shall promptly notify the District's Authorized Representative of any discrepancies. Figures marked on drawings shall be followed in preference to scale measurements. Large scale drawings shall govern small scale drawings. The Contractor shall compare all drawings and verify the figures before laying out the Work and will be responsible for any errors which might have been avoided thereby.

E. Ownership of Documents. All drawings (to include as-built drawings), sketches, designs, design data, specifications, note books, technical and scientific data provided to the Contractor or developed by the Contractor pursuant to the Contract and all photographs, negatives, reports, findings, recommendations, data and memoranda of every description relating thereto, as well as all copies of the foregoing relating to the Work or any part thereof, shall be the property of the District and may be used by the District without any claim by the Contractor for additional compensation, unless such material developed by the Contractor does not result in an issued Job Order. In such cases, the Contractor will receive reasonable reimbursement for the development of such materials before the District uses them in any manner whatsoever. In addition, the District agrees to hold the Contractor harmless to the extent permitted by law from any legal liability arising out of the District's use of such materials.

2.8 Shop Drawings, Product Data and Samples.

A. Shop Drawing Approval. The Contractor shall coordinate all Shop Drawings, and review them for accuracy, completeness, and compliance with Contract requirements and shall indicate its approval thereon as evidence of such coordination and review. Shop drawings submitted to the District's Authorized Representative without evidence of the Contractor's approval may be returned for resubmission. The District will indicate its approval or disapproval of the Shop Drawings and if not approved as submitted shall indicate the District's reasons therefore. Any work done before such approval shall be at the Contractor's risk. Approval by the District shall not relieve the Contractor from responsibility for any errors or omissions in such drawings, nor from responsibility for complying with the requirements of the Contract and the applicable Job Order, except with respect to variations described and approved in accordance with Subsection 2.8(B) below.

B. Variations. If Shop Drawings show variations from the Job Order requirements, the Contractor shall describe such variations in writing, separate from the drawings, at the time of submission. If the District approves any such variation, the District shall issue an appropriate Job Order modification, including any necessary adjustments related to the variation. If the variation is minor and does not involve a change in price or in time of performance, a

modification need not be issued.

C. Not Contract Documents. Shop Drawings, product data, samples and similar submittals are not Contract Documents. The purpose of their submittal is to demonstrate for those portions of the Work for which submittals are required the way the Contractor proposes to conform to the information given and the design concept expressed in the Job Order.

D. Timely Review. The Contractor shall review, approve, verify, and submit to the District copies of each Shop Drawing, product data, samples, and similar submittal required by the Job Order in accordance with the approved schedule as to cause no delay in the Work or in the activities of the District or of separate contractors. Submittals made by the Contractor that are not required by the Job Order may be returned without action.

E. No Work Prior to Approval. The Contractor shall perform no portion of the Work requiring submittal and review of Shop Drawings, product data, samples, or similar submittals until the respective submittal has been approved by the District. Such Work shall be in accordance with approved submittals.

F. Contractor Representations. By approving, verifying and submitting Shop Drawings, product data, samples and similar submittals, the Contractor represents that the Contractor has determined and verified materials, field measurements and field construction criteria related thereto, or will do so, and has checked and coordinated the information contained within such submittals with the requirements of the Work and of the Job Order.

G. Contractor Responsible. The Contractor shall not be relieved of responsibility for deviations from requirements of the Job Order by the District's approval of Shop Drawings, product data, samples or similar submittals unless the Contractor has specifically informed the District in writing of such deviation at the time of submittal and the District has given written approval to the specific deviation. The Contractor shall not be relieved of responsibility for errors or omissions in Shop Drawings, product data, samples, or similar submittals by the District's approval thereof.

H. Highlighting Revisions. The Contractor shall direct specific attention, in writing or on resubmitted Shop Drawings, product data, samples, or similar submittals, to revisions other than those requested by the District on previous submittals.

I. Information-Only Submittals. Informational submittals upon which the District is not expected to take responsive action must be so identified in the submittal.

J. Reliance on Professional Certification. When professional certification of performance criteria of materials, systems or equipment is required by the Job Order, the District shall be entitled to rely upon the accuracy and completeness of such calculations and certifications.

2.9 Quality Control, Testing and Inspection.

A. New Materials. All materials used in the Work shall be new and unused, unless otherwise noted, and shall meet all quality requirements of the Job Order.

B. Materials Subject to Inspection. All construction materials to be used on the Work or incorporated into the Work, equipment, plant, tools, appliances or methods to be used in the Work may be subject to the inspection and approval or rejection of the District.

C. Sampling. The procedures and methods used to sample and test material will be determined by the District. Unless otherwise specified, samples and tests shall be made in accordance with the standard methods of AASHTO or ASTM.

D. Independent Testing. The District will select a pre-qualified District or Independent Testing Laboratory and will pay for initial District acceptance testing.

(1) When the first and subsequent tests indicate noncompliance with the Job Order, the cost associated with that noncompliance, including subsequent tests, will be paid for by the Contractor.

(2) When the first and subsequent tests indicate noncompliance with the Job Order, all retesting shall be performed by the same testing agency.

E. Contractor Cooperation. The Contractor will cooperate with the selected testing laboratory and all others responsible for testing and inspecting the Work and shall provide them access to the Work at all times.

F. Material Approval at Source. At the option of the District, materials may be approved at the source of supply before delivery is started.

G. Compliance Testing. Code compliance testing and inspections required by codes or ordinances, or by a plan approval authority, and which are made by a legally constituted authority, shall be the responsibility of and shall be paid by the Contractor, unless otherwise provided in the Job Order.

H. Contractor's Sole Expense. The Contractor's convenience and quality control testing and inspections shall be the sole responsibility of the Contractor and paid by the Contractor.

2.10 Project Record Documents.

A. Required Documentation. At the pre-construction conference described above, the District's Authorized Representative will describe the required documentation for the record documents for each Job Order.

(1) During the construction period, the Contractor shall maintain at the jobsite a set of prints of the Construction Documents for record document purposes. The Contractor will mark these drawings to indicate the actual installation where the installation varies appreciably from the original Construction Documents. The Contractor shall give particular attention to information on concealed elements that would be difficult to identify or measure and record later. Items to be marked may include but are not limited to:

- Dimensional changes to the Construction Documents.

- Revisions to details shown on the Construction Documents.
- Depths of foundations below first floor.
- Locations and depths of underground utilities.
- Revisions to routing of piping and conduits.
- Revisions to electrical circuitry.
- Actual equipment locations.
- Duct size and routing.
- Locations of concealed internal utilities.
- Changes made by change order.
- Details not on the original Construction Documents.

(2) The Contractor shall mark completely and accurately record document prints of Construction Documents. Where Shop Drawings are marked, show cross-references on the related other Construction Documents.

(3) The Contractor shall mark Project record drawing sets with red erasable colored pencil.

(4) The Contractor shall note RFI Numbers, ASI Numbers and change order numbers, etc., as required to identify the source of the change to the Construction Documents.

(5) The Contractor shall, at the time of Substantial Completion, submit record document prints and Shop Drawings to the District or the District's Authorized Representative for review and comment.

B. Corrections. Immediately upon receipt of the reviewed record documents from the District, the Contractor shall correct any deficiencies and/or omissions to the drawings and prepare the following for submission to the District:

(1) A complete set of electronic record documents prepared in AutoCAD format compatible with the District's CADD technology. If original Construction Documents were prepared by a separate design professional, the District shall ensure the design professional provides files of the original Construction Documents to the Contractor for the use of preparing these final record documents or the Contractor may contract with the design professional to revise and update the electronic drawing files. Each drawing shall be clearly identified as an "As-Built Document."

(2) If requested by the District, a complete set of reproducible mylars from the final AutoCAD drawings and five edge-bound blueline or blackline sets reproduced from these mylars.

(3) The original copy of the record documents (redline mark-ups).

2.11 Project Safety.

A. Scope of Safety Responsibilities. The Contractor recognizes the importance of performing the Work in a safe manner so as to prevent damage, injury or loss to (1) all individuals at the Site, whether working or visiting, (2) the Work, including materials and equipment incorporated into the Work or stored on-Site or off-Site, and (3) all other property at the Site or adjacent thereto. During the construction process, the Contractor shall comply with all applicable federal, state and county, and District health and safety laws and regulations including, but not limited to all applicable "OSHA Standards for the Construction Industry" shall be followed, including, but not limited to, 29 CFR Part 1926, Subpart P – Excavations. All construction equipment and materials shall be safely fenced off from public access during the entirety of the project. Knowing and following OSHA Safety Standards is the Contractor's responsibility. The District may stop construction on a project until safety concerns have been corrected.

B. Responsibility for Safety Programs. The Contractor assumes responsibility for implementing and monitoring all safety precautions and programs related to the performance of the Work.

C. Safety Representative. The Contractor shall, prior to commencing construction, designate a safety representative with the necessary qualifications and experience to supervise the implementation and monitoring of all safety precautions and programs related to the Work. Unless otherwise required by the Contract Documents, the Contractor's safety representative shall be an individual stationed at the Site who may have responsibilities on the Project in addition to safety.

D. Inspections; Safety Meetings. The Contractor's safety representative shall make routine daily inspections of the Site and shall hold weekly safety meetings with the Contractor's personnel, Subcontractors and others as applicable.

E. Compliance with Legal Requirements. The Contractor and Subcontractors shall comply with all Legal Requirements relating to safety, as well as any District-specific safety requirements set forth in the Contract Documents; provided that such District-specific requirements do not violate any applicable Legal Requirement.

F. Reporting Obligation. The Contractor will immediately report in writing any safety-related injury, loss, damage or accident arising from the Work to the District's Authorized Representative and, to the extent mandated by Legal Requirements, to all government or quasi-government authorities having jurisdiction over safety-related matters involving the Project or the Work.

G. Subcontractor Safety Requirements. The Contractor's responsibility for safety under this Section 2.11 is not intended in any way to relieve Subcontractors of their own contractual and legal obligations and responsibility for (1) complying with all Legal Requirements, including those related to health and safety matters, and (2) taking all necessary measures to implement and monitor all safety precautions and programs to guard against injury, losses, damages or accidents resulting from their performance of the Work.

2.12 Warranty.

A. Only New Materials and Equipment. The Contractor warrants to the District that the construction, including all materials and equipment furnished as part of the construction, shall be new, unless otherwise specified in the Contract Documents, of good quality, in conformance with the Contract Documents and free of defects in materials and workmanship.

B. Alterations or Damage by Others. The Contractor's warranty obligation excludes defects caused by abuse, alterations, or failure to maintain the Work by persons other than the Contractor or anyone for whose acts the Contractor may be liable.

C. Duration of Construction Warranty. The Contractor's warranty obligation shall be for one year from the Final Acceptance date.

D. No Limitation on Other Warranties. Nothing in this warranty is intended to limit any manufacturer's warranty that provides the District with greater warranty rights than set forth in this Section 2.12 or the Contract Documents. The Contractor will provide the District with all manufacturers' warranties upon Substantial Completion.

2.13 Correction of Defective Work.

A. Contractor Responsible. The Contractor shall be responsible for the completeness and accuracy of its reviews, reports, supporting data, and other work prepared or compiled as required by this Contract and shall correct its work, at the Contractor's sole expense. The fact that the District has accepted, approved or pays for the Contractor's work shall in no way relieve the Contractor of any of its responsibilities.

B. Contractor Corrections. The Contractor agrees to correct any Work that is found to not be in conformance with the Contract Documents, including that part of the Work subject to Section 2.12 above, within a period of one year from the date of Substantial Completion of the Work or any portion of the Work, or within such longer period to the extent required by the Contract Documents. A progress payment, or partial or entire use or occupancy of the Project by the District shall not constitute acceptance of the Work not in accordance with the Contract Documents.

C. Time for Corrections; District Self-Help. During the Job Order Time, the Contractor shall take meaningful steps to commence correction of such nonconforming Work as notified by the District. This includes the correction, removal or replacement of the nonconforming Work and any damage caused to other parts of the Work affected by the nonconforming Work. If the Contractor fails to commence the necessary steps during the Job Order Time, the District, in addition to any other remedies provided under the Contract Documents, may provide the Contractor with written notice that the District will commence correction of such nonconforming Work with its own forces.

D. Time for Correction of Warranty Work; District Self-Help The Contractor shall take meaningful steps to commence correction of nonconforming Work subject to Section 2.12 above, within seven days of receipt of written notice from the District. This includes the correction, removal or replacement of the nonconforming Work and any damage caused to other

parts of the Work affected by the nonconforming Work. If the Contractor fails to commence the necessary steps within such seven-day period, the District, in addition to any other remedies provided under the Contract Documents, may provide the Contractor with written notice that the District will commence correction of such nonconforming Work with its own forces.

E. Costs of District Self-Help to be Paid by Contractor. If the District performs corrective Work as described above, the Contractor shall be responsible for all reasonable costs incurred by the District in performing such correction.

F. Emergency Work. For Nonconforming Work that creates an emergency requiring an immediate response, the Contractor will respond and initiate corrections within 24 hours.

G. Warranty Not Limitations Period. The one-year period referenced in Subsection 2.12(B) above applies only to the Contractor's obligation to correct nonconforming Work and is not intended to constitute a period of limitations for any other rights or remedies the District may have regarding the Contractor's other obligations under the Contract Documents.

2.14 Fair Treatment to Workers. The Contractor shall keep fully informed of all Federal and State laws, County and District ordinances, regulations, codes and all orders and decrees of bodies or tribunals having any jurisdiction or authority that in any way affect the conduct of the Work. The Contractor shall at all times observe and comply with all such laws, ordinances, regulations, codes, orders and decrees; this includes, but is not limited to laws and regulations ensuring fair and equal treatment for all employees and against unfair employment practices, including OSHA and the Fair Labor Standards Act (FLSA). The Contractor shall defend and indemnify the District and its representatives against any claim or liability arising from or based on the violation of such, whether by the Contractor or its employees.

ARTICLE 3 - CONTRACT TIME AND JOB ORDER TIME

3.1 Contract Time. The Contract Time shall be five years from the Effective Date. A Contract Amendment will be processed for any extension. This Contract will remain in full force and effect during the performance of any Job Order.

3.2 Job Order Time.

A. Documentation. Each Job Order will include the Work "Schedule" (as defined below) with the Job Order Time and a calculated Substantial Completion date.

B. Schedule. The Contractor will submit for approval with the Job Order a "Schedule" showing the sequence in which the Contractor proposes to perform the Work, and the dates on which the Contractor contemplates starting and completing the significant elements of the Work (including acquiring materials, plant and equipment). The Schedule may be a formal computerized schedule or a progress chart in a bar chart format of suitable scale to indicate appropriately the percentage of the Work scheduled for completion by any given date during the period. In either case the basic information should be the same and the Schedule chart must contain as a minimum:

(1) A list of the different types of work activities or work elements.

(2) The logical dependencies (ties) to indicate what Work shall be accomplished before other Work can begin.

(3) Proposed start and complete dates or time frames for each work activity or work element.

(4) The "weighting" or relative worth each work activity or work element is of the total project either as a percent or dollar amount. If the Contractor fails to submit a Schedule with the Job Order, the District may withhold issuance of a Notice to Proceed until the Contractor submits the required Schedule.

C. Adherence to Schedule. The Contractor shall prosecute the Work so that the portion of the Work completed at any point in time shall be not less than as required by the Schedule. The Contractor shall submit a progress report every 30 days, or as directed by the District's Authorized Representative, and upon doing so shall immediately deliver a current Schedule to the District's Authorized Representative. If the Contractor falls behind the approved Schedule, the Contractor shall take steps necessary to improve its progress, including those that may be reasonably required by the District's Authorized Representative. If the delay is an Inexcusable Delay (as defined below), the Contractor shall prepare a recovery schedule for the District's review and approval, showing how the Contractor will compensate for the delays and achieve Substantial Completion by the date shown on the Schedule. If the Contractor is unable to demonstrate how it will overcome Inexcusable Delays, the District may order the Contractor to employ such extraordinary measures as are necessary to bring the Work into conformity with the date of Substantial Completion set forth therein, the costs of which shall be included as part of the Cost of the Work. If the delay is an Excusable Delay (as defined below), the District shall either (1) authorize an equitable extension in the Schedule to account for such delay, and equitably adjust the Job Order Price on account of such delay, or (2) request that the Contractor prepare a recovery schedule showing how (if possible) the Contractor can achieve Substantial Completion by the date shown on the Schedule, and equitably adjust the applicable Job Order Price in accordance with the change order provisions of this Contract related to any extraordinary activities required of the Contractor on account of such recovery schedule.

D. Emergency Work. The Contractor will give top priority to any emergency work the District may have and will allocate all resources necessary to accomplish such work in accordance with the District's Schedule requirements. To the extent the Contractor incurs additional cost, expense or schedule delay in performing the District's emergency work, the District will equitably adjust the Contract.

E. District Requirements. Failure of the Contractor to comply with the requirements of the District or the District's Authorized Representative under this article shall be grounds for a determination by the District that the Contractor is not prosecuting the Work with sufficient diligence to ensure completion within the time specified in the Job Order. Upon making this determination, the District may terminate the Contractor's right to proceed with the Work, or any separable part of it, in accordance with this Contract.

F. Progress Completion. The District and the Contractor agree the time limits stated in the Job Order, as the same may be amended and updated by the parties, are of the essence of this Contract.

G. Commencement of the Work. The Work shall commence on the Notice to Proceed date of the applicable Job Order, and shall proceed in general accordance with the Schedule for the Work set forth therein. Each Job Order shall establish a separate Notice to Proceed date, Substantial Completion date, and Job Order Time.

H. Critical Path Activities. To the extent the Contractor completes activities on the Critical Path earlier than scheduled, the savings in time on account thereof shall belong solely to the Contractor.

3.3 Extensions of Job Order Time.

A. Limitation on Extensions. An extension in the scheduled Substantial Completion date for a Job Order will only be granted in the event of Excusable Delays affecting Work activities on the Critical Path. The Contractor shall be entitled to general condition costs and extra costs related to the Excusable Delay for idle labor, equipment inefficiency, and lost productivity of the performance of the Work; however, the Contractor must submit evidence reasonably satisfactory to the District substantiating such costs. Such adjustment to the Job Order Price and Substantial Completion date shall be issued in an amendment to the applicable Job Order.

B. Excusable Delay. To the extent any of the following events results in an actual delay in the Work affecting activities on the Critical Path, such shall constitute an "Excusable Delay" (to the extent not set forth below, a delay will be considered an "Inexcusable Delay"):

(1) Delays resulting from Force Majeure events: The term "Force Majeure" means an occurrence that is beyond the control of the party affected and occurs without its fault or negligence. Without limiting the foregoing, Force Majeure includes acts of God, acts of the public enemy, war, riots, strikes, mobilization, labor disputes, civil disorders, fire, floods, lockouts, injunctions, intervention, acts or failures or refusals to act by government authority, and other similar occurrences beyond the control of the party declaring Force Majeure which such party is unable to prevent by exercising reasonable diligence. The Force Majeure shall be deemed to commence when the party declaring Force Majeure notifies the other party, in accordance with Subsection 4.3(C), of the existence of the Force Majeure and shall be deemed to continue as long as the results or effects of the Force Majeure prevent the party from resuming performance in accordance with this Contract and the applicable Job Order. Force Majeure shall not include (1) late delivery of equipment or materials caused by congestion at a manufacturer's plant or elsewhere, an oversold condition of the market, inefficiencies, or similar occurrences, or (2) late performance by a Subcontractor unless the delay arises out of a Force Majeure occurrence in accordance with this Subsection 4.3(B)(1). Any delay or failure in performance by either party hereto shall not constitute default hereunder or give rise to any claim for damages or loss of anticipated profits if, and to the extent that such delay or failure is caused by Force Majeure. The delayed party shall cause such delay to cease as soon as practicable and shall notify the other party in writing. The time of Substantial Completion or Final Completion shall be extended by written

amendment for a period of time equal to the time that the results or effects of such delay prevent the delayed party from performing in accordance with this Contract and the applicable Job Order.

(2) Differing, unusual, or concealed Site conditions that could not reasonably have been anticipated by the Contractor in preparing the Schedule, including, without limitation, archaeological finds and unusual soil conditions (including rock or other geological conditions), underground foundations, abandoned or not properly identified utility lines, and water conditions.

(3) Delays resulting from the existence or discovery of hazardous materials on the Site not brought to the Site by or on behalf of the Contractor.

(4) Delays resulting from changes in Legal Requirements occurring after the date of execution of this Contract.

(5) Delays occurring due to the acts or omissions of the District and those within the control of the District.

(6) Delays occurring due to the acts or omissions of a utility, so long as the Contractor has coordinated with the utility causing the delay, and the delay occurs despite reasonable steps taken by the Contractor to avoid the delay.

(7) Delays resulting from weather conditions that make it unreasonable to perform the Work in accordance with the Schedule.

C. Requirements for Extension. To obtain an extension of time due to an Excusable Delay, the Contractor must comply with the following requirements: the Contractor shall notify the District of the Excusable Delay as soon as practicable, but in no event more than seven Days after the Contractor becomes aware of the occurrence of the Excusable Delay. Such notice shall describe the Excusable Delay and shall state the approximate number of Days the Contractor expects to be delayed. After the cessation of the Excusable Delay, the Contractor shall notify the District of the number of Days the Contractor believes that its activities were in fact delayed by the Excusable Delay. In the event that the delay arises as a result of a change order request by the District, the request for an extension of time contained in the resulting change order proposal or amendment to this Contract, as applicable, shall be deemed sufficient for purposes of this Subsection.

D. Determination of Delay. Within 10 Days after cessation of an event giving rise to either an Excusable Delay or Inexcusable Delay, the parties will use good faith efforts to agree on the extent to which the Work has been delayed and whether the delay is an Excusable Delay or an Inexcusable Delay. In the absence of agreement between the parties as to the then-current status of Excusable Delays and Inexcusable Delays, the Contractor shall request the District prepare a determination of the number and character of the delay days. The District will provide the Contractor with written notice of the District's determination of the number of Days of Excusable Delay and/or Inexcusable Delay within 10 Days after receipt by the District of the Contractor's written request for such determination. The Contractor shall not, however, deem an issuance by the District of such a determination to be a concurrence with any matters set forth in

the Contractor's request. The Contractor may invoke the dispute resolution procedures set forth below with respect to such determination.

3.4 Concurrent Delays. To the extent the Contractor may be entitled to an extension of time due to an Excusable Delay, but the performance of the Work would have been suspended, delayed, or interrupted by the fault or neglect of the Contractor or by an Inexcusable Delay, the Contractor shall not be entitled to any additional costs for the period of such concurrency.

3.5 Weather Delays. The Contractor shall include and clearly identify an appropriate number of Days of weather-related delays within the Schedule for the Work for the applicable Job Order. If the Contractor experiences additional weather-related delays beyond the number of Days set forth in the Schedule for the applicable Job Order, the Contractor shall be entitled to commensurate extension of time and reimbursement of costs associated with such delay; provided such requests for extensions of time are submitted and approved according to the process set forth in Subsection 4.3(C) above. If the Contractor fails to include an appropriate number of Days of weather-related delays within the applicable Job Order for any portion of the Project, the Contractor shall not be eligible for any extension of time or reimbursement of costs related to otherwise Excusable Delays relating to weather for the applicable Job Order.

3.6 Substantial Completion.

A. Notification. The Contractor shall notify the District when it believes the Work, or to the extent permitted in the Contract Documents, a portion of the Work, is substantially complete. When the District determines the Work to be substantially complete, the District will issue a certificate of Substantial Completion with a list of items to be completed or corrected prior to final payment for the Job Order. The Contractor shall proceed promptly to complete and correct items on the list.

B. Punch List. Prior to notifying the District as set forth above, the Contractor shall inspect the Work and prepare and submit to the District a comprehensive list of items to be completed or corrected (a "Punch List"). The Contractor shall proceed promptly to complete and correct items on the Punch List. Failure to include an item on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents. The District may supplement the Punch List following its inspection of the Work.

C. Inspection. Within five days of the District's receipt of the Contractor's notice, the District and the Contractor will jointly inspect such Work to verify that it is substantially complete in accordance with the requirements of the Contract Documents.

D. Certificate of Substantial Completion. If such Work is substantially complete, the District shall prepare and issue a certificate of Substantial Completion that will set forth (1) the date of Substantial Completion of the Work or portion thereof, (2) the remaining items of the Work that have to be completed within 30 calendar days before Final Acceptance, (3) provisions (to the extent not already provided in the Contract Documents) establishing the District's and the Contractor's responsibility for the Project's security, maintenance, utilities and insurance pending Final Acceptance and (4) an acknowledgment that warranties commence to run

on the date of Substantial Completion, except as may otherwise be noted in the certificate of Substantial Completion.

E. Partial Use or Occupancy. The District, at its option, may use a portion of the Work which has been determined to be substantially complete; provided, however, that (1) a certificate of Substantial Completion has been issued for the portion of the Work addressing the items set forth in Subsection 3.6(B) above, (2) the Contractor and the District have obtained the consent of their sureties and insurers, and to the extent applicable, the appropriate government authorities having jurisdiction over the Project, and (3) the District and the Contractor agree that the District's use or occupancy will not interfere with the Contractor's completion of the remaining Work.

3.7 Final Acceptance. Upon receipt of written notice that the Work or identified portions of the Work is ready for final inspection and acceptance, the District and the Contractor will jointly inspect to verify that the remaining items of the Work have been completed as set forth in Subsection 4.6(B). The District will issue a Final Acceptance letter for the Job Order.

3.8 Liquidated Damages.

A. Generally. The Contractor and the District acknowledge that in the event that the Contractor fails to achieve Substantial Completion or Final Acceptance of the Project by the dates established therefore in the applicable Job Order, as adjusted, the District will incur substantial damages and the extent of such damages shall be incapable of accurate measurement. Nonetheless, the parties acknowledge that on the date of this Contract, the amount of liquidated damages set forth below represents a good faith estimate as to the actual potential damages that the District would incur as a result of late Substantial Completion or Final Acceptance of the Project. Such liquidated damages shall be the sole and exclusive remedy of the District for late completion of the Project, and the District hereby waives all other remedies available at law or in equity with respect to losses resulting from late completion. The amount of the liquidated damages calculated hereunder does not include any penalty.

B. When Imposed. If the Contractor fails to achieve Substantial Completion of that portion of the Work applicable to a particular Job Order on or before the Substantial Completion date set forth in the applicable Job Order, as adjusted, for any reason other than Excusable Delays, the Contractor shall pay to the District liquidated damages in the amount per Day set forth below for each Day Substantial Completion is delayed beyond the Substantial Completion date set forth in the applicable Job Order.

(1) If the Contractor fails to achieve Final Acceptance of that portion of the Work applicable to a particular Job Order on or before the Final Acceptance date, as adjusted, for any reason other than Excusable Delays, the Contractor shall pay to the District liquidated damages in the amount per Day as set forth below for each Day Final Acceptance is delayed beyond the Final Acceptance date established according to the applicable Job Order.

(2) In no case may the amount of liquidated damages due under this Subsection 3.8(B) for any single Day of delay exceed the highest amount, as determined according

to the schedule below, that would be charged for any single Inexcusable Delay existing on such Day.

(3) Payment of liquidated damages is to be made contemporaneously with any required payment to the Contractor, and such payments may be offset against each other.

C. Amount. The following will be the liquidated damages for each Job Order unless a specific amount has been determined in the Job Order.

Schedule of Liquidated Damages			
Job Order Price		Liquidated Damages Per Day	
From More Than:	To and Including:	Calendar Day or Fixed Date:	Working Day:
$0	$100,000	$350	$500
100,000	500,000	490	700
500,000	1,000,000	840	1,200
1,000,000	2,000,000	910	1,300

D. District Right to Waive. The District may waive all or any portion of the liquidated damage assessment after the date the Work is substantially completed and is: (1) in condition for safe and convenient use by the travelling public; or (2) available for next-stage construction without restriction.

E. No Accrual During Authorized Suspension. No liquidated damages will accrue during periods of time when the District has authorized, in writing, suspension of the Work.

F. No Waiver. Permitting the Contractor to continue and finish the Work or any part of it after the time fixed for its completion shall not in any way operate as a waiver on the part of the District of any of its rights under this Contract. Neither by the act of taking over the Work nor by annulment of this Contract or any Job Order related hereto shall the District forfeit the right to recover liquidated damages from the Contractor or its Sureties.

ARTICLE 4 - COMPENSATION

4.1 Generally. A separate Purchase Order will be issued for each Job Order before the commencement of any work by the Contractor. The compensation to be paid to the Contractor for services performed pursuant to this Contract shall be based upon Purchase Orders prepared for each Job Order, each of which will establish the Job Order Price for the applicable Project.

4.2 Job Order Price.

A. Maximum Per Job Order. The District intends that each Job Order performed under this Contract will not exceed [$2,000,000.]

(1) Each Job Order Price is subject to adjustments made in accordance with this Article 4.

(2) Unless otherwise provided in the Contract Documents, each Job Order price is deemed to include all sales, use, consumer and other taxes that are legally enacted when negotiations concluded, whether or not yet effective or merely scheduled to go into effect.

(3) The Contractor guarantees to bring each Job Order within the Job Order Price or the Contractor alone will be required to pay the difference between the actual cost and the Job Order Price.

B. Price Based on Scope. The scope of Work will vary with each Job Order. At the beginning of each Job Order, a scope conference will be scheduled to define design and construction services required of the Contractor. The Job Order and related documents will be given to the Contractor. The Contractor will be asked to provide a proposal with Job Order Price and schedule indicating the Job Order Time for the proposed Job Order based on the scope meeting and the provided documents. The price proposal for a specific scope of Work shall include a complete list of quantities and prices of parts and materials to be utilized, total labor cost to be broken down by trade, hours for each trade, hourly cost per trade, total dollar cost and completion date. The project price proposal shall be all-inclusive with any cost overruns to be absorbed by the Contractor unless change orders are pre-approved by the District. The District will review the submitted proposal. The District and the Contractor shall negotiate in good faith and as expeditiously as possible an agreed upon Job Order Price and the Job Order Time. Upon reaching concurrence, the parties shall execute the Job Order reflecting the terms agreed upon.

C. Contractor Warranty Regarding Price Proposal. By executing a price proposal, the Contractor represents that it has visited the project site(s) and familiarized itself with the local conditions under which the Work is to be performed. The District does not undertake to represent or warrant the Site or local conditions.

D. Multiple Proposals. The District has the right to request Job Order proposals from more than one firm for competitive purposes. Pricing will be determined by Open Book Pricing consisting of firm subcontractor price quotes that are shared with and approved by the District.

4.3 Mark up for Changes. If the Job Order Price requires an adjustment due to changes in the Work, the cost of such changes is determined subject to Section 6. The markups that shall be allowed on such changes shall be no greater than the markups delineated in the Job Order proposal.

4.4 Differing Site Conditions.

A. Price and Time Adjustments. If the Contractor encounters a Differing Site Condition, the Contractor will be entitled to an adjustment in the Job Order Price and/or Job Order Times to the extent the Contractor's cost and/or time of performance are adversely impacted by the Differing Site Condition.

B. Notice to District. Upon encountering a Differing Site Condition, the Contractor shall provide prompt written notice to the District of such condition, which notice shall not be later than seven days after such condition has been encountered. The Contractor shall, to the extent reasonably possible, provide such notice before the Differing Site Condition has been substantially disturbed or altered.

4.5 Errors, Discrepancies and Omissions.

A. Contractor Request for Clarification. If the Contractor observes errors, discrepancies or omissions in the Contract Documents, he shall promptly notify the District and request clarification.

B. Contractor Bears Risk. If the Contractor proceeds with the Work affected by such errors, discrepancies or omissions, without receiving such clarifications, he does so at his own risk. Adjustments involving such circumstances made by the Contractor prior to clarification by the District shall be at the Contractor's risk.

4.6 District Requested Change in a Job Order.

A. The District reserves the right to make, at any time during the progress of a Job Order, such alterations as may be found necessary or desirable.

B. Such alterations and changes shall not invalidate this Contract or the Job Order nor release the surety and the Contractor agrees to perform the Job Order as altered, the same as if it has been a part of the original Contract Documents.

C. The District will request a proposal for a change in a Job Order from the Contractor, and an adjustment in the Job Order Price and/or Job Order Times shall be made based on a mutually agreed upon cost and time.

4.7 Legal Requirements. The Job Order Price and/or Job Order Times shall be adjusted to compensate the Contractor for the effects of any changes in the Legal Requirements enacted after the date of the Job Order affecting the performance of the Work, or the date of the Job Order Price. Such effects may include, without limitation, revisions required to be made to the Construction Documents because of changes in Legal Requirements.

4.8 Job Order Amendments.

A. Negotiation of Amendments. The District and the Contractor shall negotiate in good faith and as expeditiously as possible the appropriate adjustments to a Job Order. Upon reaching an agreement, the parties shall prepare and execute an appropriate Job Order Amendments reflecting the terms of the changes.

B. Contract Documents Govern. All changes to a Job Order authorized by change orders shall be performed under the conditions of the Contract Documents.

4.9 Minor Changes in a Job Order.

A. By District. The District has authority to order minor changes to a Job Order that do not materially and adversely affect the Work, including the design, quality, performance and workmanship required by the Contract Documents. Such changes shall be implemented by written order and shall be binding on the District and the Contractor. The Contractor shall carry out such written orders promptly.

B. By Contractor. The Contractor may make minor changes to a Job Order; provided, however, that the Contractor shall promptly inform the District, in writing, of any such changes and record such changes, if appropriate, on the Project Record Documents maintained by the Contractor.

C. No Price or Time Adjustments. Minor changes to a Job Order will not involve an adjustment in the Job Order Price and/or Job Order Time.

4.10 Job Order Price Adjustments.

A. Acceptable Methods. The increase or decrease in Job Order Price resulting from a change in the Work shall be determined by one or more of the following methods:

(1) Unit prices set forth in the Job Order or as subsequently agreed to between the parties.

(2) A mutually accepted lump sum, properly itemized and supported by sufficient substantiating data to permit evaluation by the District.

(3) Costs, fees and any other markups set forth in Section 5.2.

B. Inability to Agree on Method. If an increase or decrease cannot be agreed to as set forth in items (1) through (3) above and the District issues a change order, the cost of the change of the Work shall be determined by the reasonable expense and savings in the performance of the Work resulting from the change, including a reasonable overhead and profit, as may be set forth in the Job Order. The Contractor shall maintain a documented, itemized accounting evidencing the expenses and savings associated with such changes.

C. Equitable Adjustment of Unit Prices. If unit prices are set forth in the Contract Documents or are subsequently agreed to by the parties, but application of such unit prices will cause substantial inequity to the District or the Contractor because of differences in the character or quantity of such unit items as originally contemplated, such unit prices shall be equitably adjusted.

D. Dispute Resolution. If the District and the Contractor disagree upon whether the Contractor is entitled to be paid for any services required by the District, or if there are any other disagreements over the scope of a Job Order or proposed changes to a Job Order, the District and the Contractor shall resolve the disagreement pursuant to Article 6 hereof.

(1) As part of the negotiation process, the Contractor shall furnish the District with a good faith estimate of the costs to perform the disputed services in accordance with the District's interpretations.

(2) If the parties are unable to agree and the District expects the Contractor to perform the services in accordance with the District's interpretations, the Contractor shall proceed to perform the disputed services, conditioned upon the District issuing a written order to the Contractor (i) directing the Contractor to proceed and (ii) specifying the District's interpretation of the services that are to be performed.

4.11 Emergencies. In any emergency affecting the safety of persons and/or property, the Contractor shall act, at its discretion, to prevent threatened damage, injury or loss. Any change in the Job Order Price and/or Job Order Time resulting from emergency work under this Section 4.11 shall be determined as provided in Article 4.

ARTICLE 5 - PROCEDURE FOR PAYMENT

5.1 Job Order Payment Request.

A. Schedule of Values. At the pre-construction conference prescribed above, the Contractor shall submit for the District's review and approval a schedule of values. The schedule of values will include values for all items comprising the Job Order Price and will serve as the basis for monthly progress payments made to the Contractor throughout the Work.

B. Progress of the Work. The Contractor shall invoices as Job Order Pay Requests for progress payments at the end of each calendar month. Invoices shall be submitted to the District's Business Manager who will be issuing the Purchase Order and submitting invoices for payment. Such invoice shall include a detailed breakdown of all charges and shall be based on completion of tasks. At least five working days prior to the date established for a progress payment, the Contractor shall meet with the District's Authorized Representative to review the progress of the Work as it will be reflected on the Job Order Payment Request.

C. Contractor Representation. The Job Order Payment Request shall constitute the Contractor's representation that the Work has been performed consistent with the Contract Documents, has progressed to the point indicated in the Job Order Payment Request, and that title to all Work will pass to the District free and clear of all claims, liens, encumbrances, and security interests upon the incorporation of the Work.

5.2 Partial Payments.

A. When Allowed. Partial payment will be made for Job Orders with Job Order Time greater than 90 Days and may be made if Job Order Time is less than 90 Days.

B. Submittal Date. The Contractor shall submit a Job Order Payment Request to the District on the monthly anniversary of the Job Order Notice to Proceed beginning with the first month after the Job Order Notice to Proceed.

C. Incorporation of Equipment and Materials. The Job Order Payment Request may include payment for equipment and materials not yet incorporated into the Work if construction progress is in reasonable conformance with the approved Schedule.

(1) For equipment and material suitably stored at the Site, the equipment and materials shall be protected by suitable insurance and the District shall receive the equipment and materials free and clear of all liens and encumbrances.

(2) No material or equipment may be stored off the Site without the District's prior, written approval. The material and equipment must be stored within Coconino County and be accessible for the District's inspection, and title to such materials and equipment must protect the District's interest and shall include applicable insurance, bonding, storage and transportation to the Site.

(3) All bonds and insurance required for stored materials shall name the District as the loss payee to the extent of its interest in the stored materials.

5.3 Payment of Job Order.

A. Timing of Payment. The District shall make payment in accordance with A.R.S. § 34-609, as amended. Payment will be made no later than 14 calendar days after the Job Order Payment Request is certified and approved, but in each case less the total of payments previously made, and less amounts properly withheld under Section 5.5 below. The Contractor shall be paid 95% of the earned sum when payment is due, with not more than 5% being retained to ensure faithful performance of the Agreement. All amounts withheld may be included in the final payment.

B. Withholding Amounts. The District shall pay the Contractor all amounts properly due. If the District determines that the Contractor is not entitled to all or part of a Job Order Payment Request, it will notify the Contractor in writing within seven days after the date the Job Order Payment Request is received by the District. The notice shall indicate the specific amounts the District intends to withhold, the reasons and contractual basis for the withholding, and the specific measures the Contractor must take to rectify the District's concerns. The Contractor and the District will attempt to resolve the District's concerns. If the parties cannot resolve such concerns, the Contractor may pursue its rights under the Contract Documents.

5.4 Final Payment.

A. Conditions. After receipt of a final Job Order Payment Request, the District shall make final payment as prescribed in this Section 5.4, provided that the Contractor has completed all of the Work in conformance with the Contract Documents and a Final Acceptance Letter has been issued by the District.

B. Submittal Requirements. At the time of submission of its final Job Order Payment Request, the Contractor shall provide the following information:

(1) An affidavit that there are no claims, obligations or liens outstanding or unsatisfied for labor, services, material, equipment, taxes or other items performed, furnished or incurred for or in connection with the Work which will in any way affect the District's interests.

(2) A general release executed by the Contractor waiving, upon receipt of final payment by the Contractor, all claims, except those claims previously made in writing to the District and remaining unsettled at the time of final payment.

5.5 Payments to Subcontractors or Supplier.

A. Timing of Payments. The Contractor shall pay its Subcontractors or suppliers within seven calendar days of receipt of each progress payment from the District. The Contractor shall pay for the amount of the Work performed or materials supplied by each Subcontractor or supplier as accepted and approved by the District with each progress payment. No contract between the Contractor and its Subcontractors and suppliers may materially alter the rights of any Subcontractor or supplier to receive prompt payment as provided herein.

B. District Actions. If the Contractor fails to make payments in accordance with these provisions, the Contractor agrees the District may take any one or more of the following actions:

(1) Hold the Contractor in default under this Contract.

(2) Withhold future payments until proper payment has been made to Subcontractors or suppliers in accordance with these provisions.

(3) Reject all future offers to perform work for the District from the Contractor for a period not to exceed one year from Substantial Completion date of the Work contemplated by this Contract.

C. Disputes with Subcontractor. If the Contractor's payment to a Subcontractor or supplier is in dispute, the Contractor and Subcontractor or supplier agree to submit the dispute to any of one of the following dispute resolution processes within 14 calendar days from the date any party gives notice to the other: (1) binding arbitration; (2) a form of alternative dispute resolution (ADR) agreeable to all parties; or (3) a District-facilitated mediation. When a disputed claim is resolved through ADR or otherwise, the Contractor and Subcontractor or suppliers agree to implement the resolution within seven calendar days from the resolution date.

D. No Waiver. Should the District fail or delay in exercising or enforcing any right, power, privilege, or remedy under this Section, such failure or delay shall not be deemed a waiver, release, or modification of the requirements of this Section or of any of the terms or provisions thereof.

E. Required Contract Provisions. The Contractor shall include these prompt payment provisions in every subcontract, including procurement of materials and leases of equipment for this Contract.

5.6 Record Keeping and Finance Controls.

A. Time Period Covered. Records of the Contractor's direct personnel payroll, reimbursable expenses pertaining to each Job Order and records of accounts between the District and the Contractor shall be kept on a generally recognized accounting basis and shall be available for three years after completion of the Project.

B. Audit Rights. The District, the District's Authorized Representative, and/or the appropriate federal agency, reserve the right to audit the Contractor's records to verify the accuracy and appropriateness of all pricing data, including data used to negotiate Contract Documents and any Job Order.

C. Right to Reduce Job Order Price. In addition to any other remedies available at law or equity, the District reserves the right to decrease Job Order Price and/or payments made on this Contract if, upon audit of the Contractor's records, the audit discloses the Contractor has provided false, misleading, or inaccurate cost and pricing data.

D. Inclusion in Other Agreements. The Contractor shall include a similar provision in all of its agreements with Subconsultants and Subcontractors providing services under the Contract Documents to ensure the District, the District's Authorized Representative, and/or the appropriate federal agency, has access to the Subconsultants' and Subcontractors' records to verify the accuracy of cost and pricing data.

E. Reduction for Failure to Include. In addition to any other remedies available at law or equity, the District reserves the right to decrease Job Order Price and/or payments made on this Contract if the above provision is not included in Subconsultant's and Subcontractor's contracts, and one or more Subconsultants and/or Subcontractors do not allow the District to audit their records to verify the accuracy and appropriateness of pricing data.

ARTICLE 6 - CLAIMS AND DISPUTES

6.1 Requests for Contract Adjustments and Relief. If either the Contractor or the District believes that it is entitled to relief against the other for any event arising out of or related to Contract Services other than requests for extensions of Job Order Time as described above, such party shall provide written notice to the other party of the basis for its claim for relief. Such notice shall, if possible, be made prior to incurring any cost or expense and in accordance with any specific notice requirements contained in applicable sections of the Contract. In the absence of any specific notice requirement set forth in a Job Order, written notice shall be given within a reasonable time, not to exceed 21 days, after the occurrence giving rise to the claim for relief or after the claiming party reasonably should have recognized the event or condition giving rise to the request, whichever is later. Such notice shall include sufficient information to advise the other party of the circumstances giving rise to the claim for relief, the specific contractual adjustment or relief requested and the basis of such request.

6.2 Dispute Avoidance and Resolution. The parties are fully committed to working with each other and agree to communicate regularly with each other at all times so as to avoid or minimize disputes or disagreements. If disputes or disagreements do arise, the Contractor and the District each commit to resolving such disputes or disagreements in an amicable, professional and

expeditious manner so as to avoid unnecessary losses, delays and disruptions to the Work. The Contractor and the District will first attempt to resolve disputes or disagreements at the field level through discussions between the Contractor's Representative and the District's Authorized Representative. If a dispute or disagreement cannot be resolved through the Contractor's Representative and the District's Authorized Representative, the Contractor's Senior Representative and the District's Senior Representative (each as defined below), upon the request of either party, shall meet as soon as conveniently possible, but in no case later than 30 days after such a request is made, to attempt to resolve such dispute or disagreement. Prior to any meetings between the Senior Representatives, the parties will exchange relevant information that will assist the parties in resolving their dispute or disagreement.

6.3 Duty to Continue Performance. Unless provided to the contrary in the Contract Documents, the Contractor shall continue to perform the Work and the District shall continue to satisfy its payment obligations to the Contractor, pending the final resolution of any dispute or disagreement between the Contractor and the District.

6.4 Representatives of the Parties.

A. District's Representatives.

(1) The District designates the individual listed below as the "District's Senior Representative," which individual has the authority and responsibility for avoiding and resolving disputes as set forth above:

Lucinda Andreani
Flood Control District Administrator
5600 E. Commerce Ave. Flagstaff, AZ 86004
(928) 679-7166

(2) The District will designate an individual for each Job Order as the District's Authorized Representative. This person will manage the Job Order.

B. Contractor's Representatives.

(1) The Contractor designates the individual listed below as the "Contractor's Senior Representative," which individual has the authority and responsibility for avoiding and resolving disputes as set forth above:

Name:	Mike Abraham
Title:	President
Address:	4720 E. Cotton Gin Loop, Suite 240 Phoenix, AZ 85040
Telephone #:	(602) 390-1243

(2) The Contractor will designate an individual for each Job Order as the Contractor's Representative.

ARTICLE 7 - SUSPENSION AND TERMINATION

7.1 District's Rights to Suspend Contract Services. The District may, at its discretion and without cause, order the Contractor in writing to stop and suspend the Work on a Job Order. Such suspension shall not exceed 180 consecutive Days. The Contractor may seek an adjustment of the Job Order Price and/or Job Order Time if its cost or time to perform the Contract Services has been adversely impacted by any suspension or stoppage of the Work by the District. If the District suspends the Work on any Job Order for 181 consecutive Days or more, such suspension shall be deemed a termination for convenience.

7.2 Termination for Convenience. Upon receipt of written notice to the Contractor, the District may, at its discretion and without cause, elect to terminate this Contract or any Job Order.

A. Contractor Duties. Upon receipt of written notice of termination of this Contract or any Job Order, the Contractor shall proceed with the following obligations:

(1) Stop the Work as specified in the notice.

(2) Place no further subcontracts or orders.

(3) Terminate all subcontracts to the extent they relate to the Work terminated.

(4) Assign to the District all rights, title and interest of the Contractor under the subcontracts terminated, in which case the District shall have the right, but not the obligation, to settle or to pay any termination settlement proposal arising out of those terminations.

(5) Take any action that may be necessary for the protection and preservation of the property related to the Job Order that is in the possession of the Contractor and which the District has or may acquire an interest.

B. Termination Inventory. The Contractor shall submit complete termination inventory schedules no later than 120 Days from the date of the notice of termination.

C. District Payments. The District shall pay the Contractor the following:

(1) The direct value of its completed Work and materials supplied as of the date of termination.

(2) The reasonable costs and expenses attributable to such termination.

(3) The Contractor's profit and overhead on completed Work only; the Contractor shall not be entitled to anticipated profit or anticipated overhead for uncompleted Work. If it appears the Contractor would have sustained a loss on the entire Contract Services had they been completed, the Contractor shall not be allowed profit and the District shall reduce the settlement to reflect the indicated rate of loss.

D. Contractor Records Retention Period. The Contractor shall maintain all records and documents for three years after final settlement. These records shall be maintained and subject to auditing as prescribed above.

7.3 District's Right to Perform and Terminate for Cause.

A. For Contractor's Failure to Maintain Site. If the District provides the Contractor with a written order to provide adequate maintenance of traffic, adequate cleanup, adequate dust control or to correct deficiencies or damage resulting from abnormal weather conditions, and the Contractor fails to comply in a time frame specified, the District may have work accomplished by other sources at the Contractor's expense.

B. For Contractor's Persistent Failures. If the Contractor persistently fails to (1) provide a sufficient number of skilled workers, (2) supply the materials required by the Contract Documents, (3) comply with applicable Legal Requirements, (4) timely pay, without cause, Subconsultants and/or Subcontractors, (5) execute the Contract Services with promptness and diligence to ensure that a Job Order is completed by the Job Order Time, as such times may be adjusted, or (6) perform material obligations under the Contract Documents, then the District, in addition to any other rights and remedies provided in the Contract Documents or by law, shall have the rights set forth below.

C. District Notice. Upon the occurrence of an event set forth in Subsection 7.3(B) above, the District may provide written notice to the Contractor that it intends to terminate the Contract unless the problem cited is cured, or commenced to be cured, within seven days of the Contractor's receipt of such notice.

(1) If the Contractor fails to cure, or reasonably commence to cure, such problem, then the District may give a second written notice to the Contractor of its intent to terminate within an additional seven-day period.

(2) If the Contractor, within such second seven-day period, fails to cure, or reasonably commence to cure, such problem, then the District may declare the Contract terminated for default by providing written notice to the Contractor of such declaration.

D. District Possession of Materials and Equipment. Upon declaring the Contract terminated pursuant to Subsection 7.3(C)(2) above, the District may, for all Job Orders, enter upon the premises and take possession, for the purpose of completing the Work, of all materials, equipment, tools, appliances and other items thereon, which have been purchased or provided for the performance of the Work, all of which the Contractor hereby transfers, assigns and sets over to the District for such purpose, and to employ any person or persons to complete the Work and provide all of the required labor, services, materials, equipment and other items.

E. Payments to Contractor. In the event of such termination, the Contractor shall not be entitled to receive any further payments under the Contract Documents until the Work on all Job Orders shall be finally completed in accordance with the Contract Documents. At such time, the Contractor will only be entitled to be paid for the Work performed and accepted by the District prior to its default.

F. Payments to District. If the District's cost and expense of completing the Work exceeds the unpaid balance of a Job Order Price or Job Order Prices, then the Contractor shall be obligated to pay the difference to the District. Such costs and expense shall include not only the cost of completing the Work, but also losses, damages, costs and expense, including attorneys' fees and expenses, incurred by the District in connection with the procurement and defense of claims arising from the Contractor's default.

G. Conversion to Termination for Convenience. If the District terminates this Contract for cause and the determination is determined to have without legal right, the termination for cause shall be deemed to have been a termination for convenience in accordance with the provisions of Section 7.2.

ARTICLE 8 - INSURANCE

8.1 General.

A. Rating. Without limiting any obligations or liabilities of the Contractor, the Contractor shall purchase and maintain, at its own expense, hereinafter stipulated minimum insurance with insurance companies authorized to do business in the State of Arizona pursuant to A.R.S. § 20-206, as amended, with an AM Best, Inc. rating of "A-" or above with policies and forms satisfactory to the District. Failure to maintain insurance as specified herein may result in termination of this Contract at the District's option.

B. Coverage Adequacy. By requiring insurance herein, the District does not represent that coverage and limits will be adequate to protect the Contractor. The District reserves the right to review any and all of the insurance policies and/or endorsements cited in this Contract but has no obligation to do so. Failure to demand such evidence of full compliance with the insurance requirements set forth in this Contract or failure to identify any insurance deficiency shall not relieve the Contractor from, nor be construed or deemed a waiver of, its obligation to maintain the required insurance at all times during the performance of this Contract.

C. Additionally Insured. All insurance coverage, except Workers' Compensation insurance and Professional Liability insurance, if applicable, shall name, to the fullest extent permitted by law for claims arising out of the performance of this Contract, the District, its agents, representatives, officers, directors, officials, and employees as Additional Named Insured as specified under the respective coverage sections of this Contract.

D. Coverage Period. All insurance required herein shall be maintained in full force and effect until all work or services required to be performed under the terms of this Contract are satisfactorily performed, completed, and formally accepted by the District, unless specified otherwise in this Contract.

E. Primary Insurance. The Contractor's insurance shall be primary insurance with respect to performance of this Contract and in the protection of the District as an Additional Insured.

F. Claims Made Extension. In the event any insurance policies required by this Contract are written on a "claims made" basis, coverage shall extend, either by keeping

coverage in force or purchasing an extended reporting option, for three years past completion and Final Acceptance of the services. Such continuing coverage shall be evidenced by submission of annual Certificates of Insurance and necessary endorsements citing applicable coverage is in force and contains the provisions as required herein for the three-year period.

G. Waiver of Subrogation. All policies, excluding Professional Liability but including Workers' Compensation insurance, shall contain a waiver of rights of recovery (subrogation) against the District, its agents, representatives, officials, officers, and employees for any claims arising out of the Work or services of the Contractor. The Contractor shall arrange to have such subrogation waivers incorporated into each policy via formal written endorsement thereto.

H. Deductibles; Self-Insured Retentions. The policies set forth in these requirements may provide coverage that contains deductibles or self-insured retention amounts. Such deductibles or self-insured retention shall not be applicable with respect to the policy limits provided to the District. The Contractor shall be solely responsible for any such deductible or self-insured retention amount.

I. Subcontractor Insurance. If any work under this Contract is subcontracted in any way, the Contractor shall execute written agreements with its Subcontractors containing the indemnification provisions set forth below and insurance requirements set forth herein protecting the District and the Contractor. The Contractor shall be responsible for executing any agreements with its Subcontractors and obtaining certificates of insurance verifying the insurance requirements.

J. Evidence of Insurance. Prior to commencing any work or services under this Contract, the Contractor will provide the District with suitable evidence of insurance in the form of certificates of insurance and a copy of the declaration page(s) of the insurance policies as required by this Contract, issued by the Contractor's insurance insurer(s) as evidence that policies are placed with acceptable insurers as specified herein and provide the required coverages, conditions, and limits of coverage specified in this Contract, and that such coverage and provisions are in full force and effect. Confidential information such as the policy premium may be redacted from the declaration page(s) of each insurance policy, provided that such redactions do not alter any of the information required by this Contract. The District shall reasonably rely upon the certificates of insurance and declaration page(s) of the insurance policies as evidence of coverage but such acceptance and reliance shall not waive or alter in any way the insurance requirements or obligations of this Contract. If any of the policies required by this Contract expire during the life of this Contract, it shall be the Contractor's responsibility to forward renewal certificates and declaration page(s) to the District 30 Days prior to the expiration date. All certificates of insurance and declarations required by this Contract shall be identified by referencing this Contract. A $25.00 administrative fee shall be assessed for all certificates or declarations received without a reference to this Contract. Additionally, certificates of insurance and declaration page(s) of the insurance policies submitted without referencing this Contract will be subject to rejection and may be returned or discarded. Certificates of insurance and declaration page(s) shall specifically include the following provisions:

(1) The District, its agents, representatives, officers, directors, officials, and employees are Additional Insureds as follows:

(a) Commercial General Liability – Under Insurance Services Office, Inc., ("ISO") Form CG 20 10 03 97 or equivalent.

(b) Auto Liability – Under ISO Form CA 20 48 or equivalent.

(c) Excess Liability – Follow Form to underlying insurance.

(2) The Contractor's insurance shall be primary insurance with respect to performance of this Contract.

(3) All policies, except for Professional Liability, including Workers' Compensation, waive rights of recovery (subrogation) against the District, its agents, representatives, officers, officials, and employees for any claims arising out of work or services performed by the Contractor under this Contract.

(4) ACORD certificate of insurance form 25 (2014/01) is preferred. If ACORD certificate of insurance form 25 (2001/08) is used, the phrases in the cancellation provision "endeavor to" and "but failure to mail such notice shall impose no obligation or liability of any kind upon the company, its agents or representatives" shall be deleted. Certificate forms other than ACORD form shall have similar restrictive language deleted.

K. Endorsements. The Contractor shall provide the District with the necessary endorsements to ensure the District is provided the insurance coverage set forth in this Section.

8.2 Required Insurance Coverage.

A. Commercial General Liability. The Contractor shall maintain "occurrence" form Commercial General Liability insurance with an unimpaired limit of not less than $1,000,000 for each occurrence, $2,000,000 Products and Completed Operations Annual Aggregate and a $2,000,000 General Aggregate Limit. The policy shall cover liability arising from premises, operations, independent contractors, products-completed operations, personal injury, and advertising injury. Coverage under the policy will be at least as broad as ISO policy form CG 00 010 93 or equivalent thereof, including but not limited to, separation of insured's clause. To the fullest extent allowed by law, for claims arising out of the performance of this Contract, the District, its agents, representatives, officers, officials, and employees shall be cited as an Additional Insured under ISO, Commercial General Liability Additional Insured Endorsement form CG 20 10 03 97, or equivalent, which shall read "Who is an Insured (Section II) is amended to include as an insured the person or organization shown in the Schedule, but only with respect to liability arising out of "your work" for that insured by or for you." If any Excess insurance is utilized to fulfill the requirements of this Subsection, such Excess insurance shall be "follow form" equal or broader in coverage scope than underlying insurance.

B. Business Automobile Liability. The Contractor shall maintain Business Automobile Liability insurance with a limit of $1,000,000 each occurrence on the Contractor's owned, hired, and non-owned vehicles assigned to or used in the performance of the Contractor's

work or services under this Contract. Coverage will be at least as broad as ISO coverage code "1" "any auto" policy form CA 00 01 12 93 or equivalent thereof. To the fullest extent allowed by law, for claims arising out of the performance of this Contract, the District, its agents, representatives, officers, directors, officials, and employees shall be cited as an Additional Insured under ISO Business Auto policy Designated Insured Endorsement form CA 20 48 or equivalent. If any Excess insurance is utilized to fulfill the requirements of this Subsection, such Excess insurance shall be "follow form" equal or broader in coverage scope than underlying insurance.

C. Professional Liability Insurance. If this Contract is the subject of any professional services or work, or if the Contractor engages in any professional services or work in any way related to performing the Work under this Contract, the Contractor shall maintain Professional Liability insurance covering negligent errors and omissions arising out of the Contract Services performed by the Contractor, or anyone employed by the Contractor, or anyone for whose negligent acts, mistakes, errors, and omissions the Contractor is legally liable, with an unimpaired liability insurance limit of $2,000,000 each claim and $2,000,000 annual aggregate.

D. Worker's Compensation. The Contractor shall maintain Workers' Compensation insurance to cover obligations imposed by federal and state statutes having jurisdiction over the Contractor's employees engaged in the performance of work or services under this Contract and shall also maintain Employers Liability Insurance of not less than $500,000 for each accident, $500,000 disease for each employee and $1,000,000 disease policy limit.

E. Project Replacement Insurance. Unless expressly waived by the District in a written amendment to this Contract, the Contractor shall be responsible for purchasing and maintaining insurance to protect the Project from perils of physical loss. The insurance shall provide for the full cost of replacement for the entire Project at the time of any loss. The insurance shall include as named insureds the District, the Contractor, and the Contractor's Subcontractors, and shall insure against loss from the perils of fire and all-risk coverage for physical loss or damage due to theft, vandalism, collapse, malicious mischief, transit, flood, earthquake, and testing, and resulting loss arising from defective design, negligent workmanship, or defective material. The Contractor shall increase the coverage limits as necessary to reflect changes in the estimated replacement cost.

8.3 Cancellation and Expiration Notice. The Contractor shall provide at least 30 Days' prior written notice to the District before insurance required herein expires, is canceled, or is materially changed.

ARTICLE 9 - INDEMNITY

9.1 Contractor Indemnity. To the fullest extent permitted by law, the Contractor shall indemnify and hold harmless the District and each council member, officer, employee, or agent thereof (the District and any such person being herein called an "Indemnified Party"), for, from, and against any and all losses, claims, damages, liabilities, costs, and expenses (including, but not limited to, reasonable attorneys' fees, court costs, and the costs of appellate proceedings) to which any such Indemnified Party may become subject, under any theory of liability whatsoever ("Claims") to the extent that such Claims (or actions in respect thereof) are caused by the negligent acts, recklessness, or intentional misconduct of the Contractor, its officers, employees, agents, or

any tier of subcontractor in connection with the Contractor's work or services in the performance of this Contract. The amount and type of insurance coverage requirements set forth below will in no way be construed as limiting the scope of the indemnity in this Section.

9.2 Other Employee Claims. If an employee of the Contractor, Subconsultants, Subcontractors, anyone employed directly or indirectly by any of them or anyone for whose acts any of them may be liable has a claim against the District, its officers, directors, employees, or agents, the Contractor's indemnity obligation set forth in Section 9.1 above shall extend to such claims and the amount of such indemnity shall not be limited by any limitation on the amount of insurance coverage required herein.

9.3 Intellectual Property Claims. The Contractor shall pay all royalties and license fees associated with its performance of services herewith. The Contractor shall defend suits or claims for infringement of patent rights and shall hold the District harmless from loss on account thereof, but shall not be responsible for such defense or loss when a particular design, process or product of a particular manufacturer or manufacturers is required by the Contract Documents. However, if the Contractor has reason to believe that the required design, process or product is an infringement of a patent, the Contractor shall be responsible for such loss unless such information is promptly furnished to the applicable design professional.

ARTICLE 10 – PERFORMANCE AND PAYMENT BONDS

10.1 Performance Bond. This Agreement is subject to the provisions of A.R.S. § 34-610 *et seq*. After the District and the Contractor have agreed to a Job Order, but prior to commencing the Contract Services attributable to such Job Order, the Contractor shall furnish the District with an irrevocable security binding the Contractor to provide faithful performance of this Agreement in the amount of 100% of the percentage of the Job Order Price attributable to the construction, payable to the District, and shall not include the cost of any design services, preconstruction services, finance services, maintenance services, operations services, or any other related services. Performance security shall be in the form of a performance bond, certified check, or cashier's check. If the Contractor fails to execute the security document as required, the Contractor may be found in material default of this Contract, permitting the District to terminate this Contract for cause as set forth in Article 7 above. In case of default, the District reserves all rights. All performance bonds shall be executed on the form attached hereto as Exhibit C and incorporated herein by reference, duly executed by the Contractor as principal and having as surety thereon a surety company approved by the District and holding a Certificate of Authority issued by the Arizona Department of Insurance to transact surety business in the State of Arizona. Individual sureties are unacceptable. All insurers and sureties shall have at the time of submission of the proposal an A.M. Best's Key Rating Guide of "A-" or better as currently listed in the most recent Best Key Guide, published by the A.M. Best Company.

10.2 Payment Bond. This Agreement is subject to the provisions of A.R.S. § 34-610 *et seq*. After the District and the Contractor have agreed to a Job Order, but prior to commencing the Contract Services attributable to such Job Order, the Contractor shall furnish the District with an irrevocable security for the protection of all claimants supplying labor or materials to the Contractor or any Subcontractor in the prosecution of the construction and not for the protection of persons providing any design services, preconstruction services, finance services, maintenance

services, operations services, or other services related to the Contract. Payment security shall be in the amount of 100% of the applicable Job Order attributable to construction and be payable to the District. Payment security shall be in the form of a payment bond, certified check, or cashier's check. If the Contractor fails to execute the security document as required, the Contractor may be found in material default of this Contract, permitting the District to terminate this Contract for cause as set forth in Article 7 above. All payment bonds shall be executed on the form attached hereto as Exhibit D and incorporated herein by reference, duly executed by the Contractor as principal and having as surety thereon a surety company approved by the District and holding a Certificate of Authority issued by the Arizona Department of Insurance to transact surety business in the State of Arizona. Individual sureties are unacceptable. All insurers and sureties shall have at the time of submission of the proposal an A.M. Best's Key Rating Guide of "A-" or better as currently listed in the most recent Best Key Guide, published by the A.M. Best Company.

ARTICLE 11 - ADDITIONAL PROVISIONS

11.1 Confidential Information. The Contractor shall not disclose or permit the disclosure of any confidential information except to its agents, employees, and Subcontractors who need such confidential information in order to properly perform their duties relative to this Contract.

11.2 Assignment; Transfer. The District and the Contractor each bind themselves, their successors, assigns, and legal representatives to the terms of this Contract. Neither the District nor the Contractor shall assign or transfer its interest in this Contract without the written consent of the other, except that the Contractor may assign accounts receivable to a commercial bank for securing loans without approval of the District. Nothing contained in this Section shall prevent the Contractor from employing such consultants, associates, or Subcontractors as the Contractor may deem appropriate to assist in performance of the Contract Services hereunder.

11.3 Entire Agreement. This Contract represents the entire and integrated agreement between the District and the Contractor and supersedes all prior negotiations, representations, or agreements, either written or oral. This Contract may be amended only by written instrument signed by both the District and the Contractor. Nothing contained in this Contract is intended to benefit any third party. Subcontractors, if any, and the Project designers are not intended third-party beneficiaries of this Contract.

11.4 Severability. If any provision of this Contract is held as a matter of law to be unenforceable by a court of competent jurisdiction, the remainder of this Contract shall be enforceable without such provision.

11.5 Internal References. References made in the singular shall include the plural and to one gender shall include all genders.

11.6 Notices. Other than notices to the parties' respective Senior Representatives for dispute resolution purposes as set forth above, any notice or other communication required or permitted to be given under this Contract shall be in writing and shall be deemed to have been duly given if (A) delivered to the party at the address set forth below, (B) deposited in the U.S. Mail,

registered or certified, return receipt requested, to the address set forth below, or (C) given to a recognized and reputable overnight delivery service, to the address set forth below:

If to the District:	Coconino County Flood Control District 5600 E. Commerce Ave. Flagstaff, AZ 86004 Attn: Lucinda Andreani
With a copy to:	Gust Rosenfeld P.L.C. One East Washington Street, Suite 1600 Phoenix, AZ 85004 Attn: Andrew McGuire
If to the Contractor:	J. Banicki Construction, Inc. 4720 E. Cotton Gin Loop, Suite 240 Phoenix, AZ 85040 Attn: Mike Abraham

or at such other address, and to the attention of such other person or officer, as any party may designate in writing by notice duly given pursuant to this Section. Notices shall be deemed received (A) when delivered to the party, (B) three business days after being placed in the U.S. Mail, properly addressed, with sufficient postage, or (C) the following business day after being given to a recognized overnight delivery service, with the person giving the notice paying all required charges and instructing the delivery service to deliver on the following business day. If a copy of a notice is also given to a party's counsel or other recipient, the provisions above governing the date on which a notice is deemed to have been received by a party shall mean and refer to the date on which the party, and not its counsel or other recipient to which a copy of the notice may be sent, is deemed to have received the notice.

11.7 Governing Law; Venue. This Contract shall be governed by the laws of the State of Arizona and venue shall be in Coconino County.

11.8 No Waiver. The failure of either party to insist, in any one or more instances, on the performance of any of the terms, covenants, or conditions of this Contract, or to exercise any of its rights, shall not be construed as a waiver or relinquishment of such term, covenant, condition, or right with respect to further performance.

11.9 Headings. The headings given to any of the provisions of this Contract are for ease of reference only and shall not be relied upon or cited for any other purpose.

11.10 Asbestos-Free Materials. The Project is to be constructed by the Contractor with asbestos-free materials. A written, notarized statement on company letterhead shall be submitted to the District by the Contractor with the final payment request certifying that the Contractor has incorporated no asbestos material into the Project. Final payment shall be withheld until such statement is submitted. The Contractor shall agree that if materials containing asbestos are subsequently discovered at any future time to have been included in the construction done by the Contractor or any of its Subcontractors or agents and were not specified in the design or required

by the Contract Documents, the Contractor shall be liable for all costs related to the abatement of such asbestos and damages or claims against the District notwithstanding any statute of limitations or other legal bar to any claim by the District.

11.11 Conflict of Interest Cancellation. This Contract may be cancelled by the District pursuant to A.R.S. § 38-511.

11.12 Endangered Wood Species. The Contractor shall ensure that products containing endangered wood species shall not be utilized in the construction of the Project unless exempted pursuant to A.R.S. § 34-201(J), as amended.

11.13 Employment Verification Records. The Contractor's and its Subcontractor's books, records, correspondence, accounting procedures, and practices, and any other supporting evidence relating to this Contract, including the papers of any of the Contractor's and its Subcontractors' employees who perform any work or Services pursuant to this Contract to ensure that the Contractor and its Subcontractors are complying with the warranty under Subsection 10.14 below (all the foregoing hereinafter referred to as "Records"), shall be open to inspection and subject to audit and/or reproduction during normal working hours by the District, to the extent necessary to adequately permit (A) evaluation and verification of any invoices, payments or claims based on the Contractor's and its Subcontractors' actual costs (including direct and indirect costs and overhead allocations) incurred, or units expended directly in the performance of the Work under this Contract, and (B) evaluation of the Contractor's and its Subcontractors' compliance with the Arizona employer sanctions laws referenced in Subsection 10.14 below. To the extent necessary for the District to audit Records as set forth in this Subsection, the Contractor and its Subcontractors hereby waive any rights to keep such Records confidential. For the purpose of evaluating or verifying such actual or claimed costs or units expended, the District shall have access to said Records, even if located at its Subcontractors' facilities, from the effective date of this Contract for the duration of the Work and until three years after the date of final payment by the District to the Contractor pursuant to this Contract. The Contractor and its Subcontractors shall provide the District with adequate and appropriate workspace so that the District can conduct audits in compliance with the provisions of this Subsection. The District shall give the Contractor or its Subcontractors reasonable advance notice of intended audits. The Contractor shall require its Subcontractors to comply with the provisions of this Subsection by insertion of the requirements hereof in any subcontract pursuant to this Contract.

11.14 E-Verify. To the extent applicable under A.R.S. § 41-4401, the Contractor and its Subcontractors warrant compliance with all federal immigration laws and regulations that relate to their employees and compliance with the E-verify requirements under A.R.S. § 23-214(A). The Contractor's or its Subcontractor's failure to comply with such warranty shall be deemed a material breach of this Contract and may result in the termination of this Contract by the District.

11.15 No Boycott of Israel. The Contractor certifies that it is not currently engaged in, and agrees for the duration of this Contract that it will not engage in, a "boycott" of Israel, as that term is defined in A.R.S. § 35-393.

11.16 Independent Contractor Status. The Contractor is and will be an independent contractor and whatever measure of control the District exercises over the Work or deliverable

pursuant to the Contract will be as to the results of the Work only. No provision in this Contract will give or be construed to give the District the right to direct the Contractor as to the details of accomplishing the Work or deliverable. These results will comply with all applicable laws and ordinances.

A. Acts and Omissions of Individuals. The Contractor will be solely responsible for the acts and omissions of its officers, agents, servants, and employees. As an independent contractor, the Contractor is responsible for the payment of all applicable income and employment taxes and for providing all workers' compensation insurance required by law.

B. Not District Employees. The Contractor will operate as an independent entity and none of the employees of the Contractor will be considered employees of the District. The Contractor's employees are not eligible for District group health insurance or other benefits.

C. Contractor Health Insurance. The Independent Contractor will be solely responsible for offering health insurance to its employees as required by the Affordable Care Act, and for any penalties charged to it by the Internal Revenue Service for noncompliance with the Affordable Care Act.

D. Control of Process of the Work. In performance of services within this contract, the Contractor shall determine its necessary hours of work; provided such hours must be within the standard work hours set forth in this Contract. The Contractor shall provide whatever tools; equipment, vehicles, and supplies the Contractor may determine to be necessary in performance of services hereunder. The Contractor may establish offices in such locations within or outside Arizona, as the Contractor may determine to be necessary for the performance of services hereunder, and shall be responsible for all expenses of operation of said office, including expenses incurred in hiring employees and assistants to the Contractor.

E. No Authority to Represent District. The Independent Contractor has no authority to enter into contracts or agreements on behalf of the District. This Contract does not create a partnership between the parties.

11.17 Annual Appropriations. The District is obligated only to pay its obligations set forth in this Contract as may lawfully be made from funds appropriated and budgeted for that purpose during the District's then-current fiscal year. The District's obligations under this Contract are current expenses subject to the "budget law" and the unfettered legislative discretion of the District concerning budgeted purposes and appropriation of funds. Should the District elect not to appropriate and budget funds to pay its Contract obligations, this Contract and any related Job Orders shall be deemed terminated at the end of the then-current fiscal year term for which such funds were appropriated and budgeted for such purpose and the District shall be relieved of any subsequent obligation under this Contract. The parties agree that the District has no obligation or duty of good faith to budget or appropriate the payment of the District's obligations set forth in this Contract in any budget in any fiscal year other than the fiscal year in which this Contract is executed and delivered. The District shall be the sole judge and authority in determining the availability of funds for its obligations under this Contract. The District shall keep the Contractor informed as to the availability of funds for this Contract. The obligation of the District to make any payment pursuant to this Contract is not a general obligation or indebtedness of the District.

The Contractor hereby waives any and all rights to bring any claim against the District from or relating in any way to the District's termination of this Contract pursuant to this Section.

11.18 No Forced Labor of Ethnic Uyghurs. To the extent applicable under A.R.S. § 35-394, the Contractor warrants and certifies that it does not currently, and agrees for the duration of this Contract that it will not use the forced labor, any goods or services produced by the forced labor, or any contractors, subcontractors, or suppliers that use the forced labor or any goods or services produced by the forced labor of ethnic Uyghurs in the People's Republic of China. If the Contractor becomes aware that it is not in compliance with this paragraph, the Contractor shall notify the District of the noncompliance within five business days of becoming aware of it. If the Contractor fails to provide a written certification that the Contractor has remedied the noncompliance within 180 days after that, this Contract shall terminate unless the termination date of this Contract occurs before the end of the remedy, in which case this Contract terminates on the Contract termination date.

[Signatures on following page.]

IN WITNESS WHEREOF, the parties hereto have executed this Contract as of the date first set forth above.

"**Coconino County**"

COCONINO COUNTY FLOOD CONTROL DISTRICT,
An Arizona political subdivision

By: _____
Patrice Horstman, Chair, Flood Control District Board of Directors

ATTEST:

_____
Clerk of the Board

APPROVED AS TO FORM:

_____
Gust Rosenfeld P.L.C., District Attorneys

"**Contractor**"

J. BANICKI CONSTRUCTION, INC.,
a(n) Arizona Corporation

By: _____

Name: Mike Abraham

Title: President

EXHIBIT A
TO
JOB ORDER CONTRACT
BETWEEN
COCONINO COUNTY FLOOD CONTROL DISTRICT
AND
J. BANICKI CONSTRUCTION, INC.

[Federally Funded Project Requirements]

See following pages.

Federally Funded Project Requirements

Cancelation or termination for breach

A contractor who violates or breaches a contract may have the contract terminated for cause. IC will be paid for services provided but may be ineligible for future contracts. Contracts may also be terminated by the County for convenience.

Equal Employment Opportunity:

During the performance of this contract, the contractor agrees as follows:

(1) The contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, sexual orientation, gender identity, or national origin. The contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment, without regard to their race, color, religion, sex, sexual orientation, gender identity, or national origin. Such action shall include, but not be limited to the following:

Employment, upgrading, demotion, or transfer, recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided by the contracting officer setting forth the provisions of this nondiscrimination clause.

(2) The contractor will, in all solicitations or advertisements for employees placed by or on behalf of the contractor, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, sexual orientation, gender identity, or national origin.

(3) The contractor will not discharge or in any other manner discriminate against any employee or applicant for employment because such employee or applicant has inquired about, discussed, or disclosed the compensation of the employee or applicant or another employee or applicant. This provision shall not apply to instances in which an employee who has access to the compensation information of other employees or applicants as a part of such employee's essential job functions discloses the compensation of such other employees or applicants to individuals who do not otherwise have access to such information, unless such disclosure is in response to a formal complaint or charge, in furtherance of an investigation, proceeding, hearing, or action, including an investigation conducted by the employer, or is consistent with the contractor's legal duty to furnish information.

(4) The contractor will send to each labor union or representative of workers with which it has a collective bargaining agreement or other contract or understanding, a notice to be provided by the agency contracting officer, advising the labor union or workers' representative of the contractor's commitments under section 202 of Executive Order

11246 of September 24, 1965, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

(5) The contractor will comply with all provisions of Executive Order 11246 of September 24, 1965, and of the rules, regulations, and relevant orders of the Secretary of Labor.

(6) The contractor will furnish all information and reports required by Executive Order 11246 of September 24, 1965, and by the rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his books, records, and accounts by the contracting agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.

(7) In the event of the contractor's non-compliance with the nondiscrimination clauses of this contract or with any of such rules, regulations, or orders, this contract may be canceled, terminated or suspended in whole or in part and the contractor may be declared ineligible for further Government contracts in accordance with procedures authorized in Executive Order 11246 of September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order 11246 of September 24, 1965, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.

(8) The contractor will include the portion of the sentence immediately preceding paragraph (1) and the provisions of paragraphs (1) through (8) in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to section 204 of Executive Order 11246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor. The contractor will take such action with respect to any subcontract or purchase order as may be directed by the Secretary of Labor as a means of enforcing such provisions including sanctions for noncompliance:

Provided, however, that in the event the contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction, the contractor may request the United States to enter into such litigation to protect the interests of the United States.

The applicant further agrees that it will be bound by the above equal opportunity clause with respect to its own employment practices when it participates in federally assisted construction work: *Provided,* That if the applicant so participating is a State or local government, the above equal opportunity clause is not applicable to any agency, instrumentality or subdivision of such government which does not participate in work on or under the contract.

The applicant agrees that it will assist and cooperate actively with the administering agency and the Secretary of Labor in obtaining the compliance of contractors and subcontractors with the equal opportunity clause and the rules, regulations, and relevant

orders of the Secretary of Labor, that it will furnish the administering agency and the Secretary of Labor such information as they may require for the supervision of such compliance, and that it will otherwise assist the administering agency in the discharge of the agency's primary responsibility for securing compliance.

The applicant further agrees that it will refrain from entering into any contract or contract modification subject to Executive Order 11246 of September 24, 1965, with a contractor debarred from, or who has not demonstrated eligibility for, Government contracts and federally assisted construction contracts pursuant to the Executive Order and will carry out such sanctions and penalties for violation of the equal opportunity clause as may be imposed upon contractors and subcontractors by the administering agency or the Secretary of Labor pursuant to Part II, Subpart D of the Executive Order. In addition, the applicant agrees that if it fails or refuses to comply with these undertakings, the administering agency may take any or all of the following actions: Cancel, terminate, or suspend in whole or in part this grant (contract, loan, insurance, guarantee); refrain from extending any further assistance to the applicant under the program with respect to which the failure or refund occurred until satisfactory assurance of future compliance has been received from such applicant; and refer the case to the Department of Justice for appropriate legal proceedings.

Subcontracts. Each nonexempt prime contractor or subcontractor shall include the above equal opportunity clause in each of its nonexempt subcontracts.

Davis Bacon Act

Davis-Bacon Act, as amended (40 U.S.C. 3141-3148). When required by Federal program legislation, all prime construction contracts in excess of $2,000 awarded by non-Federal entities must include a provision for compliance with the Davis-Bacon Act (40 U.S.C. 3141-3144, and 3146-3148) as supplemented by Department of Labor regulations (29 CFR Part 5, "Labor Standards Provisions Applicable to Contracts Covering Federally Financed and Assisted Construction"). In accordance with the statute, contractors must be required to pay wages to laborers and mechanics at a rate not less than the prevailing wages specified in a wage determination made by the Secretary of Labor. In addition, contractors must be required to pay wages not less than once a week. The non-Federal entity must place a copy of the current prevailing wage determination issued by the Department of Labor in each solicitation. The decision to award a contract or subcontract must be conditioned upon the acceptance of the wage determination. The non-Federal entity must report all suspected or reported violations to the Federal awarding agency. The contracts must also include a provision for compliance with the Copeland "Anti-Kickback" Act (40 U.S.C. 3145), as supplemented by Department of Labor regulations (29 CFR Part 3, "Contractors and Subcontractors on Public Building or Public Work Financed in Whole or in Part by Loans or Grants from the United States"). The Act provides that each contractor or sub recipient must be prohibited from inducing, by any means, any person employed in the construction, completion, or repair of public work, to give up any part of the

compensation to which he or she is otherwise entitled. The non-Federal entity must report all suspected or reported violations to the Federal awarding agency.

If applicable pursuant to the conditions of a federal funding award:

a. All transactions regarding this contract shall be done in compliance with the Davis-Bacon Act (40 U.S.C. 3141- 3144, and 3146-3148) and the requirements of 29 C.F.R. pt. 5 as may be applicable. The contractor shall comply with 40 U.S.C. 3141-3144, and 3146-3148 and the requirements of 29 C.F.R. pt. 5 as applicable.

b. Contractors are required to pay wages to laborers and mechanics at a rate not less than the prevailing wages specified in a wage determination made by the Secretary of Labor.

c. Additionally, contractors are required to pay wages not less than once a week.

Compliance with the Copeland Anti-Kickback Act:

a. Contractor. The contractor shall comply with 18 U.S.C. §874, 40 U.S.C. §3145, and the requirements of 29 C.F.R. pt.3 as may be applicable, which are incorporated by reference into this contract.
b. Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clause above and such other clauses as FEMA may by appropriate instructions require, and also a clause requiring the subcontractor to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all of these contract clauses.
c. Breach. A breach of the contract clauses above may be grounds for termination of the contract and for debarment as a contractor and subcontractor as provided in 29 C.F.R §5.12.

Compliance with the Contract Work Hours and Safety Standards Act.

(1) Overtime requirements. No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.

(2) Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in paragraph (b)(1) of this section the contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the

case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph (b)(1) of this section, in the sum of $27 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph (b)(1) of this section.

(3) Withholding for unpaid wages and liquidated damages. The (write in the name of the Federal agency or the loan or grant recipient) shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph (b)(2) of this section. (4) Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraph (b)(1) through (4) of this section and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs (b)(1) through (4) of this section.

Clean Air Act

1. The contractor agrees to comply with all applicable standards, orders or regulations issued pursuant to the Clean Air Act, as amended, 42 U.S.C. § 7401 et seq.

2. The contractor agrees to report each violation to the Coconino County Flood Control District and understands and agrees that Coconino County Flood Control District will, in turn, report each violation as required to assure notification to the Federal Emergency Management Agency, and the appropriate Environmental Protection Agency Regional Office.

3. The contractor agrees to include these requirements in each subcontract exceeding $150,000 financed in whole or in part with Federal assistance provided by FEMA.

Federal Water Pollution Control Act

1. The contractor agrees to comply with all applicable standards, orders, or regulations issued pursuant to the Federal Water Pollution Control Act, as amended, 33 U.S.C. 1251 et seq.

2. The contractor agrees to report each violation to the Coconino County Flood Control District and understands and agrees that the Coconino County Flood Control District

will, in turn, report each violation as required to assure notification to the Federal Emergency Management Agency, and the appropriate Environmental Protection Agency Regional Office.

3. The contractor agrees to include these requirements in each subcontract exceeding $150,000 financed in whole or in part with Federal assistance provided by FEMA.

Suspension and Debarment

(1) This contract is a covered transaction for purposes of 2 C.F.R. pt. 180 and 2 C.F.R. pt. 3000. As such, the contractor is required to verify that none of the contractor's principals (defined at 2 C.F.R. § 180.995) or its affiliates (defined at 2 C.F.R. § 180.905) are excluded (defined at 2 C.F.R. § 180.940) or disqualified (defined at 2 C.F.R. § 180.935).

(2) The contractor must comply with 2 C.F.R. pt. 180, subpart C and2 C.F.R. pt. 3000, subpart C, and must include a requirement to comply with these regulations in any lower tier covered transaction it enters into.

(3) This certification is a material representation of fact relied upon by Coconino County Flood Control District If it is later determined that the contractor did not comply with 2 C.F.R. pt. 180, subpart C and 2 C.F.R. pt. 3000, subpart C, in addition to remedies available to Coconino County Flood Control District, the Federal Government may pursue available remedies, including but not limited to suspension and/or debarment.

(4) The bidder or proposer agrees to comply with the requirements of2 C.F.R. pt. 180, subpart C and 2 C.F.R. pt. 3000, subpart C while this offer is valid and throughout the period of any contract that may arise from this offer. The bidder or proposer further agrees to include a provision requiring such compliance in its lower tier covered transactions.

Procurement of Recovered Materials

i. In the performance of this contract, the Contractor shall make maximum use of products containing recovered materials that are EPA-designated items unless the product cannot be acquired –

a. Competitively within a timeframe providing for compliance with the contract performance schedule;
b. Meeting contract performance requirements; or
c. At a reasonable price.

ii. Information about this requirement, along with the list of EPA designated items, is available at EPA's Comprehensive Procurement Guidelines web site, https://www.epa.gov/smm/comprehensive-procurement-guideline-cpg-program.

iii. The Contractor also agrees to comply with all other applicable requirements of Section 6002 of the Solid Waste Disposal Act.

Access to Records

(1) The Contractor agrees to provide Coconino County Flood Control District, the FEMA Administrator, the Comptroller General of the United States, or any of their authorized representatives access to any books, documents, papers, and records of the Contractor which are directly pertinent to this contract for the purposes of making audits, examinations, excerpts, and transcriptions.
(2) The Contractor agrees to permit any of the foregoing parties to reproduce by any means whatsoever or to copy excerpts and transcriptions as reasonably needed.
(3) The Contractor agrees to provide the FEMA Administrator or his authorized representatives access to construction or other work sites pertaining to the work being completed under the contract.
(4) In compliance with the Disaster Recovery Act of 2018, Coconino County Flood Control District and the Contractor acknowledge and agree that no language in this contract is intended to prohibit audits or internal reviews by the FEMA Administrator or the Comptroller General of the United States.

DHS Seal, Logo and Flags

The contractor shall not use the DHS seal(s), logos, crests, or reproductions of flags or likenesses of DHS agency officials without specific FEMA pre-approval.

Compliance with Federal Law, Regulations, and Executive Orders

This is an acknowledgement that FEMA financial assistance will be used to fund all or a portion of the contract. The contractor will comply with all applicable Federal law, regulations, executive orders, FEMA policies, procedures, and directives.

No Obligation by Federal Government

The Federal Government is not a party to this contract and is not subject to any obligations or liabilities to the non-Federal entity, contractor, or any other party pertaining to any matter resulting from the contract.

Program Fraud and False or Fraudulent Statements or Related Acts

The Contractor acknowledges that 31 U.S.C. Chap. 38 (Administrative Remedies for False Claims and Statements) applies to the Contractor's actions pertaining to this contract.

Byrd Anti-Lobbying Amendment, 31 U.S.C. § 1352 (as amended)

Contractors who apply or bid for an award of $100,000 or more shall file the required certification. Each tier certifies to the tier above that it will not and has not used Federal appropriated funds to pay any person or organization for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, officer or employee of Congress, or an employee of a Member of Congress in connection with obtaining any Federal contract, grant, or any other award covered by 31 U.S.C. § 1352. Each tier shall also disclose any lobbying with non-Federal funds that takes place in connection with obtaining any Federal award. Such disclosures are forwarded from tier to tier up to the recipient who in turn will forward the certification(s) to the awarding agency.

If applicable, contractors must sign and submit the following certification:

Certification for Contracts, Grants, Loans, and Cooperative Agreements

The undersigned certifies, to the best of his or her knowledge and belief, that:

1. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

2. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

3. The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by section 1352, title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

The Contractor, BANICKI, certifies or affirms the truthfulness and accuracy of each statement of its certification and disclosure, if any. In addition, the Contractor understands

and agrees that the provisions of 31 U.S.C. Chap. 38, Administrative Remedies for False Claims and Statements, apply to this certification and disclosure, if any.

Mike L

Signature of Contractor's Authorized Official

MIKE ABRAHAM - PRESIDENT

Name and Title of Contractor's Authorized Official

7/20/2023

Date

Karen Sampson

KAREN SAMPSON
Notary Public, State of Arizona
Maricopa County
Commission # 614744
My Commission Expires
November 10, 2025

EXHIBIT B
TO
JOB ORDER CONTRACT
BETWEEN
COCONINO COUNTY FLOOD CONTROL DISTRICT
AND
J. BANICKI CONSTRUCTION, INC.

[JOC Task Matrix]

See following pages.

Independent Contractor Information

RFQ 2023-105

J. Banicki Construction, Inc.
Company Name

4720 E. Cotton Gin Loop, Ste. 240
Address

Phoenix, AZ 85040
City / State / Zip


Authorized Signature

Mike Abraham, President
Printed Name and Title

(602) 390-1243
Telephone

2-15-23
Date

mabraham@banicki.com
e-mail Address

ROC 091410
Contractor License(s)

JOC Task Matrix Exhibit "B"		
SERVICES	**SELF-Performed**	**SUB-Contract**
Grading		
• Mass Excavation	Yes	
• Geogrid Installation	Yes	
o Slope Stabilization	Yes	
o Drainage Channel Reinforcement	Yes	
• Placement of Aggregate base	Yes	
• Soil Stabilization of subgrade	Yes	
o Lime Treated		Yes
o Cement Treated		Yes
o Geogrid	Yes	
o SWPP / NOI / NOT	Yes	
Asphalt Pavement		
• Preservation		Yes
o Chip Seal		Yes
o Crack Filling		Yes
o Fog Seal		Yes
o Cape Seal		Yes
o Slurry Seal		Yes
o Rubber Chip Seal		Yes
o Micro Seal		Yes
o Micro Seal with fiberglass		Yes
• Rehabilitation		Yes
Asphalt Milling and micro surfacing		Yes
Hot Mix Asphalt overlay 2"		Yes
Hot Mix Asphalt overlay 2" with geogrid underlayment		Yes
o Fiber Reinforced Hot Mix Asphalt		Yes
• Reconstruction		Yes
o Hot Mix Asphalt full depth		Yes
o Cold Mix Asphalt		Yes
o RAP Asphalt		Yes
Drainage Systems		
• Installing Culverts and Catch Basins	Yes	

JOC Task Matrix Exhibit "B"		
SERVICES	**SELF-Performed**	**SUB-Contract**
• Storm Sewer 36" to 60"	Yes	
o Manhole	Yes	
o Head wall	Yes	
Drainage Systems - Continued		
• Open Channel conveyance ditches	Yes	
• Gabion Baskets	Yes	
• Rock Riprap	Yes	
• Detention Ponds	Yes	
Forest restorations		
• Construction of Fans	Yes	
• Rock Chutes	Yes	
• Log rundown	Yes	
• Rock cluster	Yes	
• Tree Removal	Yes	
• Clear and Grubb	Yes	
• Gabion Basket	Yes	
• Trash rack for headwalls	Yes	
• Archeological Monitoring		Yes
Bridge Construction / Reconstruction		
• New Bridge Construction	Yes	
• Existing Bridge Repair	Yes	
o Bridge deck	Yes	
▪ Replacement	Yes	
▪ Surface Treatments and repair	Yes	
o Abutments and Diaphragms	Yes	
o Approach Slabs	Yes	
o CIP guard rail	Yes	
o Footing and Scour Repair	Yes	
• Box Culverts precast and CIP	Yes	
Roadway Support Infrastructure		
• Stripe		Yes
• Signage		Yes
• Installation of New Guard rail and repair and Damaged Guardrail		Yes

JOC Task Matrix Exhibit "B"		
SERVICES	**SELF-Performed**	**SUB-Contract**
• Cattle guards	Yes	
• Seeding		Yes
• Installation of Landscaping		Yes
Utilities		
• Waterline Adjustment		Yes
• Water Valve Replacement and Installation		Yes
• Dry Utility Installation and replacement		Yes
• Sewer/Wastewater Construction & Repair		Yes
• Street Light		Yes
• Traffic Signals and Control Devices		
Emergency Services		
• Snow plow services		
• Snow removal	Yes	
• Set jersey Barriers for flood diversion	Yes	
• Sand bags manufacture and deployment		
• Temporary Drainage Structures		
Specialty Services		
• Rock Crushing	Yes	
• Blasting		Yes
• Roadway Striping		Yes

EXHIBIT C
TO
JOB ORDER CONTRACT
BETWEEN
COCONINO COUNTY FLOOD CONTROL DISTRICT
AND
J. BANICKI CONSTRUCTION, INC.

[Performance Bond]

See following page.

PERFORMANCE BOND

KNOW ALL PERSONS BY THESE PRESENTS:

THAT, _____ (hereinafter called Principal), as Principal, and _____, a corporation organized and existing under the laws of the State of _____, with its principal office at _____ (hereinafter called the Surety), as Surety, are held and firmly bound unto the Coconino County Flood Control District (hereinafter called the Obligee) in the amount of _____(Dollars) ($_____), for the payment whereof, the said Principal and Surety bind themselves, and their heirs, administrators, executors, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has entered into a certain written Contract with the Obligee, dated the _____ day of _____ 20___, for the material, service or construction described as _____ is hereby referred to and made a part hereof as fully and to the same extent as if copied at length herein.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH, that if the Principal faithfully performs and fulfills all of the undertakings, covenants, terms, conditions and agreements of the Contract during the original term of the Contract and any extension of the Contract, with or without notice to the Surety, and during the life of any guaranty required under the Contract, and also performs and fulfills all of the undertakings, covenants, terms, conditions and agreements of all duly authorized modifications of the Contract that may hereafter be made, notice of which modifications to the surety being hereby waived, the above obligation is void. Otherwise it remains in full force and effect.

PROVIDED, however, that this bond is executed pursuant to the provisions of Title 34, Chapter 6, Article 1, Arizona Revised Statutes, and all liabilities on this bond shall be determined in accordance with the provisions of Title 34, Chapter 6, Article 1, Arizona Revised Statutes, to the extent as if it were copied at length in this agreement.

The prevailing party in a suit on this bond shall recover as part of the judgment reasonable attorney fees that may be fixed by a judge of the Court.

Witness our hands this _____ day of _____ 20___.

_____

Principal Seal

By:_____

_____

Surety Seal

By:_____

_____

Agency of Record

EXHIBIT D
TO
JOB ORDER CONTRACT
BETWEEN
COCONINO COUNTY FLOOD CONTROL DISTRICT
AND
J. BANICKI CONSTRUCTION, INC.

[Payment Bond]

See following page.

PAYMENT BOND

KNOW ALL PERSONS BY THESE PRESENTS:

THAT, _____ (hereinafter called Principal), as Principal, and _____, a corporation organized and existing under the laws of the State of _____, with its principal office at _____ (hereinafter called the Surety), as Surety, are held and firmly bound unto the Coconino County Flood Control District (hereinafter called the Obligee) in the amount of _____(Dollars) ($_____), for the payment whereof, the said Principal and Surety bind themselves, and their heirs, administrators, executors, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has entered into a certain written Contract with the Obligee, dated the _____ day of _____ 20___, for the material, service or construction described as _____ which Contract is hereby referred to and made a part hereof as fully and to the same extent as if copied at length herein.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH, that if the Principal promptly pays all monies due to all persons supplying labor or materials to the Principal or the Principal's Subcontractors in the prosecution of the Work provided for in the Contract, this obligation is void. Otherwise it remains in full force and effect.

PROVIDED, however, that this bond is executed pursuant to the provisions of Title 34, Chapter 6, Article 1, Arizona Revised Statutes, and all liabilities on this bond shall be determined in accordance with the provisions, conditions and limitations of Title 34, Chapter 6, Article 1, Arizona Revised Statutes, to the same extent as if they were copied at length in this agreement.

The prevailing party in a suit on this bond shall recover as a part of the judgment reasonable attorney fees that may be fixed by a judge of the Court.

Witness our hands this _____ day of _____, 20___.

_____

Principal Seal

By:_____

_____

Surety Seal

By:_____

_____

Agency of Record

Examples of areas needing repair:



Figure 2 – Damaged catch basin view 1



Figure 3 – Damaged catch basin view 2



Figure 7 – Turquoise Dr Scupper 1, View 1



CITY OF FLAGSTAFF

STAFF SUMMARY REPORT

To: The Honorable Mayor and Council

From: Ann Taylor, Engineering Senior Project Manager

Date: 02/26/2025

Meeting Date: 03/04/2025

TITLE:

Consideration and Approval of Contract: Change Order 2 with Burgess & Niple, Inc. in the amount of $234,660.00 and add 150 calendar days to the Butler Fourth Improvement Professional Engineering Services Contract.

STAFF RECOMMENDED ACTION:

1. Approve Change Order 2 for Butler Fourth Improvement Project with Burgess & Niple, Inc. in the amount of $234,660.00;
2. Add 150 calendar days to the Professional Engineering Services Contract; and
3. Authorize the City Manager to execute the necessary documents.

Executive Summary:

Approval of Change Order 2 of the Professional Engineering Services Contract with Burgess & Niple, Inc. will authorize completion of design Phase A, and completion of the Traffic Analysis of two design elements: proposed relocation of roundabout and the addition of two left hand turns onto the EB & WB I40 on ramps. There is 150-day time extension requested with this change order to keep the contract current. The Change Order committee considered this item on January 30, 2025, and it was approved with a recommendation to forward the Change Order 2 the City Council for final approval at the City Council meeting on March 4, 2025.

Financial Impact:

The cost of Change Order 2 is $234,660.00. These costs are associated with the extra time to complete the two components. The funding for this request will come from the Transportation Tax- Roadway, Pedestrian, Bicycle and Safety Improvements --Street Widening- Butler-Fourth Improvements fund from the authorized FY2024-25 budget of $12,186,276.00, Acct #048-10-118-3047-6.

Original Contract Value	$ 716,401.00
Value of Prior Changes	$ 97,110.21
Value of this Change	$ 234,660.00
New Contract Value	$ 1,048,171.21

Policy Impact:

N/A

Previous Council Decision or Community Discussion:

- On March 29, 2022, this project was presented for discussion at a Council Work Session Meeting.
- On November 1, 2022, the Professional Services Contract was awarded to Burgess & Niple, Inc.

Options and Alternatives to Recommended Action:

1. Approve Change Order 2 as recommended. Approval will allow work to move forward; or
2. Reject approval of Change Order 2, not recommended. This action would delay the Project and likely increase project costs.

Background and History:
The Butler-Fourth Improvements Project is located along Butler Avenue from the Interstate 40 (I-40) traffic interchange (TI) to the intersection of Butler Avenue and Sinagua Heights Drive and along Fourth Street from 400 feet south of Butler Avenue to Sparrow Avenue. The project is approximately 1.4 miles in length. The existing Herold Ranch Road will be realigned to a new roundabout along Butler Avenue. The Project will provide improvements to the Flagstaff transportation network by eliminating bottlenecks within the road network and closing infrastructure gaps for pedestrians and cyclists.

The Project will also address congestion related to the driveway configurations of the businesses along Butler by employing access management techniques. In addition to building consensus within the City and garnering public support, the Project team will coordinate with key stakeholders including Arizona Department of Transportation (ADOT), Northern Arizona Intergovernmental Public Transit Authority (NAIPTA), Flagstaff Unified School District (FUSD), Arizona State Land Department (ASLD), developers, and businesses including Little America.

In 2018, the City proposed Proposition 419 which included a portion of the transportation sales tax to go towards roads, bicycle, pedestrian, and safety improvements. Proposition 419 was approved by the voters, and in 2020 the transportation sales tax began collection. In Proposition 419, as part of the road category, there is street widening, current two-lane streets to four lane streets, and Butler Avenue between I-40 and Fourth Street was identified. The City has also identified Butler Avenue for new pedestrian and bicycle improvements along with elements for street operations. The City uses a term called "Complete Streets" and it references improving streets to be widened, to receive new multi-modal improvements and increased traffic operations for buses and streetlighting where appropriate.

In 2021, the City began planning for the Butler Fourth Improvement Project (Project). The City issued a solicitation for a professional engineer to serve as a design consultant in 2022 and we are currently nearing 30% design. In 2024, the City submitted two applications for federal funding through the Rebuilding American Infrastructure with Sustainability and Equity (RAISE) Grant program. The City was notified at the beginning of 2025 that the Project was successful in receiving the RAISE Grant in the amount of $19M. As part of the RAISE Grant process, additional coordination, conditions, and guidelines will need to be followed as well as Project milestones completed.

Expanded Financial Considerations:
Funding for Change Order No. 2, $234,660.00, will come from the Transportation Tax Fund, Prop.419 and will be tracked in the Butler Fourth Improvement Project, Acct. #048-10-118-3047-6. When a private development moves forward that is adjacent to a planned public project, the City will allow the developments to deposit funds for their share of the new public improvements. Developers adjacent to this project corridor have deposited or will deposit funds with the City as their contribution to the Project.

Community Benefits and Considerations:

- Improve safety for all roadway users.
- Serve all community members by creating bike, pedestrian, and transit facilities.

- Improve resiliency with stormwater facilities.
- Support local businesses and job creation.
- Increase safe access and mobility for freight.
- Improve quality of life by providing access to food, jobs, and healthcare.

- Improve access to local schools.
- Address failing infrastructure in the corridor.

Connection to PBB Priorities and Objectives:
Deliver outstanding services to residents through a healthy, well maintained infrastructure system.

Connection to Regional Plan:

- Improve mobility and access throughout the region.
- Improve transportation safety and efficiency for all modes.
- Promote transportation infrastructure and services that enhance the quality of life of the communities within the region.
- Increase the availability and use of pedestrian infrastructure, including FUTS, as a critical element of a safe and livable community.
- Design infrastructure to provide safe and efficient movement of vehicles, bicycles, and pedestrians.

Connection to Carbon Neutrality Plan:

- Encourage vibrancy, appropriate density, and attainability in existing neighborhoods, so that more residents live within walking distance of their daily needs.
- Create inclusive networks for walking and biking that are continuous, attractive, safe, comprehensive, and convenient for people of all ages.

Connection to 10-Year Housing Plan:
N/A

Connection to Division Specific Plan:
N/A

Attachments: Change Order 2 - Executed
Context Map
Vicinity Map Updated

CITY OF FLAGSTAFF

☐ CONFIRMING CHANGE ORDER NO.
☑ DESIGN CONTRACT CHANGE ORDER NO. 2
☐ CONSTRUCTION CONTRACT CHANGE ORDER NO.
☐ CONTRACT ALLOWANCE UPDATE NO.

PROJECT NO. ST3047 **PROJECT NAME:** Butler Fourth Improvements

FILE NO. 03-21004 **PROJECT MANAGER:** Ann Taylor

FIRM NAME: Burgess & Niple, Inc.

Purchase Order Number: 23-002304 | **Line Number:** | **Amount** $ 234,660.00

Change Order originated by: ☐ CITY OF FLAGSTAFF ☐ CONTRACTOR ☑ DESIGN FIRM ☐ OTHER: _____

DETAILED DESCRIPTION:

Completion of Phase A, initial design to 30%, due to extra work and out of scope activities related to Roundabout Design Expansion, Transit Facilities Design Changes and Additional Work & Administration Coordination. These activities were requested by the City Council and to address the comments or input from the affected public, citizens or commissions.

New scope for a Traffic Analysis that will provide impacts created by a proposed relocation of a roundabout that is near the west end of the project and out the addition of dual left hand turns onto the EB & WB ramps at the I40 interchange. The Traffic Analysis was a request by the Arizona Department of Transportation to determine if the roundabout and dual left hand turn lanes will satisfy their design spacing criteria. The relocated roundabout was a request made by Little America.

Please see the attached change order request proposal for additional information.

JUSTIFICATION:

The Phase A contract was approved on November 1, 2022. In order to complete Phase A, this change order needs to be considered and approved for the added scope/work. Phase A also needs to be completed before Phase B, remaining design, is considered and executed.

TIME ANALYSIS:

There are 150 calendar days added to this contract to allow for completion of the remaining scope include under this change order.

COST ANALYSIS:

Reference attached documentation from Burgess & Niple dated January 28, 2025 for scope of services and fee proposal regarding this change order.

048-10-118-3047-6-4421, $234,660.00, FY25, Prop 419, Street Widening

CITY OF FLAGSTAFF	*PROJECT STATUS FORM*
PROJECT NAME: Butler Fourth Improvements	☑ Design ☐ Construction ☐ Other
PROJECT NO. ST3047	**FILE NO.** 03-21004
ACCT. NO. 048-10-118-3047-6-4421 100.00 %	
ACCT. NO. _____ %	
COUNCIL APPROVAL DATE: November 1, 2022	**ORIGINAL CONTRACT AMOUNT:** $ 716,401.00
PROJECT BUDGET (FY 22 **)**	**PROJECT BUDGET (FY** 22 **)**
NOTICE TO PROCEED DATE: 11/04/2022	**ORIGINAL CONTRACT PERIOD (calendar days):** 300
ORIGINAL COMPLETION DATE: 08/31/2023	**ORIGINAL CONTRACT ALLOWANCE:**
DESIGN FIRM:	

Change Orders Revision Date	C.O. Amount New Total	C.O. Days New Total	Start Date New Comp. Date	REASON FOR CHANGE
1	$ 97,110.21	430	11/04/2022	Project Limit Extension, Additional Alternatives for Traffic Analysis, Sensitivity Analysis, Additional Preferred Alternative
07/18/2024	$ 813,511.21	730	11/03/2024	
2	$ 234,660.00	150	04/02/2025	Design changes due roundabout relocation and the addition of dual left hand turns onto the EB & WB I40
03/04/2025	$ 1,048,171.21	880	04/02/2025	
3				
4				
5				

COMMENTS: The allocations shown above are inclusive of all Change Orders shown.If there are more than 5 Change Orders, please request a separate form from Purchasing that includes additional spaces. Thank you!

			END DATES		
ORIGINAL CONTRACT PERIOD	300 **Days**	(	08/23/2023)	**ORIGINAL CONTRACT**	$ $ 716,401.00
PRIOR TIME CHANGES	430 **Days**	(	11/03/2024)	**TOTAL PRIOR VALUE CHANGES**	$ $ 97,110.21
THIS TIME CHANGE	150 **Days**	(	04/02/2025)	**VALUE OF THIS CHANGE**	$ $ 234,660.00
NEW CONTRACT PERIOD	880 **Days**	(	04/02/2025)	**NEW CONTRACT**	$ $ 1,048,171.21

CITY OF FLAGSTAFF

☐ CONFIRMING CHANGE ORDER NO.
☑ DESIGN CONTRACT CHANGE ORDER NO. 2
☐ CONSTRUCTION CONTRACT CHANGE ORDER NO.
☐ CONTRACT ALLOWANCE UPDATE NO.

PROJECT NO. ST3047 **PROJECT NAME:** Butler Fourth Improvements

FILE NO. 03-21004 **PROJECT MANAGER:** Ann Taylor

SIGNATURES

SUBMITTER

Project Manager	01/28/2025 (Date)	**Approved Signature**	Ann Taylor — Digitally signed by Ann Taylor Date: 2025.01.28 13:16:18 -07'00'
Department Head	01/28/2025 (Date)	**Approved Signature**	Paul Mood 2025.01.28 13:40:14 -07'00'

COMMITTEE

Water Services	2025-01-31 (Date)	**Approved Signature**	Douglas Slover Jr — Digitally signed by Douglas Slover Jr DN: cn=Douglas Slover Jr, o, ou, email=dslover@flagstaffaz.gov, c=US Date: 2025.01.31 13:06:35 -07'00'
Public Works	(Date)	**Approved Signature**	Absent
City Engineering	2/3/25 (Date)	**Approved Signature**	Christina A. Kinnear — Digitally signed by Christina A. Kinnear DN: cn=Christina A. Kinnear, o=City of Flagstaff, ou=City Attorney, email=christina.kinnear@flagstaffaz.gov, c=US Date: 2025.02.03 08:36:35 -07'00'
City Attorney	(Date)	**Approved Signature**	Martin Donohoe — Digitally signed by Martin Donohoe Date: 2025.02.12 15:09:00 -07'00' Adobe Acrobat version: 11.0.23
Finance	(Date)	**Approved Signature**	Patrick Brown — Digitally signed by Patrick Brown Date: 2025.02.13 10:55:08 -07'00'
Purchasing (Chair)	(Date)	**Approved Signature**	

EXECUTIVE

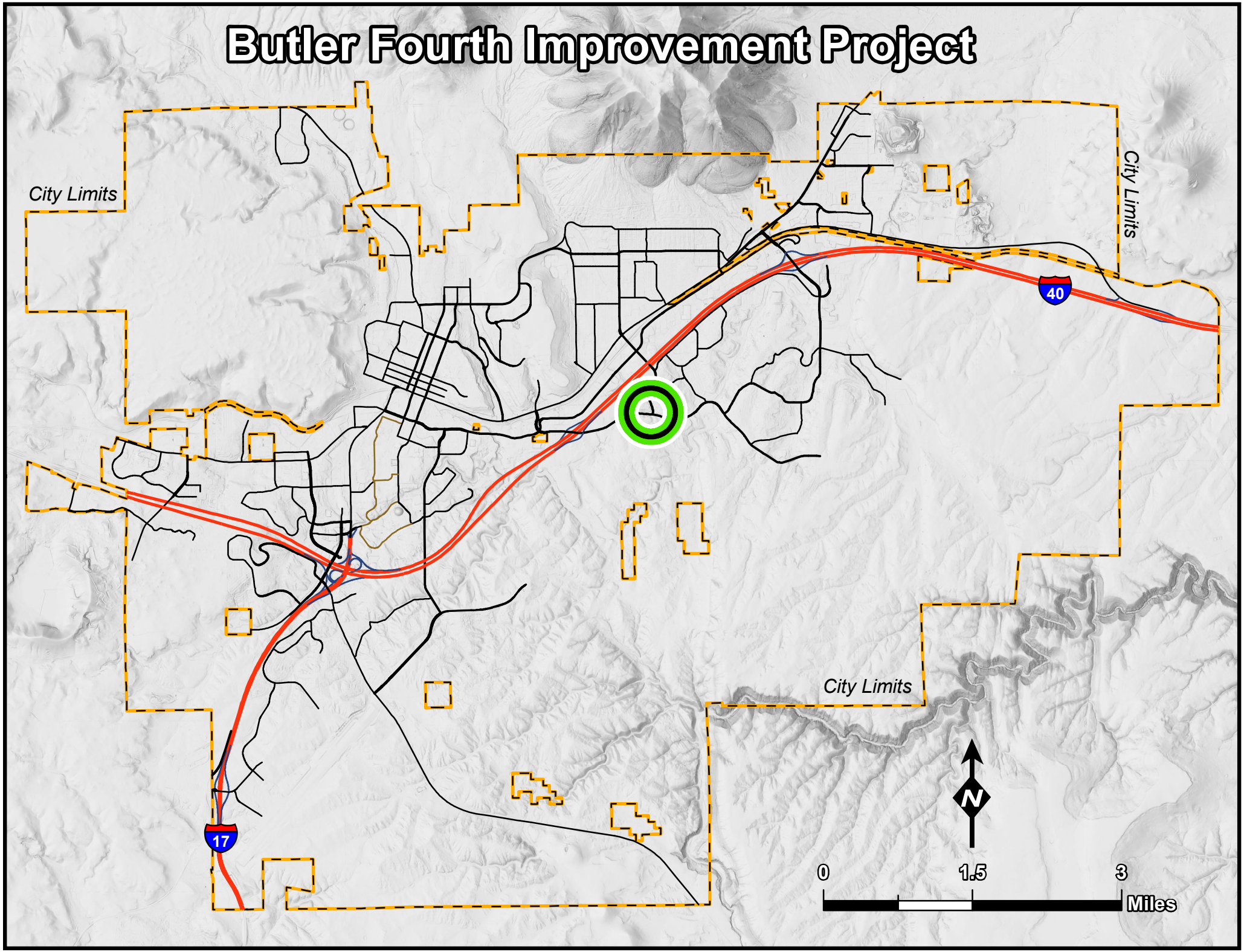
City Manager	(Date)	**Approved Signature**	Digitally signed by Greg Clifton Date: 2025.02.14 14:30:00 -07'00'

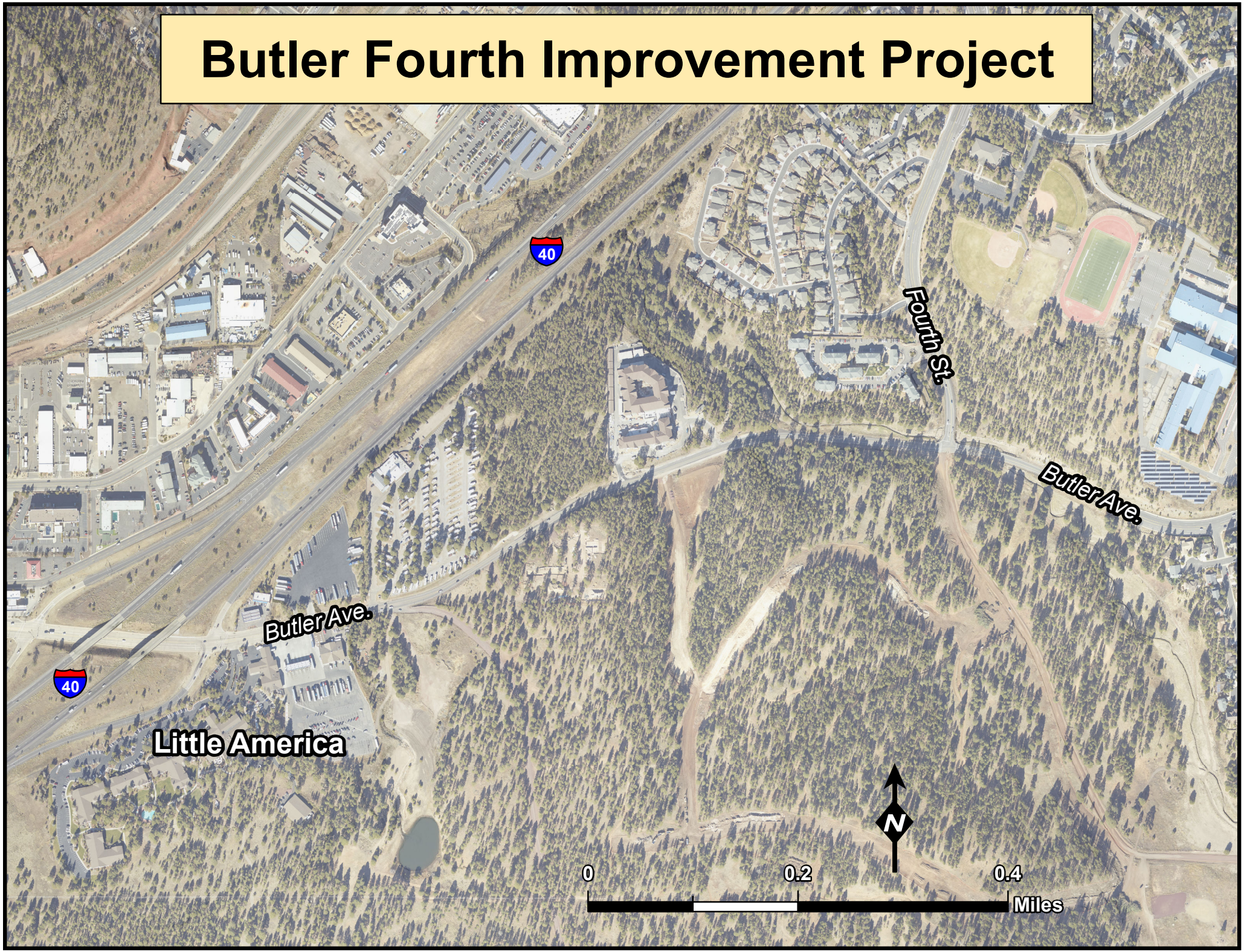
Council Meeting Date (if required) 03/04/2025 **Council Approved?** Yes ☑ No ☐

We have given careful consideration to the proposed and hereby agree, if this proposal is approved, that we will provide all equipment, furnish all materials, and perform all services necessary for the work specified.

FIRM NAME: Burgess & Niple, Inc. **Signature:**

Date: 01/28/2025 **Print Name and Title:** Jason L Pagnard, Vice President


Butler Fourth Improvement Project
City Limits
City Limits
City Limits
40
17
N
0
1.5
3
Miles


Butler Fourth Improvement Project
40
40
Fourth St.
Butler Ave.
Butler Ave.
Little America
N
0
0.2
0.4
Miles

CITY OF FLAGSTAFF

STAFF SUMMARY REPORT

To: The Honorable Mayor and Council

From: Jackson Salazar, Plan Reviewer

Co-Submitter: Lee Williams

Date: 02/26/2025

Meeting Date: 03/04/2025

TITLE:

Consideration and Adoption of Resolution No. 2025-09 and Ordinance No. 2025-03: An ordinance of the City Council of the City of Flagstaff, amending the Flagstaff City Code, Title 13-09-002-0012, Private Pressure Wastewater Mains and Services.

STAFF RECOMMENDED ACTION:

1. Adopt Resolution No. 2025-09
2. Read Ordinance No. 2025-03 by title only for the final time
3. City Clerk reads Ordinance No. 2025-03 by title only (if approved above)
4. Adopt Ordinance No. 2025-03

Executive Summary:

This code amendment will allow for publicly owned pressure wastewater systems, mains, and services and outlines the standards and specifications for new pressure wastewater mains, lift stations, and services. The current code prohibits the public ownership of pressurized wastewater mains.

Financial Impact:

There are ongoing costs associated with the ownership and operation of pressure wastewater systems. The code amendment will include 10 years Operation and Maintenance Costs to be paid by the developer. The City will collect the standard water and wastewater buy-in fees and rates from the new customers connected to pressure wastewater mains and systems. By being proactive in this decision the City will set a high standard for lift station construction and avoids the potential of taking over a lift station that has been improperly maintained under private ownership.

Policy Impact:

This will enact a new policy to allow for public ownership of pressurized wastewater systems. This is currently prohibited by City Code.

Previous Council Decision or Community Discussion:

None

Options and Alternatives to Recommended Action:

1 . Approve the proposed Pressure Wastewater Code Amendment text.
2. Do not approve Pressure Wastewater Code Amendment text, pressure wastewater systems for developments requiring pressure systems will be privately owned and operated.

Background and History:

The current City of Flagstaff code does not allow for any public pressurized wastewater systems. Historically, any development projects that required a pressure wastewater system were reviewed on a case by case basis. The city currently owns and operates one low pressure wastewater system for a small portion of a subdivision and one lift station that pumps wastewater into the Rio de Flag Wastewater Plant. There are large areas within the city limits that do not gravity flow to a treatment plant and will require some kind of pressure wastewater system to be able to provide wastewater service. Water Services is now proposing a code change that would allow for public pressurized wastewater systems within these areas that are outside the gravity wastewater shed for the wastewater treatment plants. Water Services has researched other municipalities in Arizona and throughout the nation that allow for pressurized wastewater systems. Water Services is recommending a policy change that would allow for the public ownership of pressurized wastewater systems and lift stations. This will mitigate the risk to the City by ensuring that all new lift stations that are to be publicly owned are built to a high standard. Other municipalities have faced forced takeovers of pressure wastewater systems that were built to poor standards which can put unexpected burdens on the local utility. Water Services also sees benefit in providing wastewater service to these areas as it will create additional reclaimed water from the additional wastewater collected. The new policy would still allow for private ownership in certain cases if water services does not see benefit in ownership.

Connection to PBB Priorities/Objectives, Carbon Neutrality Plan & Regional Plan: The code amendment allows for pressurized wastewater mains to be extended to areas that are unable to be served by gravity wastewater systems. This limits new septic installations and allows the city to recover reclaimed water from previous septic customers as well as new customers that would be on septic. This benefits the reclaimed water supply and water quality concerns that can arise from densely spaced septic systems. It also provides equitable water and wastewater service to those outside of the gravity wastewater shed. The new standards will allow for the extension of the public system within the Urban Growth Boundary to new areas that may otherwise be served by a private entity.

Connection to PBB Priorities and Objectives:
High Performing Governance: Serve the public by providing high quality customer service
Sustainable and Innovative Infrastructure: Utilize existing long-range plans that identify the community's future infrastructure needs and all associated costs

Connection to Regional Plan:
Goal PF.2.: Provide sustainable and equitable public facilities, services, and infrastructure systems in an efficient and effective manner to serve all population areas and demographics.
Goal WR.3: Satisfy current and future human water demands and the needs of the natural environment through sustainable and renewable water resources and strategic conservation measure.
Goal WR.4: Logically enhance and extend the City's public water, wastewater, and reclaimed water services including their treatment, distribution, and collection systems in both urbanized and newly developed areas of the City to provide an efficient delivery of services.
Goal WR.6: Protect, preserve, and improve the quality of surface water, groundwater, and reclaimed water in the region.
Goal CD.1: Improve the City and County financial systems to provide for needed infrastructure development and rehabilitation, including maintenance and enhancement of existing infrastructure.

Connection to Carbon Neutrality Plan:
WS-1 Improve water infrastructure and expand water reuse.

Connection to 10-Year Housing Plan:
None

Attachments: Gravity Wastewater Shed Map
Res. 2025-09
Pressure Wastewater Code Amendments

Ord. 2025-03

RESOLUTION NO. 2025-09

A RESOLUTION OF THE FLAGSTAFF CITY COUNCIL DECLARING AS A PUBLIC RECORD THAT CERTAIN DOCUMENT FILED WITH THE CITY CLERK AND ENTITLED "*2025 - PRESSURE WASTEWATER CODE AMENDMENT*"

RECITALS:

WHEREAS, pursuant to A.R.S. § 9-240(5) a municipality may provide pipelines and infrastructure for wastewater, including improvements and updates to the types of wastewater mains and services; and

WHEREAS, pursuant to A.R.S. § 9-511 a municipality may engage in the business of a utility, including the reception and treatment of wastewater, and improving or adding different types of wastewater mains and services; and

WHEREAS, pursuant to A.R.S. § 9-511.01 a municipality may provide funding for proper maintenance of all types of wastewater mains and services, including updating and constructing additional infrastructure to become part of the City's wastewater mains and services; and

WHEREAS, Flagstaff City Code Section 13-09-002-0012 provides information and regulations regarding pressure wastewater mains and services; and

WHEREAS, Flagstaff City Council now desires to make amendments to the Flagstaff City Code Section 13-09-002-0012 related to pressure wastewater mains and services; and

WHEREAS the City of Flagstaff wishes to incorporate by reference amendments to the Flagstaff City Code Section 13-09-002-0012, Ordinance No. 2025-03, by first declaring said amendments to be a public record.

ENACTMENTS:

NOW, THEREFORE, BE IT RESOLVED BY THE COUNCIL OF THE CITY OF FLAGSTAFF AS FOLLOWS:

SECTION 1. In General.

That certain document known as *"2025 – Pressure Wastewater Code Amendment"* attached hereto as Exhibit A is hereby declared to be a public record, and one (1) paper copy and one (1) electronic copy shall remain on file with the City Clerk in compliance with A.R.S. § 44-7041.

SECTION 2. Effective Date.

This resolution shall be immediately effective upon adoption.

PASSED AND ADOPTED by the City Council of the City of Flagstaff this 4th day of March, 2025.

MAYOR

ATTEST:

CITY CLERK

APPROVED AS TO FORM:

CITY ATTORNEY

Exhibits:
A. 2025 – Pressure Wastewater Code Amendment

2025 – Pressure Wastewater Code Amendment

Provisions that are being deleted are shown in strikethrough text.
Provisions that are being added are shown in red text.

Section 1. Amend Flagstaff City Code Section 13-09-002-0012 Pressure Wastewater Mains and Services, as follows:

13-09-002-0012 Pressure Wastewater Mains and Services

~~A. All proposed public sewer systems shall be gravity flow. Public pressure sewer systems including piping, lifts, and appurtenances are prohibited. No public sewer lift stations will be permitted within the City system.~~

~~B. Private pressure sewer systems, including individual pressure sewer services are not allowed unless approved by the Utilities Division and the City Engineer. Off-site extensions of the public system in order to provide gravity service may be required. Should a private system be allowed, the following criteria shall be addressed prior to plan approval:~~

~~1. A provision for continued operation by the appropriate Class or Grade Operator as required in AAC R18-05-114.~~

~~2. A provision for scheduled routine operation and maintenance by qualified personnel and an operation and maintenance manual approved by ADEQ.~~

~~3. An emergency spill prevention and response plan shall be kept at the site and include provisions for twenty-four (24) hour response and mitigation by qualified personnel.~~

~~4. In accordance with AAC R18-9-E301, sewer collection, force mains, and lift stations having the design flow of ten thousand (10,000) gpd or more shall maintain and revise, when needed, an operation and maintenance plan at the operator's control center (office) and the appropriate field person's vehicle.~~

~~5. When a lift station is installed as an interim condition until the future extension of a gravity main, the developer shall pay to the City Utilities Division the estimated cost of decommissioning and removing the lift station and connecting to the gravity main.~~

A. All proposed public wastewater systems shall be gravity flow within the gravity wastewater shed of the Wildcat Hill Wastewater Treatment Plant (see **Figure 13-09-002-02** for a map of the gravity wastewater shed of the Wildcat Hill Wastewater Treatment Plant). Public pressure wastewater systems including pressure piping, lift stations, and appurtenances are prohibited within this area.

B. Where pressure systems are allowed, they will transition back to gravity as soon they cross into the gravity wastewater shed as shown in Figure 13-09-002-02.

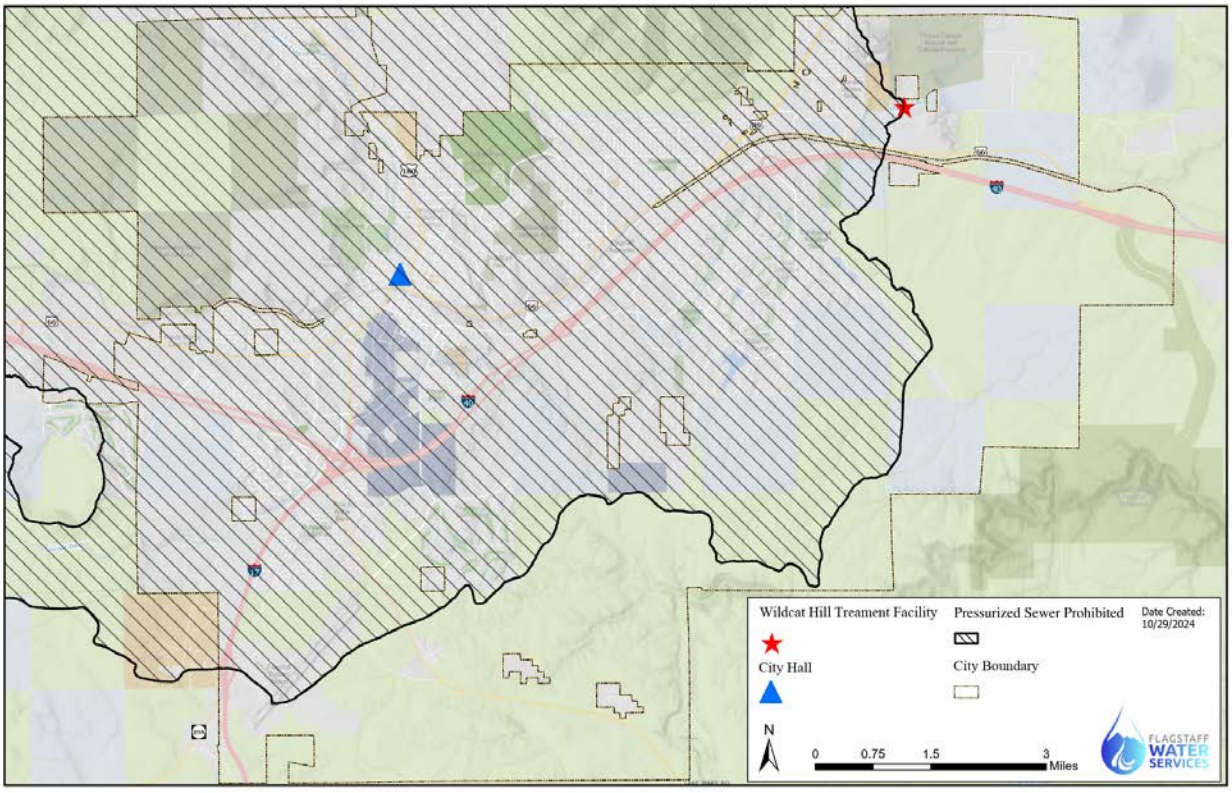


Figure 13-09-002-02 Gravity Wastewater Shed of Wildcat Hill Wastewater Treatment Plant

C. All proposed designs shall meet requirements of Arizona Administrative Code Title 18, Chapter 9.

13-09-002-0012.1 Lift Stations

A. A development agreement will be required for any new development that requires a lift station.

1. The development agreement shall include a payment of 10 years operation and maintenance which will be included on the Estimate of Probable Cost submitted for the project. The payment will be collected before the issuance of the public improvements permit.

B. The location of the lift station should be chosen so that the entire lift station drainage area can be served by gravity up to the lift station. Lift station sites may not be located in floodways, floodplains or other locations subject to inundation. The lift station must be accessible and free of inundation during the 100 year flood event.

C. Design should accommodate for expansion of lift station capacity with development while meeting wet well retention and pump cycling/capacity criteria. Capacities of lines are to be determined for an entire drainage area, developed or undeveloped, which may be reasonably serviced by the proposed system or by future extensions of the system. Densities will be estimated from the land use plan of the current Regional Plan. Use Table 13-09-002-01, to determine number of persons per unit for different dwelling types. All lift stations and force

mains must be designed for peak flow in accordance with Table 13-09-002-01 and Figure 13-09-002-01.

D. Minimum design considerations by the Water Services Division for lift station facilities are as follows:

1. A communications link will be provided by fiber optic cable to the nearest City facility if the facility is within one mile of the lift station. If the facility is greater than one mile away from the site, then a microwave tower may be constructed instead of the fiber optic cable. A SCADA communications plan must be submitted for plan approval.

a. All components of the SCADA system shall be included in the communications plan including at a minimum monitoring instruments, programmable logic controllers (PLCs), remote terminal unit (RTUs) and variable frequency drives (VFDs). These components shall be compatible with the existing COF SCADA system.

2. An outflow meter will be provided at the lift station. Meters will be submitted and approved by the Water Services Division. The outflow meter shall be an ultrasonic flow meter that is compatible with COF SCADA systems. The flow meter shall be sized to meet both low and high flow ranges per manufacturer recommendations The flow meter shall be located in a vault easily accessible and visible within the site. The flow meter shall have a pressure rating greater or equal to the pipeline it is connected to, and shall be rated for wastewater.

3. An alarm with an automated callout system will be required. The system will be submitted and approved by the Water Services Department. The alarm and automated callout system shall be functional before acceptance of the wastewater system. An override button shall be provided at the lift station site to allow for maintenance to be completed without triggering alarms.

4. The lift station shall be equipped with a standby power system. This system shall include at a minimum, an automatic transfer switch, a diesel generator, and a fuel tank of sufficient capacity to allow continuous operation under full load for 24-hours.

5. Design shall allow for continuity of pumping operation during service and cleaning through the incorporation of bypass pumping connections that allow the main wet well to be bypassed for maintenance other design as approved by the City Engineer and Water Services Director.

a. A cleanout pipe will be provided that allows for a vacuum truck to connect and clean the lift station.

6. All pumps must be submitted and approved by COF Water Services Division. Minimum design requirements for pumps are as follows:

a. Nonclog submersible wastewater pumps shall be used for the lift station.

b. The pump will require at least one back up for redundancy. The pump system shall be set up so that both pumps are regularly operated using a duplex system or similar system that balances the wear on the pumps.

c. Pumps shall be designed with a rail system and hoist to allow for the pumps to be easily lifted and lowered into the wet well for pump replacements.

7. All lift interior lift stations components shall be coated with a corrosion resistant epoxy coating rated for wastewater.

8. Check valves, air release valves, plug valves, and flow meters shall be located in a separate vault within the lift station.

a ovided on pump discharges 8" and smaller. Check valves shall be rated for wastewater and feature a corrosion resistant epoxy coating. Check valves shall have a pressure rating equal to or greater than the pipeline they are connected to.

b. Air release valves shall be combination type and rated for wastewater. Air release valves shall be Cla-Val or approved equal.

c. Eccentric plug valves shall be provided on the discharge of all pumps. Install the plug valves horizontally so the plug rotates up 90º to open and the plug seat is facing downstream when closed. The plug valves shall be located downstream of the check valves. All valve materials shall be rated for wastewater and shall have a minimum of 40 mils of ceramic epoxy lining.

9. Fall protection shall be provided at the wet well entry hatch.

10. An odor control system shall be required. The odor control system must be submitted and approved by the Water Services Division.

11. A minimum eight (8) foot tall CMU masonry wall around the perimeter with a locked entrance gate.

a. The wall shall be compatible with the surrounding environment, including landscaping.

12. The facility entrance shall have a twelve (12) foot wide double drive access gate with at least twelve (12) feet clear space.

13. The station shall have a paved access road at least twelve (12) feet wide with a maximum slope not to exceed ten percent (10%)

a. A forty-five (45) foot radius or hammerhead turnaround shall be provided if the access road exceeds fifty (50) feet in length.

14. The interior of the compound shall be surfaced with four (4) inches of asphaltic cement pavement.

15. Service vehicle access to major station components shall be incorporated in the station design.

16. Down cast facility lighting, both wall mounts and pole mounts shall be provided with at least one (1) photocell operated light.

a. The light switch shall be located next to the access gate in the interior of the compound.

b. Lights shall be dark sky compliant.

E. An operation and maintenance plan for the lift station and its components must be provided and approved by COF Water Services Division. The operation and maintenance plan shall be provided for all equipment and systems, valves, instruments and control devices, and electric gear. The operation and maintenance plans shall include at a minimum:

a. Contact information for the Contractor, Engineer, and Supplier

b. Engineer approved submittals

c. Disassembly drawings

d. Operating instructions

e. Test data

f. Maintenance recommendations and schedule

g. Troubleshooting procedures

h. Recommended spare parts

i. Warranty terms and duration

F. An Engineer's Design Report must be prepared and submitted. The report shall be prepared, signed and sealed by an Arizona Registered Engineer. It shall be submitted to the City for review and approval and will include, at a minimum, the following:

a. Description of design criteria to be utilized other than this document,

b. Flow computations, including a complete analysis of the downstream gravity system's capacity to convey such flows in addition to other design flows and if mitigation measures such as gravity wastewater up-size, flow equalization basins or other measures are warranted.

c. Wet well volume calculations,

d. Retention and pump cycling calculations,

e. Hydraulic analysis including friction and minor head loss calculations,

f. Calculated system curves with overlaid pump curves,

g. Surge protection recommendations

h. Structural component description and calculations

i. Electrical, instrumentation, and process description, control description, and calculations,

j. Analysis and design solutions to control corrosion, odor, and noise in the lift station, force-main and downstream gravity wastewater system

k. Define site, right-of-way, and easement requirements,

l. Listing of permit requirements,

m. Geotechnical investigation,

n. Cost estimate based on unit costs for major elements of work following this design criteria.

13-09-002-0012.2 Wastewater Force Mains

A. Velocities in force mains shall be determined for design capacities using the Hazen Williams formula. Flow capacities shall also be determined using the Hazen Williams formula.

B. Design velocities for wastewater force mains shall comply with ARS R18-9-E301 with a minimum of 3 and maximum of 7 feet per second.

C. New public wastewater force mains may be constructed using the following minimum material specification and subject to engineering analysis based on the specific design additional material specifications may apply:

1. Class 200 (polyvinyl chloride) PVC conforming to the appropriate MAG section.

2. Class 200 ductile iron pipe (DIP) conforming to the appropriate MAG section. DIP may be used for wastewater force mains, four (4) inches through twelve (12) inches in diameter. All ductile iron pipelines shall be polyethylene encased in accordance with MAG Specifications. When DIP is used, it shall be lined with Protecto 401 ceramic epoxy. Special design considerations may require a higher class rating of DIP.

3. DR 11 High density polyethylene (HDPE) wastewater pipe conforming to MAG Section 738 and AWWA C906.

D. Depth requirements for force mains shall conform to COF standards for water mains.

E. Separation requirements shall meet requirements defined in COF Engineering Standards section 13-09-001-0004 and the current MAG standards whichever is greater.

F. Force mains 6 inches and larger shall provide two-way cleanouts every 1,300 feet or 1-way cleanouts every 650 feet. Single cleanouts must be provided at all horizontal bends oriented in line with the downstream pipe. Lines 4 inches and smaller shall provide two-way cleanouts every 600 feet or 1-way cleanouts every 300 feet.

G. Joint restraint will be required everywhere where there are horizontal or vertical bends and in areas where the pipe is above ground.

H. Air release valves will be required at all high points.

13-09-002-0012.3 Force Main Discharge Manholes

A. Force main discharge manholes should conform to City of Scottsdale Standard Detail 2402 or approved equal.

B. Discharge manholes shall at a minimum be coated with a corrosion resistant epoxy coating approved by COF Water Services.

13-09-002-0012.4 Private Pressure Wastewater Systems

A. Private pressure wastewater systems, including individual pressure wastewater services are not allowed unless approved by the Utilities Division and the City Engineer. Off-site extensions of the public system in order to provide gravity service may be required. Should a private system be allowed, the following criteria shall be addressed prior to plan approval:

1. A provision for continued operation by the appropriate Class or Grade Operator as required in AAC R18-05-114.

2. A provision for scheduled routine operation and maintenance by qualified personnel and an operation and maintenance manual approved by ADEQ.

3. An emergency spill prevention and response plan shall be kept at the site and include provisions for twenty-four (24) hour response and mitigation by qualified personnel.

4. In accordance with AAC R18-9-E301, wastewater collection, force mains, and lift stations having the design flow of ten thousand (10,000) gpd or more shall maintain and revise, when needed, an operation and maintenance plan at the operator's control center (office) and the appropriate field person's vehicle.

5. Private pressure systems may not be placed within public Right-of-Way or public utility easement. Separate private utility easements may be required.

6. When a lift station is installed as an interim condition until the future extension of a gravity main, the developer shall pay to the City Utilities Division the estimated cost of decommissioning and removing the lift station and connecting to the gravity main.

ORDINANCE NO. 2025-03

AN ORDINANCE OF THE CITY COUNCIL OF THE CITY OF FLAGSTAFF, AMENDING THE FLAGSTAFF CITY CODE, TITLE 13-09-002-0012, PRIVATE PRESSURE WASTEWATER MAINS AND SERVICES, BY ADOPTING BY REFERENCE THAT CERTAIN DOCUMENT ENTITLED "2025 – PRESSURE WASTEWATER CODE AMENDMENT"; PROVIDING FOR REPEAL OF CONFLICTING ORDINANCES, SEVERABILITY, AUTHORITY FOR CLERICAL CORRECTIONS, AND ESTABLISHING AN EFFECTIVE DATE

RECITALS:

WHEREAS, the City of Flagstaff wishes to amend provisions in Chapter 13-09-002-0012 related to pressure wastewater mains and services; and

WHEREAS, pursuant to A.R.S. § 9-240(5) a municipality may provide pipelines and infrastructure for wastewater, including improvements and updates to the types of wastewater mains and services; and

WHEREAS, pursuant to A.R.S. § 9-511 a municipality may engage in the business of a utility, including the reception and treatment of wastewater, and improving or adding different types of wastewater mains and services; and

WHEREAS, pursuant to A.R.S. § 9-511.01 a municipality may provide funding for proper maintenance of all types of wastewater mains and services, including updating and constructing additional infrastructure to become part of the City's wastewater mains and services; and

WHEREAS, Flagstaff City Code Section 13-09-002-0012 provides information and regulations regarding pressure wastewater mains and services which the Flagstaff City Council desires to amend; and

WHEREAS, the Council has read and considered the staff report prepared by Water Services; and

WHEREAS, that certain document known as *"2025 – Pressure Wastewater Code Amendment"*, one (1) paper copy and one (1) electronic copy of which are on file with the City Clerk in compliance with A.R.S. § 44-7041, was declared to be a public record by Resolution No. 2025-09.

ENACTMENTS:

NOW, THEREFORE, BE IT ORDAINED BY THE COUNCIL OF THE CITY OF FLAGSTAFF AS FOLLOWS:

SECTION 1. The foregoing recitals are incorporated as if fully set forth herein.

SECTION 2. That certain document known as *"2025 – Pressure Wastewater Code Amendment"*, one (1) paper copy and (1) electronic copy of which are on file in the office of the City Clerk of the City of Flagstaff, Arizona, and which document is declared a public record by Resolution No.

2025-09 of the City of Flagstaff, Arizona, is hereby referred to, adopted and made a part hereof as if fully set out in this ordinance and its provisions are hereby declared to amend the Flagstaff City Code, replacing and superseding the existing relevant provisions of the City Code, as set forth therein.

SECTION 3. The amendment will not be detrimental to the public interest, health, safety, convenience, or welfare of the City, and will add to the public good as described in the General Plan.

SECTION 4. The amendment is internally consistent with other applicable provisions of the Flagstaff City Code.

SECTION 5. Repeal of Conflicting Ordinances

All ordinances and parts of ordinances in conflict with the provisions of the code adopted herein are hereby repealed.

SECTION 6. Severability

If any section, subsection, sentence, clause, phrase or portion of this ordinance or any part of the code adopted herein by reference is for any reason held to be invalid or unconstitutional by the decision of any court of competent jurisdiction, such decision shall not affect the validity of the remaining portions thereof.

SECTION 7. Clerical Corrections

The City Clerk is hereby authorized to correct clerical and grammatical errors, if any, related to this ordinance, and to make formatting changes appropriate for purposes of clarity, form, or consistency with the Flagstaff City Code.

SECTION 8. Effective Date

This Ordinance shall be effective thirty (30) days following adoption by the City Council.

PASSED AND ADOPTED by the City Council of the City of Flagstaff this 4th day of March 2025.

_____
MAYOR

ATTEST:

_____
CITY CLERK

APPROVED AS TO FORM:

_____
CITY ATTORNEY

CITY OF FLAGSTAFF

STAFF SUMMARY REPORT

To: The Honorable Mayor and Council

From: David Pedersen, Capital Improvements Project Manager

Co-Submitter: Stacey Brechler-Knaggs

Date: 02/26/2025

Meeting Date: 03/04/2025

TITLE:

Consideration and Approval of Contract: Fourth Amendment to the Design-Build Contract with Hunter Contracting Co. in the amount of $688,880 adding GMP 5 for Construction and Repair Services for the Inner Basin Waterline Restoration Project.

STAFF RECOMMENDED ACTION:

1. Approve the Fourth Amendment to the Design-Build Contract with Hunter Contracting Co. in the amount of $688,800 adding GMP 5 for Construction and Repair Services for the Inner Basin Waterline Restoration Project with a contract duration of 75-calendar days; and
2. Authorize the City Manager to execute the necessary documents.

Executive Summary:

The Pipeline Fire (June 2022) burned 26,532 acres, including portions of the Schultz Creek and Chimney watersheds. The post-fire flooding impacted the City of Flagstaff during the 2022 monsoon season, and caused catastrophic damage, including damage to the City's Inner Basin pipeline and Waterline Road. Hunter Contracting has remarkably accomplished the repair of the waterline, with Inner Basin spring water now being incorporated into the City's water production. However, the roadway work and armoring of the waterline and roadway drainage crossings will be ongoing into the fall of 2025. GMP 5 will provide the funding for Hunter Contracting to finalize construction and armoring of Waterline Road, the integrity of the pipeline, and closeout for the Inner Basin Waterline Restoration Project.

Financial Impact:

The funding for the Inner Basin Waterline Restoration Project is being funded initially by account 202-08-370-3519-0-4421 in Water Services for Project expenses. These funds will be reimbursed to the City of Flagstaff by the Arizona Department of Forestry and Fire Management (DFFM). The reimbursement funding for this Disaster Recovery Project will be reimbursed up to $16.1 million, the not-to-exceed amount for reimbursement funding from DFFM.

Policy Impact:

No Impact.

Previous Council Decision or Community Discussion:

This is the eighth time this item has been discussed before City Council.

10 January 2023 : Presentation with Project details was presented by City Staff and USFS personnel
17 January 2023 : Contract and GMP 1 approved by City Council (30% design work)
2 May 2023 : GMP 2 approved by City Council (90% design work)
3 July 2023 : Contract for Inspection Services approved by City Council
28 August 2023 : GMP 3 for Final Design and Maintenance Repair Services

20 February 2024 : GMP 4 for Construction and Repair Services
17 September 2024 : Change Order 3 for Flagstaff Spring Repair

Options and Alternatives to Recommended Action:

1. Approve the Fourth Amendment to the Design-Build Contract to add GMP 5 as recommended. Approval will allow the construction work to be completed; or
2. Reject approval of the award as recommended. This action would delay the project.

Background and History:
The Pipeline Fire was reported on June 12, 2022, approximately six miles north of Flagstaff within the Coconino National Forest. The fire burned 26,532 acres, including portions of the Schultz Creek and Chimney watersheds. A burn scar assessment and flood modeling subsequently showed potential post-wildfire flood risk to neighborhoods on the west side of Flagstaff. Both the City of Flagstaff and the Coconino County Flood Control District are collaborating with public and private partners and taking extensive measures and precautions to mitigate damage from future potential flood events.

The post-fire flooding impacted the City of Flagstaff during the 2022 monsoon season, and caused catastrophic damage, including damage to the city's Inner Basin pipeline and Waterline Road. The city needs to repair the waterline and corresponding roadway to have it ready for use by the fall of 2023. City Staff and partnering stakeholders feel there is an immediate threat to the health of citizens resulting from the instability of water supply. Spring water from the Inner Basin can peak as high as 2 million gallons per day (MGD) in summer months. Well water from the three wells (IB9, IB11 & IB14) in the Inner Basin has a similar peak capacity of about 2MGD. The design capacity of the North Reservoir Filtration Plant (NRFP), where Inner Basin water is treated, is 4MGD. Overall, Inner Basin water can account for at least 20% of Flagstaff's daily potable water demand during peak consumption weeks of summer. In summary, spring and well water from the Inner Basin, flowing through the Inner Basin waterline and within both the Waterline and Schultz Pass roads is a significant supply of both potable water to the residents in and around Flagstaff, as well as fire-fighting purposes. Repair and reinforcement of the Inner Basin pipeline, along with repair of both Waterline and Schultz Pass roads, are urgently needed to ensure the health and safety of the community.

The city estimates, based on experience, that awarding a contract using a sealed bidding process would require at least 90+ days, and the city's engineering division estimates the repair work would last another 60+ days. This would have likely extended the project kickoff beyond fall of 2023, further delaying access to this critical water supply. Rather than conducting a sealed bidding process and due to the exigent situation, the City, in compliance with State and local law, sole sourced the Design-Build Team that we previously contracted with, through a competitive public procurement process, for repair of the Inner Basin pipeline that resulted from the 2010 Schultz Fire.

The City of Flagstaff has a contract with the Design-Build team of Hunter Contracting and Jacobs Engineering to design and repair the Inner Basin pipeline and roadway and will issue several Guaranteed Maximum Price (GMPs) for the cost of design and construction. The request today is for the fifth GMP to close out the project.

Connection to PBB Priorities and Objectives:
Safe and Healthy Community : Ensure the built environment is safe through the use of consistent standards, rules and regulations, and land use practices

Sustainable, Innovative Infrastructure : Deliver outstanding services to residents through a healthy, well-maintained infrastructure system

Connection to Regional Plan:
Regional Plan : Goal E&C.7 : Environmentally Sensitive Lands Goals and Policies
Give special consideration to environmentally sensitive lands in the development design and review process
Regional Plan : Goal WR.5 : Stormwater and Watershed Management Goals and Policies
Manage watersheds and stormwater to address flooding concerns, water quality, environmental protections, and rainwater harvesting

Regional Plan : Goal WR.3 : Water Demand Goals and Policies
Satisfy current and future human water demands and the needs of the natural environment through sustainable and renewable water resources and strategic conservation measures

Connection to Carbon Neutrality Plan:
Water Security (WS-1) : Improve water infrastructure and expand water reuse.
Water Security (WS-2) : Improve ecosystem management for protection of water resources.

Healthy Forests and Open Spaces (HF-2) : Restore and maintain the natural fire-adapted structure and pattern of the forests of the greater Flagstaff region through collaboration with partners.
Health and Safety (HS-4) : Improve the resilience of public infrastructure and City facilities.

Connection to 10-Year Housing Plan:
Improving and repairing our water infrastructure will provide water to our community housing.

Attachments: Fourth Amendment - GMP5
Fourth Amendment - Exhibit A
Presentation
Project Map

FOURTH AMENDMENT

Pipeline West Post-Fire Flooding
Inner Basin Waterline Project

Design-Build Contract

Design Phase and Construction Services Phase I – GMP 5

Project No. 3519/PSPipline
AZDEMA Declaration #SD2302
Contract No. 2023-74

This Fourth Amendment ("Fourth Amendment") to the fully executed Design-Build Services Agreement No. 2023-74 dated January 30, 2023 (the "Agreement") for the City of Flagstaff Pipeline West Post-Fire Flooding: Inner Basin Waterline Project (the "Project") is made and entered into this ____ day of _____, 2025, by and between the City of Flagstaff, an Arizona municipal corporation ("City"), and Hunter Contracting Co., an Arizona corporation ("Design-Builder").

The parties to the Agreement, hereby agree to the following Fourth Amendment:

A. Pursuant to Article 5 – Contract Price, Section 5.3, Exhibit C – Fee Schedule is amended to include GMP 5 – Exhibit A – Design-Builder's GMP 5 Summary Sheet, dated February 5, 2025, 2 pages.

B. Design-Builder's GMP 5 – Complete Remaining Project – shall total **six hundred eighty-eight thousand, eight hundred dollars and zero cents ($688,800.00).**

C. The total Contract Price for the complete performance of work under the Agreement, as amended by this Fourth Amendment, shall be **fifteen million, five hundred sixty-nine thousand, seven hundred fifty-nine dollars and ninety cents ($15,569,759.90).**

D. All other provisions of the Agreement shall remain unchanged in full force and effect.

(Signatures on Following Page)

IN WITNESS WHEREOF, the Parties have caused this Fourth Amendment to be executed by their duly authorized representatives as of the date first written above. This Fourth Amendment will be in full force and effect only when it has been approved and executed by the duly authorized City officials.

City of Flagstaff

By:_____
Greg Clifton, City Manager

Dated:_____

Attest:

_____
City Clerk

Approved as to form:

_____
City Attorney

Hunter Contracting Co.

By:_____

Title:_____

Dated:_____

Hunter CONTRACTING CO.

701 N. Cooper Rd. Gilbert AZ 85233
6930 N. Camino Martin, Tucson AZ 85741
3580 W. Ina Rd., Ste. 170, Tucson AZ 85741

PH: 480.892.0521 FX: 480.892.4932
www.huntercontracting.com

February 5, 2025

David Pedersen
Project Manager - Capital Improvements
211W Aspen Avenue
Flagstaff, AZ 86001
Office :: 928.213.2677 || Cell :: 928.607.2515

RE: Pipeline West Post-Fire Flooding – INNER BASIN WATERLINE
City of Flagstaff Project No.: 3519 / PS Pipeline
AZDEMA Declaration #SD2302

Subject: Design-Build Services DS-5 Cost Proposal (GMP-5)

Dear Mr. Pederson,

Included is the Hunter Contracting Co. / Jacobs Design-Build Team's Cost Proposal and Guaranteed Maximum Price (GMP-5) of **$688,800.00** for the Schultz Flooding Inner Basin Road & Pipeline Reconstruction project. This GMP-5 will deliver to the City of Flagstaff final completion of necessary modifications and sustain construction repairs/improvements for a contract duration of 75 calendar days. GMP5 is a heavily based construction-based proposal with the intent of completing all major construction activities and final project closeout duties

The following summary sheet breaks down costs for items listed in GMP5 construction, some of which are improvements to existing sites and address sites that were not identified prior to GMP4. Final surfacing of the length of the project is also a major item in this GMP to protect the shallow depth of the waterline. The attached breakdown for the GMP5 scope of work is **$1,422,061.00,** previous project allowances in the amount of **$733,261.00** will offset this amount to reach the GMP5 total of **$688,800.00.**

If you have questions or comments, please do not hesitate to contact me at 520-954-3016 (cell) or at my direct office line 480-632-4954.

Thank you for your time and consideration.

Chuck English
President
Hunter Contracting Co.

Project: Inter Basin Waterline
Owner: City Of Flagstaff, Arizona
Designer: Jacobs Engineering
Location: Flagstaff, Arizona
Contractor: Hunter Contracting Co. ROC070961A

GMP 5 Complete Remaining Project

Item	Description	GMP 5	Details
1	Site 2- 75' add 4-5 rows-surface/pipe	$ 168,100	75’ length,4-5 rows tall,Excavate road and remove pipe,Replace pipe during site construction ,AB surface
2	Site 2 to K- AB surface	$ 120,890	AB surfacing full length -4" ABC-2700SY
3	Site 3- to site 2- Ab surface	$ 29,050	AB surfacing full length -4" ABC-1270SY
4	Site 4- Extend ramp 3 row gab/rocks	$ 112,440	Extend ramp around corner and surface with AB 80’ 3’ 14’,60’ gabion 3 row
5	Site 15 -Import extend ramps	$ 16,350	Import material to extend ramp up hill side,Extend ramp 75ish feet 2-3’ fill on average 15’ width ,Ab extended ramp
6	Site 18A to 18- Ab surface to	$ 30,670	AB surfacing full length -4" ABC-1560SY
7	Site 20- Uphill Erosion stab	$ 34,360	Uphill erosion stabilization (grouted riprap channel?)
8	Site 21- New structure 18'bot 24'	$ 39,320	additional structure uphill site 21 18’ bottom 24’ top
9	Site 22- Extra soil stab downhill	$ 95,901	Soil stabilization Under structure downhill side,Concrete slope replacement
10	Site 22 to 23- AB road stab	$ 70,265	AB surfacing full length (exposed pipe couple locations)-4475SY
11	Site 23-GMP5-18bot 24' top	$ 39,320	structure downhill approx 300’ 18’ bottom 24’ top- 2 rows
12	Site 24 to Site 25-AB Road Stab	$ 93,850	AB surfacing full length -4" ABC-3711SY
13	Site 26-GMP5	$ 47,121	Gabion wall uphill side 18’ bottom 24’ top,Stabilization material underneath wall
14	Forest Service Requirements/Closeout	$ 15,000	Scope for restoration/ seeding if needed, Reflective markers at sites or where needed, closeout for Forest service,veg monitoring if needed
15	Hazard tree removal/Maintenance	$ 59,000	Estimate for 75 trees,Road maintenancece as needed
16	Existing structure waterline boxes/ infrastructure Maintenance	$ 59,000	Rehab work for 15 Boxes- Included Valve collars at A,Flaps as needed, Exposed pipe encasement, water line infracsture maintence
	Site Subtotal	**$ 1,030,636**	
17	Construction Water	$ 13,500	
18	General Conditions	$ 156,000	
19	**Subtotal Direct Cost of Construction**	**$ 1,200,136**	
20	Payment and Performance Bonds	$ 10,801	
21	Insurance	$ 12,001	
22	Construction Fee	$ 138,016	
23	**Subtotal**	**$ 1,360,954**	
24	Sales Tax	$ 61,107	
25	**Construction Cost Total**	**$ 1,422,061**	
26	**Total Projected Cost**	**$ 1,422,061**	
27	GMP (3,4) ALLOWANCE	$ (733,260.96)	Note This is a summation of previously unused Allowance, to be used as field directive from previously GMP's
28	**GMP5 Total**	**$ 688,800**	



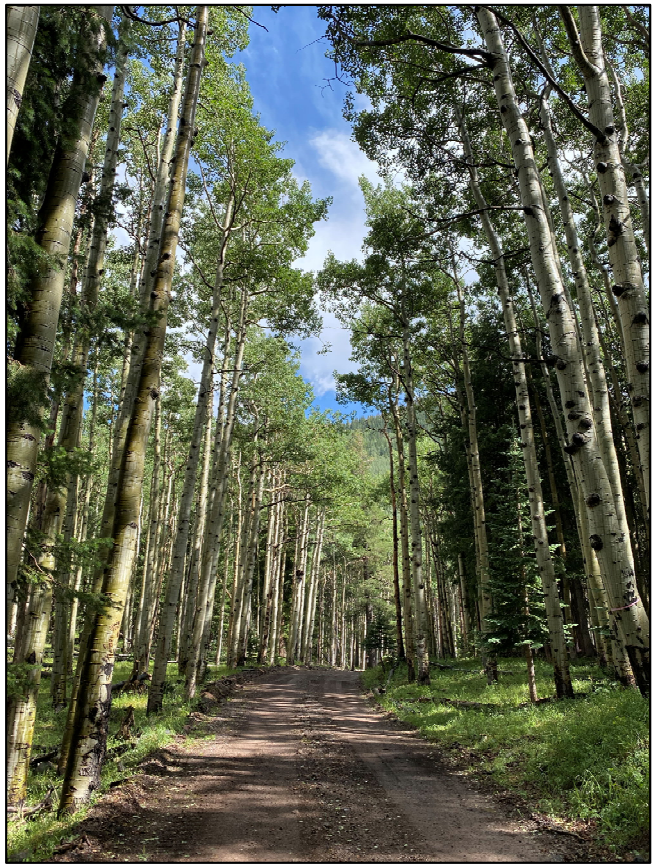
Inner Basin Waterline Restoration Project

4 March 2025

TEAM FLAGSTAFF
WE MAKE THE CITY BETTER

Project Stakeholders

- US Forest Service
- AZ Dept Forestry and Fire Management (DFFM)
- Hunter Contracting Co.
- Jacobs Engineering
- Coconino County
- AZ Game & Fish
- City Staff



Waterline Road – Inner Basin

Awards to Date



Exciting News

- ***2025***
  Associated General Contractors
  AZ Chapter Building AZ Award

- ***2024***
  AZ Transportation Builders Assoc.
  Ben Patton Luster Safety Award



Guaranteed Maximum Price

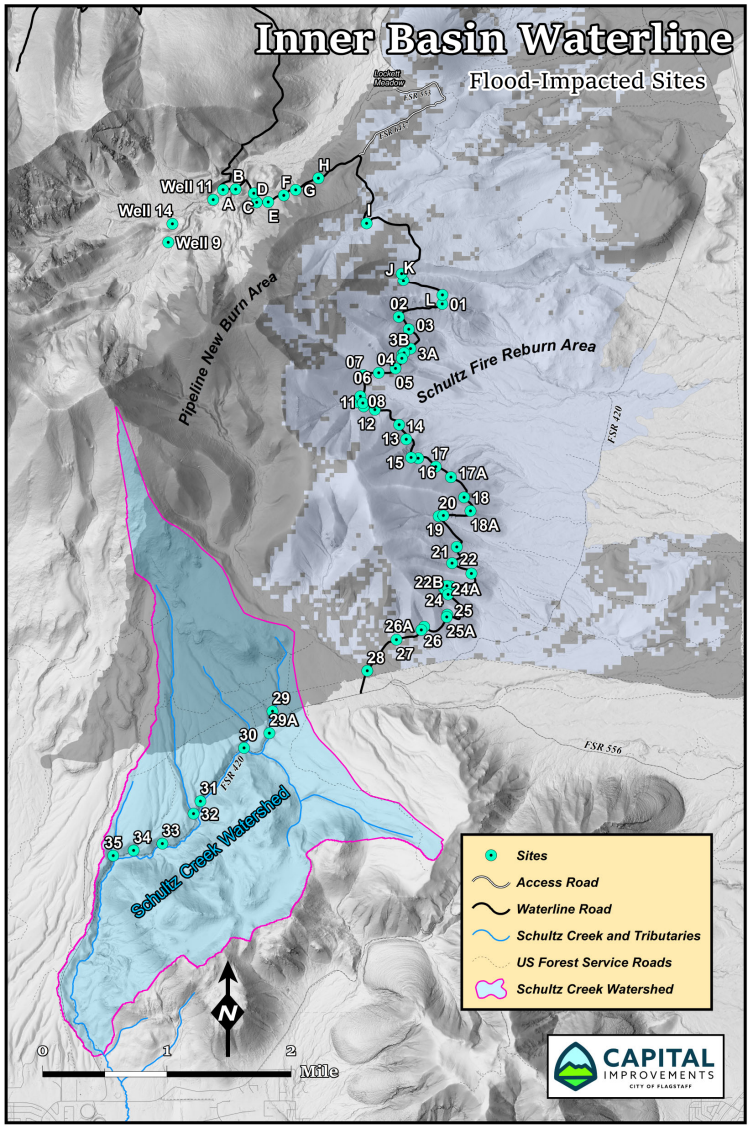
GMP - 5

Contractor

Hunter CONTRACTING CO.

Details

- $688,800.00
- Contract Period of 75 Calendar Days
- Project Closeout



Project Extent Map

Scope of Work

GMP 5 – Project Closing Out

- Anticipated Work May to Early Fall (2025)
- Sites – 2, 3, 4, 15, 18A&B, 20, 21-24, 26
- Maintenance of Road and Waterline
- US Forest Service Closeout Requirements



Contract & Project Timeline

Construction Contract(s) – 2023-2025

- **GMP-1** → *17 January 2023*
- **GMP-2** → *2 May 2023*
- **Inspection Services** → *3 July 2023*
- **GMP-3** → *28 August 2023*
- **GMP-4** → *20 February 2024*
- **GMP-5** → *4 March 2025*

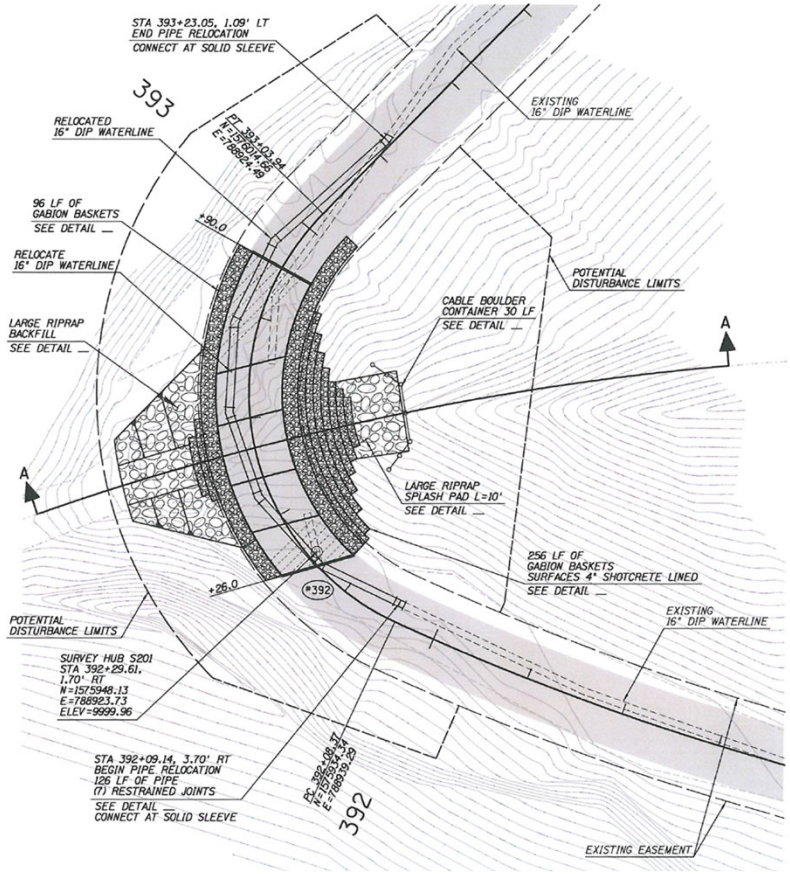


Contract & Project Costs

Construction Contract(s) – 2023-2025

- **GMP-1** → *$189,694*
- **GMP-2** → *$3,220,380.87*
- **Inspection Services** → *$499,520*
- **GeoTech Services** → *$30,720.00*
- **GMP-3** → *$2,425,978.03*
- **GMP-4** → *$9,044,907*
- **GMP-5** → *$688,800*

Total $16,099,999.90





TEAM FLAGSTAFF
WE MAKE THE CITY BETTER

Questions & Comments

Inner Basin Waterline

Flood-Impacted Sites

Lockett Meadow

FSR 553

FSR 6437

Well 11

Well 14

Well 9

A

B

C

D

E

F

G

H

I

J

K

L

01

02

03

3A

3B

04

05

06

07

08

11

12

13

14

15

16

17

17A

18

18A

19

20

21

22

22B

24

24A

25

25A

26

26A

27

28

29

29A

30

31

32

33

34

35

Pipeline New Burn Area

Schultz Fire Reburn Area

FSR 420

FSR 420

FSR 556

Schultz Creek Watershed

N

0 1 2 Mile

Sites

Access Road

Waterline Road

Schultz Creek and Tributaries

US Forest Service Roads

Schultz Creek Watershed

CAPITAL IMPROVEMENTS

CITY OF FLAGSTAFF

CITY OF FLAGSTAFF

STAFF SUMMARY REPORT

To: The Honorable Mayor and Council

From: Brian Gall, Airport Director

Date: 02/26/2025

Meeting Date: 03/04/2025

TITLE:

Consideration and Approval and Ratification of Contract: Approve the Concessionaire Services License Agreement with Hi-Line Snack and Vending, Inc. to add two micro-markets and a coffee kiosk at the Flagstaff Pulliam Airport.

STAFF RECOMMENDED ACTION:

1. Approve the Concessionaire Services License Agreement with Hi-Line Snack and Vending, Inc. to add two micro-markets and a coffee-kiosk at the Flagstaff Pulliam Airport; and
2. Authorize the City Manager to execute the necessary documents.

Executive Summary:

On November 14, 2024, the City of Flagstaff issued a Request for Proposals for qualified food and beverage vendors to provide two self-serve micro-market food and beverage locations, including, at least one coffee kiosk within the Flagstaff Pulliam Airport ("Airport"). The two locations are inside the Airport Terminal; with one micro-market/coffee kiosk in the Terminal lobby and one micro-market in the passenger hold room beyond the security check point. Micro-markets are unattended, self-service stores with a variety of food and beverage items, including fresh food options, such as salads and sandwiches. The equipment in the Terminal lobby will include a coffee kiosk.

Two prospective vendors submitted proposals and an evaluation committee of City staff reviewed and scored the proposals. Through this solicitation process and the evaluation of the vendors that submitted proposals, staff is recommending the selection of Hi-Line Snack and Vending, Inc. ("Hi-Line") to provide the micro-markets and coffee kiosk services. Photographs of the proposed equipment are attached to this staff summary. The Concessionaire Services License Agreement term is for ten (10) years with two (2) optional five-year renewals.

Financial Impact:

Project Name: Concessionaire Services License Agreement
Cost: The Licensee will provide concessions payments of a percentage of their quarterly gross receipts to the City.

Policy Impact:

None

Previous Council Decision or Community Discussion:

None

Options and Alternatives to Recommended Action:

1. Approve the Concessionaire Services License Agreement with Hi-Line for two micro-markets and a

coffee kiosk at the Airport; or
2. Provide staff additional direction.

Background and History:
The Concessionaire Services License Agreement with Hi-Line Snack and Vending, Inc. will bring two micro-markets and a coffee kiosk to the Flagstaff Pulliam Airport ("Airport") for the benefit of fliers, employees housed at the Airport, and citizens visiting the Terminal.

The Airport is currently served by American Airlines with daily direct flights to Phoenix Sky Harbor International Airport and Dallas Fort Worth International Airport. The 2024 projected passenger volume for the Airport is approximately 160,000 enplanements and deplanements (passengers boarding and arriving from commercial flights). Flight hours vary seasonally, but the first departure is commonly at 6:00 a.m. and the last arrival is commonly at 11:00 p.m. To accommodate this flight schedule, the Terminal operating hours are 4:00 a.m. to 12:00 a.m. In addition to employee and passenger traffic, the Airport sees individuals dropping off and picking up passengers. The Terminal houses the employees of the Airport administrative offices, the Flagstaff administrative offices of American Airlines, and the offices of the Transportation Security Administration. The Terminal is also the main location for car rentals in northern Arizona (Alamo, Avis, Budget, Enterprise, Hertz, and National) and the Terminal visitors include car rental customers who visit the Airport specifically for this reason.

In addition to adding the micro-market/coffee kiosk to the Terminal lobby, the City is currently conducting a large renovation project for a new City-operated and City-staffed Visitor Center in the Terminal lobby with a dining area with cafe-style tables and chairs directly adjacent to the Visitor Center (and the micro-market/coffee kiosk). The City is pursuing the acquisition of a liquor license at the Visitor Center to sell single-serve beer and wine beverages. Travel goods and souvenirs will also be sold at the Visitor Center. It is intended that the seating area and the single-serve beer and wine beverages will serve as a compliment to the products sold at the Visitor Center and the micro-market/coffee kiosk. A second micro-market will be located inside the secure passenger holding area.

Procurement staff ran a formal solicitation through a Request for Proposals on PlanetBids from 11/14/2024 to 12/13/2024. Published on 11/21/2024 and 11/28/2024 in the Arizona Daily Sun. The solicitation pulled two responsive proposals. A team of six evaluators scored the proposals to determine which firm was most qualified to work with the City. The following is the final scoring. Hi-Line Snack and Vending, Inc. was determined to be the most advantageous contractor to work with the Airport in this project.

Hi-Line Snack & Vending, Inc. - 537
Mountain High Markets, LLC - 443

Connection to PBB Priorities and Objectives:
None

Connection to Regional Plan:

- Goal T.10. Strengthen and expand the role of Flagstaff Pulliam Airport as the dominant hub for passenger, air freight, public safety flights, and other services in northern Arizona.
- Policy T.10.1. Maintain and expand Flagstaff Pulliam Airport as an important link to the national air transportation system

Connection to Carbon Neutrality Plan:
None

Connection to 10-Year Housing Plan:
None

Attachments: HiLine Micro Market License Agreement
Presentation

CONSESSIONAIRE SERVICES LICENSE AGREEMENT

The License Agreement ("License") is entered into this _____ day of _____, 2025, by and between the City of Flagstaff ("City"), a political subdivision of the State of Arizona, and Hi-Line Snack and Vending, Inc., an Arizona corporation ("Licensee").

RECITALS

WHEREAS, the City is the owner and operator of Flagstaff Pulliam Airport located at 6200 Pulliam Drive, in Coconino County, Arizona ("Airport").

WHEREAS, the City issued a Request for Proposals (Solicitation No. MS-2023-05) seeking a qualified vendor to operate and manage self-serve food and beverage services ("Concessionaire Services") at the Airport terminal building ("Terminal");

WHEREAS, Licensee is willing and able to operate and manage self-serve food and beverage services at the Terminal.

NOW, THEREFORE, in consideration of the promises and mutual covenants contained herein, the Parties agree as follows:

AGREEMENT

LICENSE AND PERMISSIBLE USES

1. **Permissible Uses.** Licensee shall conduct the Concessionaire Services defined within the Scope of Work attached hereto as Exhibits A.1 and A.2.

2. **Premises.** The City hereby grants an exclusive license to Licensee to conduct the Concessionaire Services at the Airport Terminal location specifically identified in the Map of Premises attached hereto as Exhibit B ("Premises") but generally described as:

2.1 **Passenger Hold Room Micro-Market:** Approx. 12 linear feet of wall space in the secure Passenger Hold Room beyond the Transportation Security Administration checkpoint with provisions for electrical power but not plumbing.

2.2 **Visitor Center Micro-Market/Coffee Kiosk:** Approx. 16 linear feet of wall space in a non-secure portion of the Terminal, adjacent to the Visitor Center seating area with provisions for electrical power and plumbing.

3. **Joint Use and Common Areas.** Licensee, along with its employees, suppliers, subcontractors, agents, patrons and invitees shall have the right of ingress to and egress from the Premises, the Terminal, and the Airport, and a nonexclusive License to use common areas of the Airport open to the public, subject to all rules and regulations governing use of the Airport.

4. **Alterations to Premises.** City reserves the right at its expense to alter the Premises for planned improvements upon at least thirty (30) days advance written notice to the License.

LICENSE TERM

5. Term. The License shall be effective upon execution of all Parties and shall continue for a period of ten (10) years unless terminated as provided herein.

6. Renewal. The License may be renewed for up to two (2) additional five (5)- year terms upon mutual written agreement of the Parties. The City Manager or his/her designee (the Purchasing Director) shall have authority to approve renewal on behalf of the City.

PAYMENT AND GROSS RECEIPTS

7. Payment.

7.1 Licensee shall pay to the City an amount equal to 20% of Licensee's quarterly Gross Receipts for all revenues arising from Licensee's use of the Premises ("Payment").

7.2 Licensee shall pay to the City an additional Commission Volume Kicker in the percentage amounts identified below:

Total Annual Revenue	Commission Volume Kicker
$120,000 to $149,999	2.5%
$150,000 or more	5.0%

7.3 Quarterly payments are due May 1, August 1, November 1, and February 1, and the Commission Volume Kicker will be measured by the Total Annual Revenue and paid on February 1.

8. Definition of Gross Receipts. "Gross Receipts" means the total sales price, exclusive of sales and excise taxes, applicable fees and deposits, of all food and beverages, services and goods sold by Licensee from the Premises, or off-site if connected with Licensee's operations on the Premises, whether for cash or for credit, regardless of when or whether paid for or not, together with the aggregate amount of all exchanges of goods and services for like property, or services, at the selling price, as if it had been sold for cash or the fair and reasonable value, whichever is the greater. The total sales price of any and all sales of goods accepted by Licensee on consignment shall be included in its Gross Receipts.

9. Statements of Gross Receipts. Licensee shall submit a detailed statement to the City showing Gross Receipts from Licensee's operations at the Premises during the term of the License for each preceding quarter and showing such reasonable detail and breakdown as the City may require. A statement shall be submitted on the following schedule: May 1, August 1, November 1, and February 1. Licensee shall submit this detailed statement even if no Payment is owed for the preceding quarter.

10. Late Payment. Any payment that is not received within ten (10) days after the May 1, August 1, November 1, and/or February 1 is subject to a late payment fee of $50.00, and 1% interest per each following month or fraction of a month, from the time due and owing until paid.

SELF-SERVE FOOD AND BEVERAGE SERVICE OPERATIONS

11. Standard Operating Hours. The Licensee shall operate the Concessionaire Services 365 days per year, unless Licensee has made prior written arrangements with the City for maintenance or repair.

12. Health and Safety. Licensee agrees that it shall maintain a non-critical assessment rating from the Coconino County Health Department regarding the standards of food service in its use and operation of the Premises.

13. Airport Concessions Disadvantaged Business Enterprises ("ACDBE"). Licensee shall comply with the FAA ACDBE Requirements attached hereto as Exhibit D. Further, Licensee shall make good faith efforts to use suppliers and contractors that have ACDBE certification in the operation of its business at the Airport. Licensee shall provide an annual report to the Airport Director concerning Licensee's good faith efforts to use suppliers and subcontractors that are ACDBE, due on or before February 1. The City requires this information as part of its efforts to achieve its ACDBE goal at the Airport, per FAA regulations, 49 CFR Parts 23 and 26.

14. Positive Experience. The City desires that all Airport patrons have a positive experience. Licensee shall use good faith efforts to provide a welcoming atmosphere for the public. Licensee shall provide Concessionaire Services in a friendly, helpful, prompt, courteous, and respectful manner.

15. Conduct, Appearance and Badging. Licensee shall require all its employees, suppliers, subcontractors, agents, patrons and invitees to:

15.1 Act in a professional and respectful manner at all times when present at the Airport;

15.2 Wear clean and neat attire and display appropriate verifiable company identification at all times when performing duties under the License.

15.3 If the employees, suppliers, subcontractors, or agents may have access to secure locations of the Airport, they must maintain and display a Security Badge at all times when performing duties under the License.

15.4 Upon objection from the Airport Director to Licensee concerning the conduct, demeanor or appearance of such persons, Licensee shall promptly remove or correct the cause of the objection.

16. Waste Reduction and Sustainability. The City encourages Licensee to reduce waste and encourage recycling in its selection of packaging and products. As defined in Paragraph 24, the City will be responsible for removing trash and recycling materials that Licensee places in City-designated containers.

17. Noise and Odors. Licensee operations shall be conducted in a manner to minimize noise, vibration, movement of air, fumes and odors emanating from the Premises, so as not to disturb the traveling public and other persons in the Airport.

LICENSEE REPAIR AND MAINTENANCE OBLIGATIONS

18. General Maintenance. Licensee shall, at its sole cost and expense, maintain the Premises and all improvements, additions or alterations to the Premises in good working order, reasonable wear and tear excepted.

18.1 Licensee shall respond to any service requests for Concessionaire Services equipment within 24 hours and will be responsible for replacing of equipment that cannot be repaired within 48 hours.

18.2 Licensee must provide a customer service number that would be available Monday – Friday from 8:00 AM – 5:00 PM that would address service, repairs, and refunds.

18.3 Licensee must provide an after-hours customer service number City staff can use to reach the Licensee in the event of an emergency.

19. Preventive Maintenance and Repair. Licensee shall perform, at its sole expense, ordinary preventive maintenance and ordinary upkeep and non-structural repair of all equipment.

20. Loss. All losses incurred in the operation of the Concessionaire Services due to theft, fire, accident, spoilage, etc. will be the responsibility of the Licensee.

21. Other Repairs. Licensee shall, at its sole cost and expense, immediately repair any and all damage in or to any area of the Airport or the Terminal occasioned by the intentional or negligent acts, omissions or fault of Licensee, its agents or employees.

CITY OBLIGATIONS

22. Utilities. The City at its expense shall: (a) supply electricity, natural gas, and water as reasonably necessary for the conduct of Licensee's business operations; and (b) provide heating and cooling to the Terminal as the City shall reasonably determine.

23. Maintenance. The City at its expense shall maintain the following in good condition and repair: (a) the walls and roof of the Premises; and (b) the Terminal and all central mechanical distribution systems.

24. Custodial Service. The City at its expense shall provide custodial service in the Terminal and Airport, including the removal of trash and recycling materials that Licensee places in City-designated containers. This custodial service does not include the removal or trash or recycling materials deposited or collected within the equipment or furnishings that are provided by the Licensee (e.g., where there is an internal collection bin for coffee grounds or coffee cups within the coffee kiosk(s)). However, the City will endeavor to monitor the coffee kiosk(s) to provide a clean area for Airport patrons.

25. Security. The City will take reasonable security measures related to operation of the Airport but shall not in any way guarantee the safety or security of the Premises and shall not be liable to Licensee or be in any way responsible for injury to persons or any damage to the Premises or Licensee's supplies caused by acts of vandalism, theft or other crime.

COMPLIANCE WITH LAWS, RULES AND REGULATIONS

26. In General. Licensee shall comply with all applicable federal, state, and local laws, regulations, standards, codes and ordinances in performance of the License, and provide proof of compliance to the City upon request.

27. Taxes. Licensee shall be responsible for payment of all taxes including federal, state, and local taxes related to or arising out of Licensee's business operations on the Premises. Such taxes include but are not limited to federal and state income tax, social security tax, unemployment insurance taxes, transaction privilege taxes, use taxes, and any other taxes or business license fees as required.

28. Licenses and Permits. Licensee its expense shall maintain current federal, state, and local licenses, permits and approvals required its operations on the Premises and for performance of the License and provide copies to City upon request. Licensee shall obtain and maintain a current City business license and transaction privilege tax license.

29. Airport Rules and Regulations. Licensee shall comply with all rules and regulations adopted by the City with respect to the use of, conduct and operation of the Airport, the Terminal, or any additions or improvements therein.

30. Prohibited Activities. Licensee shall not do, or allow its employees, suppliers, subcontractors, or agents to:

30.1 Interfere with the effectiveness or accessibility of the Airport's drainage and sewage system, electrical system, air conditioning system, fire protection system, sprinkler system, alarm system, fire hydrants and hoses, if any, installed or located on or within the Airport;

30.2 Act in a manner that will invalidate or conflict with any fire or other casualty insurance policies covering the Airport or any part thereof;

30.3 Dispose of any waste material taken from, or products used at, the Premises (whether liquid or solid) into the sanitary or storm sewers at the Airport unless the waste material or products have first been properly treated by equipment installed with the approval of the appropriate regulatory authority for that purpose;

30.4 Act in conflict with 14 C.F.R. Part 139 or jeopardize the Airport's operating certificate;

30.5 Act in conflict with any Transportation Security Administration approved security plan adopted by the Airport;

30.6 Act in any manner that might interfere with the landing and taking off of aircraft at or from the Airport or would otherwise constitute a hazard.

30.7 In the event of any breach of the foregoing obligations:

30.7.1 The City reserves the right to enter upon the Premises, and/or access any property of Licensee at the Airport and cause the abatement of such interference at the expense of Licensee and without liability to the City.

30.7.2 The City reserves the right to terminate the License pursuant to the methods defined within this License.

31. Nondiscrimination. Licensee shall not discriminate against any employee or applicant for employment or person to whom it provides services because of race, color, religion, sex, national origin, disability, genetic information, veteran's status, pregnancy, familial status and represents and warrants that it complies with all applicable federal, state and local laws and executive orders regarding employment. In addition, any Licensee whose business is located within City of Flagstaff limits shall comply with the City Code, Chapter 14-02, *Civil Rights*, which also prohibits discrimination based on sexual orientation, or gender identity or expression.

32. Compliance with Airport Improvement Program. Licensee understands and agrees that the License may be amended by the City, without consent of Licensee, in any manner necessary to comply with any requirement of the Federal Aviation Administration or other instrumentality of the Federal government or State of Arizona in order for the City to qualify or maintain its qualification under the Airport Improvement Program, as authorized and administered under the Airport and Airway Improvement Act of 1982, 14 U.S.C. § 47101, *et seq.,* as amended and as may be amended from time to time.

33. Compliance with FAA Assurances. Licensee shall conduct its business operations at the Airport in compliance with the FAA Airport Assurances attached hereto as Exhibit C, as may be amended to the extent appliable to the Licensee and its business operations at the Airport. As used in the FAA Airport Assurances, the term "sponsor" means the City of Flagstaff.

INDEMNIFICATION AND INSURANCE

34. General Indemnification. Licensee shall indemnify and hold the City, and its officers, agents, employees, and subcontractors, harmless from and against any third-party claims, actions, liabilities, costs, including reasonable attorneys' fees and other costs of defense, arising out of the acts, errors, or omissions of Licensee, its officers, agents, employees, and subcontractors, in performing or failing to perform the responsibilities identified in the License.

35. Insurance. Licensee shall carry $1,000,000 of Commercial General Liability insurance, $500,000 Automotive Liability insurance, and the State of Arizona statutorily required amount of insurance for Workers' Compensation and Employer's Liability. Upon request of the City, Licensee shall provide a Certificate of Insurance to the City documenting this requisite coverage.

36. Limitations on City Liability. The City shall not be liable any interruption of any services or utilities that City is obligated to provide under the License that is beyond the control of the City, and, except as otherwise may be expressly set forth in the License, Licensee shall have no cause of action against the City as a result of any such interruption. In addition, City shall not be liable to Licensee for bodily injury or for any loss or damage to real or personal property occasioned by flood, fire, earthquake, lightning, windstorm, hail, explosion, riot, strike, civil commotion, smoke, vandalism, malicious mischief, or acts of civil authority and not caused solely by the negligence or willful acts or omissions of City.

CITY RESERVATION OF RIGHTS

37. Airport Development and Expansion. The City reserves the right to further develop, improve and expand the landing area or any other area, building or other improvement within the present or future boundaries of the Airport as it sees fit in its sole judgment, regardless of the desires or views

of Licensee and without interference or hindrance by Licensee. Further, the City retains the absolute right to maintain, repair, develop, improve and expand the Terminal, or any other Airport facility, Airport improvement or Airport property free from any and all liability to Licensee for loss of business or damage of any nature whatsoever as may be occasioned during or because of the performance of such maintenance, repair, development, improvement or expansion.

38. Airspace. There is hereby reserved to the City and its successors and assigns, for the use and benefit of the public, a right of flight for the passage of aircraft in the airspace above the surface of the Premises, including but not limited to the right to cause or allow in said airspace any noise inherent in the operation of any aircraft used for navigation or flight through the airspace or landing at, taking off from or operation at the Airport, without liability or obligation of any kind.

TERMINATION

39. Termination by City for Convenience. City may, at any time, terminate the License without cause by giving Licensee at least ninety (90) days written notice of termination, without further penalty or liability to Licensee.

40. Termination by the City for Insolvency. If Licensee becomes a debtor in a bankruptcy proceeding, or a reorganization, dissolution or liquidation proceeding, or if a trustee or receiver is appointed over all or a substantial portion of the property of Licensee under federal bankruptcy law or any state insolvency law, Licensee shall immediately provide the City with a written notice thereof. The City may terminate the License, and Licensee is deemed in default, at any time if the License becomes insolvent, or is a party to any voluntary bankruptcy or receivership proceeding, makes an assignment for a creditor, or there is any similar action that affects Licensee's ability to perform under the License.

41. Termination for Default. Either party may terminate the License for default. Prior to terminating the License for a material breach, the non-defaulting Party shall give the defaulting Party written notice and reasonable opportunity to cure the default, not to exceed thirty (30) days unless a longer period of time is granted by the non-defaulting Party in writing. In the event the breach is not timely cured, or in the event of a series of repeated breaches the non-defaulting Party may elect to terminate the License by written notice to the defaulting Party, which shall be effective upon receipt. In the event of default, the Parties may execute all remedies available at law in addition to the License remedies provided for herein.

42. Termination by Licensee for Convenience. Licensee may, at any time, terminate the License by giving the City at least six (6) months written notice of termination, without further penalty or liability to City.

43. Termination by Licensee due to Inability to Operate a Business. Licensee may, at any time that Licensee is not in default, terminate the License at its option by giving the City thirty (30) days' prior written notice of termination, upon the occurrence of any of the following events:

43.1 An order or action by the FAA or any other governmental authority substantially terminating Licensee's right to conduct its operations at the Airport;

43.2 The issuance, by a court of competent jurisdiction, of an injunction of at least thirty (30) days' duration, prohibiting or restraining the use of the Airport as an airport;

43.3 A national emergency resulting in a curtailment of the use of aircraft and/or motor vehicles by the general public, or a limitation of the supply of gasoline and/or aircraft fuel available to general use either by executive decree or legislative action, which results, in fact, in a substantial curtailment of Licensee's business operations at the Airport;

43.4 The seizure or other assumption of control of the Airport by any governmental entity other than the City.

43.5 Each Party shall have no further liability or penalty to the other party arising from such termination.

PROPERTY UPON TERMINATION

44. Condition of the Premises. Licensee covenants and agrees that upon any termination of the License, it shall quit and surrender the Premises, and perform all repairs of the Premises reasonably necessary to restore the Premises to the same condition it was in at the time the License was entered into, reasonable wear and tear excepted.

RECORDS, INSPECTION, ACCOUNTING

45. Records. The City shall have the right to inspect and audit all Licensee books and records related to the License for up to five (5) years after completion of the License.

46. Right to Inspect Business: The City shall have the right to inspect the place of business of Licensee or its subcontractor during regular business hours at reasonable times, to the extent necessary to confirm License performance.

47. Public Records: The License and any related materials are a matter of public record and subject to disclosure pursuant to Arizona Public Records Law. A.R.S. § 39-121 et seq. If Licensee has clearly marked its proprietary information as “confidential”, the City will endeavor to notify Licensee prior to release of such information.

48. Audits. City and its employees, agents and authorized representatives shall have the right at all reasonable times and during all business hours to inspect and examine such records, cash registers, books, and other data as may be necessary to confirm Licensee's Gross Receipts.

49. Annual Reports. If requested by City, within ninety (90) days after the end of each calendar year during the term of the License and any renewal term, Licensee shall furnish to the City an annual accounting statement prepared according to generally accepted accounting principles, in such form as the City may reasonably require, which is a true disclosure of the profits and losses of Licensee at the Premises.

AVIATION SECURITY PROCEDURES

50. Background Screening. Licensee agrees that all employees, suppliers, subcontractors, or agents who may have access to secure locations of the Airport shall be subject to background and security checks and screening (Background Screening) to determine their suitability to work under a City Airport contract in order to protect the Premises, Terminal and Airport. Licensee must pay for the cost of all Background Screenings.

52. Materiality of Background Screening Requirements and Indemnity. A breach of this Section by Licensee shall be deemed a material breach of the License. In addition to any other indemnification provision in the License, Licensee shall defend, indemnify, and hold harmless the City from and against any and all claims, actions, liabilities, damages, losses, and expenses (Claims) arising out of this Background Screening Section.

53. Continuing Duty and Audit: Licensee's obligation to ensure that all employees, suppliers, subcontractors, or agents who may have access to secure locations of the Airport pass a Background Screening shall continue throughout the entire term of the License. Licensee shall immediately notify the City of any change to a Background Screening. Licensee shall maintain all records and documents related to all Background Screenings and the City reserves the right to audit Licensee's compliance with this Section.

54. Airport Sterile Area Security Badge Requirements.

54.1 Licensee shall not allow employees, suppliers, subcontractors, or agents who may have access to secure locations of the Airport to begin work under the License until the individual passes a fingerprint-based criminal history background check required by federal law (49 C.F.R. § 1542.209) and passes a security threat assessment as mandated by the TSA through a security directive (49 C.F.R. § 1542.303).

54.2 Employees, suppliers, subcontractors, or agents are strictly prohibited from entering any area of the Airport that is not authorized by the Security Badge issued to them by the City. An Employee's access authority is only valid during their scheduled hours. Licensee shall provide the City with updates and changes in personnel as they occur.

54.3 Licensee shall immediately report any lost or stolen Security Badges to the City. A new security application must be completed and submitted along with payment of the applicable fee prior to issuance of a new Security Badge.

54.4 All Security Badges are the property of the City of Flagstaff and must be immediately collected by the Licensee and returned to the City within one (1) business day after the individual's access to the Airport is no longer required under the License. Licensee shall collect the badge when there is a termination of subcontract, resignation, transfer, lay-off, medical leave, termination, leave of absence, or when the License terminates, is cancelled, or expires, whichever occurs first. Failure to notify or return Security Badges is a violation of the Airport Security Rules & Procedures.

55. Liquidated Damages and Remedies for Breach of Aviation Security Procedures. In addition to any other remedy available to the City at law or in equity, including the right to terminate the License, Licensee shall be liable for and shall pay to the City a stipulated damage in the amount of $500.00 for the breach of the security procedures for the Flagstaff Pulliam Airport and for each time an employee, supplier, subcontractor, or agent enters a restricted or secured area of the Airport without proper authority. Licensee agrees that the stipulated damage amount is not a penalty but is a reasonable estimate of the actual harm to the City caused by a breach and that the harm was very difficult to estimate at the time the License was entered into.

MISCELLANEOUS

56. Amendment. The License may be altered through a formal written Amendment fully executed by all Parties.

57. Assignment. Licensee was selected for its special knowledge, skills, and expertise, and shall not assign the License, in whole or in part, without the City's prior written consent, which may be withheld for any reason. Any assignment without such consent shall be null and void. No assignment shall relieve Licensee (Assignor) from any of its obligations and liabilities under the License with respect to the City.

58. Attorneys' Fees. If any action at law or in equity is necessary to enforce the terms of the License, the prevailing party shall be entitled to recover its reasonable attorneys' fees, costs, professional fees and expenses.

59. Cancellation for Gratuities. The City may cancel the License at any time, without penalty or further liability, if City determines that Licensee has given or offered to give any economic opportunity, future employment, gift, loan, gratuity, special discount, trip, favor, or service to a public servant in connection with award or performance of the License.

60. Complete Agreement. The License is intended to be the complete and final agreement of the Parties.

61. Conflict of Interest. Pursuant to A.R.S. § 38-511, if the City identifies a conflict of interest in the award or performance of the License, the City may cancel the License within three years after its execution, without penalty or further liability to Licensee.

62. Drug Free Workplace. The City has adopted a Drug Free Workplace policy for itself and those doing business with the City to ensure the safety and health of all persons working on City contracts and projects. Licensee's personnel shall abstain from use or possession of illegal drugs while using the Premises or other areas of the Airport pursuant to the License.

63. Force Majeure. The performance of all covenants contained in the License, other than the covenants to pay the License Fee and Concessionaire Payments when due, shall be postponed and suspended during any period in which a Party's performance is prevented by Any Party desiring to invoke force majeure shall provide notice to the other Party no later than thirty (30) days following such Party's knowledge of the occurrence of such event and prompt notice of the cessation of such event.

64. Forum. In the event of litigation relating to the License, any action at law or in equity shall be filed in Coconino County, Arizona.

65. Governing Law. The License shall be governed, interpreted and enforced in accordance with the laws of the State of Arizona.

66. Notices. All notices given pursuant to the License shall be delivered at the addresses as specified in below or updated by Notice to the other Party. Notices may be: (a) personally delivered, with receipt effective upon personal delivery; (b) sent via certified mail, postage prepaid, with receipt deemed effective four days after being sent; or (c) sent by overnight courier, with receipt deemed effective two days after being sent. Notice may be sent by email as a secondary form of notice.

If to the City:

City of Flagstaff
Airport Director
6200 S. Pulliam Drive, Suite 204
Flagstaff, AZ 86001

With a copy to:
Real Estate Manager
211 W. Aspen Avenue
Flagstaff, AZ 86001

With a copy to:
Procurement Director
211 W. Aspen Avenue
Flagstaff, AZ 86001

If to Licensee:

Hi-Line Snack and Vending, Inc.
Palmer Nackard
4900 E. Railhead Ave.
Flagstaff, AZ 86004

67. Immigration Laws. Pursuant to A.R.S. § 41-4401, Licensee hereby warrants that it and each of its subcontractors shall comply with all state and federal immigration laws and regulations that relate to its employees and A.R.S. § 23-214(A). A breach of state and/or federal immigration laws and regulations shall constitute a material breach of the License.

68. Joint Venture. Nothing in the License is intended or shall be construed as in any way creating a relationship of partners or joint venturers between the Parties, or as constituting Licensee as the agent or representative or employee of the City for any purpose or in any manner whatsoever.

69. No Boycott of Israel: Pursuant to A.R.S. §§ 35-393 and 35-393.01, if a Party has over ten (10) employees and the License is worth at least one-hundred thousand dollars and no cents ($100,000), the Party shall certify that it is not currently engaged in, and agrees, for the duration of the License, will not engage in a boycott of Israel.

70. Forced Labor of Ethnic Uyghurs: Licensee hereby certifies that it does not use the forced labor of ethnic Uyghurs in the People's Republic of China as defined in A.R.S. § 35-394, et seq.

(Signatures Appear on Next Page)

IN WITNESSES WHEREOF, the City and Licensee have executed the License as of the day and year first above written.

LICENSEE:	CITY OF FLAGSTAFF
By:_____	By:_____
Title:_____	Title:_____
Date:_____	Date:_____
ATTEST:	APPROVED AS TO FORM:
_____ City Clerk	_____ City Attorney's Office

Exhibits:

Exhibit A.1 Scope of Work from HiLine Proposal
Exhibit A.2 Scope of Work from City
Exhibit B Map of Premises
Exhibit C FAA Airport Assurances
Exhibit D FAA ACDBE Requirements

EXHIBIT A.1 - SCOPE OF WORK FROM HI-LINE PROPOSAL

HI-LINE REFRESHMENT SERVICE

Site Plans – Visitors Center (2.1)



Built for all – The Smart Store Series

- Theft-proof merchandising designed for every customer to enjoy and every operator to manage.

Cantaloupe Smart Store Technology Dual Kiosk

- Smart Store link: [Introducing the Smart Store Series]



Eccellenza Touch

- A commercial bean-to-cup brewer manufactured by VKI Technologies.
  - It is now part of the Keurig Collection
- With an innovative brewing engine, a heavy-duty motor, and solid construction, this machine can serve up to 150 servings a day
  - Meets your customers different beverage cravings.
- Offers an unmatched beverage selection, the most cutting-edge technologies, and a speedy, convenient experience.





Kiosk

- Self-serve with card reader
- Accessibility features for ADA Customers:
  - Display is visible from a seated position (43" high)
  - Audio assistance announces name and price of products sold.
  - Audio assistance announces name and price of products stocked.
  - Screen reading feature available on mobile app when servicing.
  - Lighted alert signals to help place products in correct spot



Other

- Directional ingress & egress
- Signage & Stanchions

FLAGSTAFF AIRPORT
GRAND DESTINATIONS

HI-LINE
REFRESHMENT SERVICE

HI-LINE REFRESHMENT SERVICE

Site Plans – Passenger Hold (2.1)



Cantaloupe Smart Store with Single Kiosk



Coffee Kiosk -Eccellenza Touch

- Self-serve with card reader





Other

- Directional ingress & egress
- Signage & Stanchions

FLAGSTAFF AIRPORT
GRAND DESTINATIONS

HI-LINE
REFRESHMENT SERVICE

HI-LINE REFRESHMENT SERVICE

Approach & Solutions

- **2.2 Improvements:**
  - Very little improvement needed:
    - 20-amp circuit for freezers and coolers
    - Cap X for kiosks
- **2.3 Organization and Staffing:**
  - Tim Huffman (Director of Business Development), Don Scheid (Hi-Line Business Development Manager), Mark Westbrook (Hi-Line General Manager), Bennett Gillespie (Operations Manager), Ryan Smith (Sales Supervisor), Jordon Barbone (Account Manager), Teo Yazzie (Trade Audit Employee), Joe Lacombe (Service Manager), Jody Thomas (Service Technician)
    - No subcontractors
- **2.4 Concept:**
  - HLRS purchases products from Vistar Distributing (largest broker in the US), Pepsi-Cola, Coca-Cola, Frito Lay, Gabby's Grill (local fresh food), Matador Coffee (local coffee), Shamrock Foods, Wild Tonic (local Kombucha).
  - HLRS uses Streamware inventory and sales forecast software to assist in proper inventory and sales forecasting.

2025 FLAGSTAFF PULLIAM AIRPORT PRICING

SNACKS	PROPOSED PRICE
VEND CANDY	$3.00
LARGE CANDY	$4.00
GUM	$3.25
ALTOIDS	$3.50
CLIFF / KIND BARS	$3.00
NUTS / BARS	$3.00
LARGE JERKY	$4.00
PASTRIES	$3.00
LARGE MUFFINS	$3.25
COOKIES / RICE KRISPIES	$2.50
LSS SMALL CHIPS	$2.50
XVL CHIPS	$3.50
CEREAL	$3.50
NACHO / SALSA CUPS	$3.50
MARUCHAN	$3.00
EASY MAC	$3.00
OATMEAL	$2.50
FROZEN	**PROPOSED**
BURRITOS	$5.00
WHITE CASTLE	$4.50
BURGERS	$6.50
HOT POCKETS	$3.00
RIP & DIP	$7.00
RED BARON	$4.00
GP	$6.50
GRIDDLE	$3.00
PBJ	$2.50
CALZONE	$6.00
TORTELLINI	$7.00
ICE CREAM	$3.25
DIBS ICE CREAM	$5.25

DRINKS	PROPOSED PRICE
STARBUCKS	$4.50
ENERGY DRINKS	$4.00
PURE LEAF / JUICES	$3.25
20OZ GATORADE	$3.50
GATORLYTE	$4.00
20OZ CARBONATED SOFT DRINK	$3.50
12OZ CARBONATED SOFT DRINK	$2.00
MUSCLE MILK	$4.50
WILD TONIC KOMBUCHA	$4.00
MATADOR COFFEE 12OZ/16OZ	$2.00 $3.00
5-HOUR ENERGY	$4.50
SUNDRIES	
TYLENOL	$4.50
ADVIL	$4.50
PEPTO	$4.75
TOOTHBRUSH	$4.00
SCOPE	$4.00
FRESH	**PROPOSED**
DELI TRIANGLES	$9.25
DELI MEGA	$12.00
ITALIAN	$11.00
WRAPS	$12.00
EGGS	$3.00
PICKLES	$3.00
HILLSHIRE	$6.00
LUNCHABLES	$5.00
STRING CHEESE / COLBY JACK	$1.50
CHEESEWICH	$7.00
PANINO	$4.25

FLAGSTAFF AIRPORT
GRAND DESTINATIONS

HI-LINE
REFRESHMENT SERVICE

HI-LINE REFRESHMENT SERVICE

Approach & Solutions

- **2.5 N/A:**
- **2.6 Customer Service:** All HLRS employees receive continual training on customer service and professionalism. They are required to meet with the primary contact for any issues each visit. Each employee carries a handheld iPad to communicate service calls and issues with their direct supervisors. With these kiosks being cashless locations, the refunds are handled via a CSR code direct to HLRS.
- **2.7 Ability to Successfully Operate in the Airport Environment:** We have been operating at the Flagstaff Airport for many years via Hi-Line and Pepsi-Cola with restaurant contacts with no issues. We feel that we already work in compliance with airport rules and security.
  - **2.7.1** HLRS is already required to follow the TSA Security Screening on any equipment and products.
  - **2.7.2** We believe with the space given for each market location there will be enough room for customers to navigate through the markets with luggage and make purchases.
  - **2.7.3** The kiosk will be operated 365 days a year. With 24-hour emergency service and multiple pay kiosks, we should stay operational from an equipment standpoint. The Cantaloupe software reports will support volume surges and seasonality changes.
  - **2.7.4** HLRS has a 24/7 hot line and service technicians on call. We stock multiple replacement units at our Flagstaff warehouse.
  - **2.7.5** HLRS does not use subcontractors. We are staffed with utility positions, supervisors, and managers that are able to cover when an employee is out or unavailable to complete their route. We have been servicing the Flagstaff Airport for many years and have complied with all rules, regulations, and necessary screening.
- **2.8 Accessibility:** All market equipment will be ADA compliant (examples on site plan).
- **2.9 Waste and Reduction:** The Nackard Companies are extremely proud of our sustainability program and awards we have received over the past few years. We are recycling cardboard, plastic, and aluminum at our Flagstaff branch and partner with Replenysh. We are collecting recyclable materials from our customers and completing the circular process via Replenysh. HLRS will place recycle bins at market locations and back haul to our facility.
- **Projected Operating Costs:** HLRS projected sales for the Flagstaff Pulliam Airport are $110,000 per year. Our Operating costs are confidential.

FLAGSTAFF AIRPORT
GRAND DESTINATIONS

HI-LINE
REFRESHMENT SERVICE

SCOPE OF WORK

I. PRODUCTS AND SERVICES PROVIDED

Hi-Line Snack and Vending, Inc. ("Licensee") is a qualified food and beverage vendor who shall provide the City of Flagstaff ("City") two (2) self-serve micro-market food and beverage locations, including, at least one (1) coffee kiosk within the Flagstaff Pulliam Airport ("Airport") located at 6200 Pulliam Drive, Flagstaff, Arizona 86005. The two (2) locations are inside the Airport terminal ("Terminal") and described in detail below.

1. Licensee shall be responsible for the installation, repair and/or replacement of all equipment necessary to operate two (2) successful micro-markets and at least one (1) coffee kiosk.

2. Licensee shall supply all products for the equipment to ensure that the micro-markets and coffee kiosk(s) are adequately stocked with a variety of name brand food and drinks, including fresh and healthy options such as salads, sandwiches, yogurt, fruit, veggie snacks, energy bars, frozen treats, new age beverages, teas, and/or specialty coffees.

3. Licensee shall be responsible for removal of expired products.

4. Licensee shall have the ability to respond to requests for service or restocking, to operate equipment 365 days per year, and to adjust stocking schedules levels and business operations seasonally.

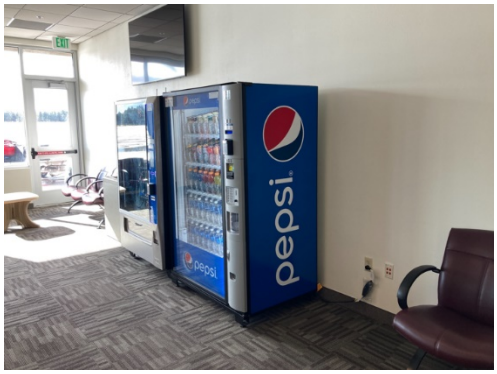
5. Licensee shall obtain and maintain the appropriate business and food service license(s) to operate the self-serve micro-markets and coffee kiosk(s).

6. Licensee shall provide customers to the micro-markets and coffee kiosk(s) an intuitive, self-checkout technology that accepts all major credit and debit cards for the purchase of the items.

7. Licensee shall ensure that all employees and/or subcontractors stocking or servicing the equipment at the Premises, Terminal or Airport comply with Airport Security Procedures, including the Employee Background Screening and Sterile Area Security Badge Requirements as outlined in the License.

II. FACILITIES

1. **Passenger Hold Room Micro-Market:** Approx. 12 linear feet of wall space in the secure Passenger Hold Room beyond the Transportation Security Administration checkpoint in the Terminal with provisions for electrical power but not plumbing. See Photo Below of Passenger Hold Room Location.



*In the future, the City may be interested in installing a stand-alone coffee kiosk within the Passenger Hold Room. The location for the coffee kiosk is not adjacent to the location of the micro-market identified above and will likely require plumbing modifications. A photograph of the area which may be available appears below (the current location of passenger seating). Any potential expense for modifications may be negotiated which shall be reflected in a formal amendment to the License.



2. **Visitor Center Micro-Market/Coffee Kiosk:** Approx. 16 linear feet of wall space in a non-secure portion of the Terminal. This location has provisions for electrical power and plumbing. See Photo Below of Visitor Center Location.

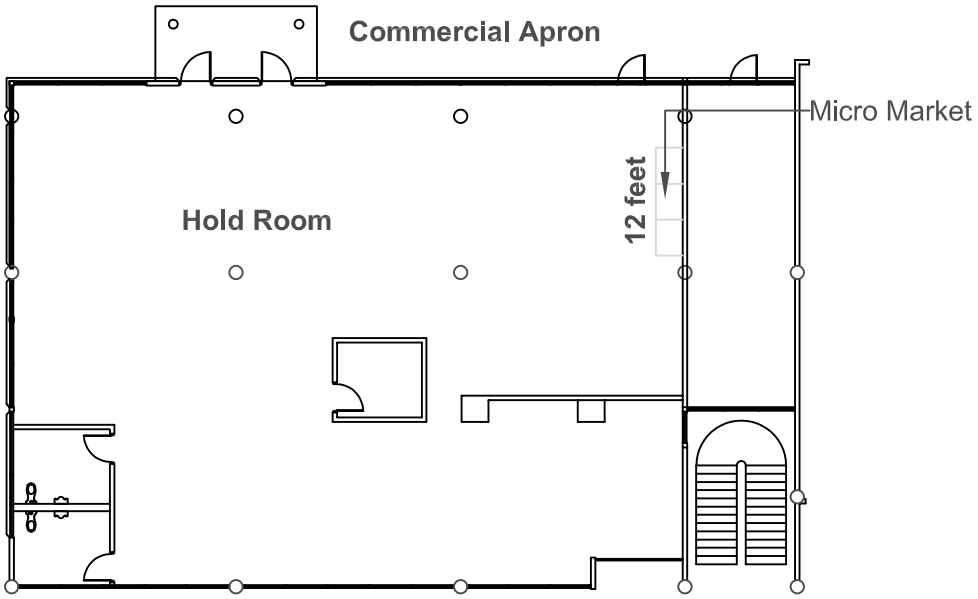


The location is adjacent to the large renovation project for a new Airport Visitor Center with a seating area. The Visitor Center Micro-Market/Coffee Kiosk is intended to compliment the Visitor Center and share seating.

3. **Loading.** Delivery and maintenance vehicles will be permitted to load and unload at a designated space in front of the Airport Terminal.

Flagstaff Airport

Market and Visitor Center Layout
Proposed Improvement Plan
No Scale





FLAGSTAFF AIRPORT
GRAND DESTINATIONS

FAA
Airports

ASSURANCES

AIRPORT SPONSORS

A. General.

1. These assurances shall be complied with in the performance of grant agreements for airport development, airport planning, and noise compatibility program grants for airport sponsors.
2. These assurances are required to be submitted as part of the project application by sponsors requesting funds under the provisions of Title 49, U.S.C., subtitle VII, as amended. As used herein, the term "public agency sponsor" means a public agency with control of a public-use airport; the term "private sponsor" means a private owner of a public-use airport; and the term "sponsor" includes both public agency sponsors and private sponsors.
3. Upon acceptance of this grant offer by the sponsor, these assurances are incorporated in and become part of this Grant Agreement.

B. Duration and Applicability.

1. **Airport development or Noise Compatibility Program Projects Undertaken by a Public Agency Sponsor.**

   The terms, conditions and assurances of this Grant Agreement shall remain in full force and effect throughout the useful life of the facilities developed or equipment acquired for an airport development or noise compatibility program project, or throughout the useful life of the project items installed within a facility under a noise compatibility program project, but in any event not to exceed twenty (20) years from the date of acceptance of a grant offer of Federal funds for the project. However, there shall be no limit on the duration of the assurances regarding Exclusive Rights and Airport Revenue so long as the airport is used as an airport. There shall be no limit on the duration of the terms, conditions, and assurances with respect to real property acquired with federal funds. Furthermore, the duration of the Civil Rights assurance shall be specified in the assurances.

2. **Airport Development or Noise Compatibility Projects Undertaken by a Private Sponsor.**

   The preceding paragraph (1) also applies to a private sponsor except that the useful life of project items installed within a facility or the useful life of the facilities developed or equipment acquired under an airport development or noise compatibility program project shall be no less than ten (10) years from the date of acceptance of Federal aid for the project.

3. **Airport Planning Undertaken by a Sponsor.**

   Unless otherwise specified in this Grant Agreement, only Assurances 1, 2, 3, 5, 6, 13, 18, 23, 25, 30, 32, 33, 34, and 37 in Section C apply to planning projects. The terms, conditions, and

assurances of this Grant Agreement shall remain in full force and effect during the life of the project; there shall be no limit on the duration of the assurances regarding Exclusive Rights and Airport Revenue so long as the airport is used as an airport.

C. Sponsor Certification.

The sponsor hereby assures and certifies, with respect to this grant that:

1. General Federal Requirements

It will comply with all applicable Federal laws, regulations, executive orders, policies, guidelines, and requirements as they relate to the application, acceptance, and use of Federal funds for this Grant including but not limited to the following:

FEDERAL LEGISLATION

a. 49 U.S.C. subtitle VII, as amended.
b. Davis-Bacon Act, as amended — 40 U.S.C. §§ 3141-3144, 3146, and 3147, et seq.[1]
c. Federal Fair Labor Standards Act – 29 U.S.C. § 201, et seq.
d. Hatch Act – 5 U.S.C. § 1501, et seq.[2]
e. Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, 42 U.S.C. § 4601, et seq.[1, 2]
f. National Historic Preservation Act of 1966 – Section 106 – 54 U.S.C. § 306108.[1]
g. Archeological and Historic Preservation Act of 1974 – 54 U.S.C. § 312501, et seq.[1]
h. Native Americans Grave Repatriation Act – 25 U.S.C. § 3001, et seq.
i. Clean Air Act, P.L. 90-148, as amended – 42 U.S.C. § 7401, et seq.
j. Coastal Zone Management Act, P.L. 92-583, as amended – 16 U.S.C. § 1451, et seq.
k. Flood Disaster Protection Act of 1973 – Section 102(a) - 42 U.S.C. § 4012a.[1]
l. 49 U.S.C. § 303, (formerly known as Section 4(f)).
m. Rehabilitation Act of 1973 – 29 U.S.C. § 794.
n. Title VI of the Civil Rights Act of 1964 (42 U.S.C. § 2000d et seq., 78 stat. 252) (prohibits discrimination on the basis of race, color, national origin).
o. Americans with Disabilities Act of 1990, as amended, (42 U.S.C. § 12101 et seq.) (prohibits discrimination on the basis of disability).
p. Age Discrimination Act of 1975 – 42 U.S.C. § 6101, et seq.
q. American Indian Religious Freedom Act, P.L. 95-341, as amended.
r. Architectural Barriers Act of 1968, as amended – 42 U.S.C. § 4151, et seq.[1]
s. Powerplant and Industrial Fuel Use Act of 1978 – Section 403 – 42 U.S.C. § 8373.[1]
t. Contract Work Hours and Safety Standards Act – 40 U.S.C. § 3701, et seq.[1]
u. Copeland Anti-kickback Act – 18 U.S.C. § 874.[1]

v. National Environmental Policy Act of 1969 – 42 U.S.C. § 4321, et seq.[1]

w. Wild and Scenic Rivers Act, P.L. 90-542, as amended – 16 U.S.C. § 1271, et seq.

x. Single Audit Act of 1984 – 31 U.S.C. § 7501, et seq.[2]

y. Drug-Free Workplace Act of 1988 – 41 U.S.C. §§ 8101 through 8105.

z. The Federal Funding Accountability and Transparency Act of 2006, as amended (P.L. 109-282, as amended by section 6202 of P.L. 110-252).

aa. Civil Rights Restoration Act of 1987, P.L. 100-259.

bb. Build America, Buy America Act, P.L. 117-58, Title IX.

EXECUTIVE ORDERS

a. Executive Order 11246 – Equal Employment Opportunity[1]

b. Executive Order 11990 – Protection of Wetlands

c. Executive Order 11998 – Flood Plain Management

d. Executive Order 12372 – Intergovernmental Review of Federal Programs

e. Executive Order 12699 – Seismic Safety of Federal and Federally Assisted New Building Construction[1]

f. Executive Order 12898 – Environmental Justice

g. Executive Order 13166 – Improving Access to Services for Persons with Limited English Proficiency

h. Executive Order 13985 – Executive Order on Advancing Racial Equity and Support for Underserved Communities Through the Federal Government

i. Executive Order 13988 – Preventing and Combating Discrimination on the Basis of Gender Identity or Sexual Orientation

j. Executive Order 14005 – Ensuring the Future is Made in all of America by All of America's Workers

k. Executive Order 14008 – Tackling the Climate Crisis at Home and Abroad

FEDERAL REGULATIONS

a. 2 CFR Part 180 – OMB Guidelines to Agencies on Governmentwide Debarment and Suspension (Nonprocurement).

b. 2 CFR Part 200 – Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards. [4, 5]

c. 2 CFR Part 1200 – Nonprocurement Suspension and Debarment.

d. 14 CFR Part 13 – Investigative and Enforcement Procedures.

e. 14 CFR Part 16 – Rules of Practice for Federally-Assisted Airport Enforcement Proceedings.

f. 14 CFR Part 150 – Airport Noise Compatibility Planning.

g. 28 CFR Part 35 – Nondiscrimination on the Basis of Disability in State and Local Government Services.

h. 28 CFR § 50.3 – U.S. Department of Justice Guidelines for the Enforcement of Title VI of the Civil Rights Act of 1964.

i. 29 CFR Part 1 – Procedures for Predetermination of Wage Rates.[1]

j. 29 CFR Part 3 – Contractors and Subcontractors on Public Building or Public Work Financed in Whole or in Part by Loans or Grants from the United States.[1]

k. 29 CFR Part 5 – Labor Standards Provisions Applicable to Contracts Covering Federally Financed and Assisted Construction (Also Labor Standards Provisions Applicable to Nonconstruction Contracts Subject to the Contract Work Hours and Safety Standards Act).[1]

l. 41 CFR Part 60 – Office of Federal Contract Compliance Programs, Equal Employment Opportunity, Department of Labor (Federal and Federally-assisted contracting requirements).[1]

m. 49 CFR Part 20 – New Restrictions on Lobbying.

n. 49 CFR Part 21 – Nondiscrimination in Federally-Assisted Programs of the Department of Transportation - Effectuation of Title VI of the Civil Rights Act of 1964.

o. 49 CFR Part 23 – Participation by Disadvantage Business Enterprise in Airport Concessions.

p. 49 CFR Part 24 – Uniform Relocation Assistance and Real Property Acquisition for Federal and Federally-Assisted Programs.[1, 2]

q. 49 CFR Part 26 – Participation by Disadvantaged Business Enterprises in Department of Transportation Financial Assistance Programs.

r. 49 CFR Part 27 – Nondiscrimination on the Basis of Disability in Programs or Activities Receiving Federal Financial Assistance.[1]

s. 49 CFR Part 28 – Enforcement of Nondiscrimination on the Basis of Handicap in Programs or Activities Conducted by the Department of Transportation.

t. 49 CFR Part 30 – Denial of Public Works Contracts to Suppliers of Goods and Services of Countries That Deny Procurement Market Access to U.S. Contractors.

u. 49 CFR Part 32 – Governmentwide Requirements for Drug-Free Workplace (Financial Assistance).

v. 49 CFR Part 37 – Transportation Services for Individuals with Disabilities (ADA).

w. 49 CFR Part 38 – Americans with Disabilities Act (ADA) Accessibility Specifications for Transportation Vehicles.

x. 49 CFR Part 41 – Seismic Safety.

FOOTNOTES TO ASSURANCE (C)(1)

[1] These laws do not apply to airport planning sponsors.

[2] These laws do not apply to private sponsors.

[3] 2 CFR Part 200 contains requirements for State and Local Governments receiving Federal assistance. Any requirement levied upon State and Local Governments by this regulation shall

apply where applicable to private sponsors receiving Federal assistance under Title 49, United States Code.

[4] Cost principles established in 2 CFR part 200 subpart E must be used as guidelines for determining the eligibility of specific types of expenses.

[5] Audit requirements established in 2 CFR part 200 subpart F are the guidelines for audits.

SPECIFIC ASSURANCES

Specific assurances required to be included in grant agreements by any of the above laws, regulations or circulars are incorporated by reference in this Grant Agreement.

2. Responsibility and Authority of the Sponsor.

a. Public Agency Sponsor:

It has legal authority to apply for this Grant, and to finance and carry out the proposed project; that a resolution, motion or similar action has been duly adopted or passed as an official act of the applicant's governing body authorizing the filing of the application, including all understandings and assurances contained therein, and directing and authorizing the person identified as the official representative of the applicant to act in connection with the application and to provide such additional information as may be required.

b. Private Sponsor:

It has legal authority to apply for this Grant and to finance and carry out the proposed project and comply with all terms, conditions, and assurances of this Grant Agreement. It shall designate an official representative and shall in writing direct and authorize that person to file this application, including all understandings and assurances contained therein; to act in connection with this application; and to provide such additional information as may be required.

3. Sponsor Fund Availability.

It has sufficient funds available for that portion of the project costs which are not to be paid by the United States. It has sufficient funds available to assure operation and maintenance of items funded under this Grant Agreement which it will own or control.

4. Good Title.

a. It, a public agency or the Federal government, holds good title, satisfactory to the Secretary, to the landing area of the airport or site thereof, or will give assurance satisfactory to the Secretary that good title will be acquired.

b. For noise compatibility program projects to be carried out on the property of the sponsor, it holds good title satisfactory to the Secretary to that portion of the property upon which Federal funds will be expended or will give assurance to the Secretary that good title will be obtained.

5. Preserving Rights and Powers.

a. It will not take or permit any action which would operate to deprive it of any of the rights and powers necessary to perform any or all of the terms, conditions, and assurances in this Grant Agreement without the written approval of the Secretary, and will act promptly to acquire, extinguish or modify any outstanding rights or claims of right of others which would interfere

with such performance by the sponsor. This shall be done in a manner acceptable to the Secretary.

b. Subject to the FAA Act of 2018, Public Law 115-254, Section 163, it will not sell, lease, encumber, or otherwise transfer or dispose of any part of its title or other interests in the property shown on Exhibit A to this application or, for a noise compatibility program project, that portion of the property upon which Federal funds have been expended, for the duration of the terms, conditions, and assurances in this Grant Agreement without approval by the Secretary. If the transferee is found by the Secretary to be eligible under Title 49, United States Code, to assume the obligations of this Grant Agreement and to have the power, authority, and financial resources to carry out all such obligations, the sponsor shall insert in the contract or document transferring or disposing of the sponsor's interest, and make binding upon the transferee all of the terms, conditions, and assurances contained in this Grant Agreement.

c. For all noise compatibility program projects which are to be carried out by another unit of local government or are on property owned by a unit of local government other than the sponsor, it will enter into an agreement with that government. Except as otherwise specified by the Secretary, that agreement shall obligate that government to the same terms, conditions, and assurances that would be applicable to it if it applied directly to the FAA for a grant to undertake the noise compatibility program project. That agreement and changes thereto must be satisfactory to the Secretary. It will take steps to enforce this agreement against the local government if there is substantial non-compliance with the terms of the agreement.

d. For noise compatibility program projects to be carried out on privately owned property, it will enter into an agreement with the owner of that property which includes provisions specified by the Secretary. It will take steps to enforce this agreement against the property owner whenever there is substantial non-compliance with the terms of the agreement.

e. If the sponsor is a private sponsor, it will take steps satisfactory to the Secretary to ensure that the airport will continue to function as a public-use airport in accordance with these assurances for the duration of these assurances.

f. If an arrangement is made for management and operation of the airport by any agency or person other than the sponsor or an employee of the sponsor, the sponsor will reserve sufficient rights and authority to ensure that the airport will be operated and maintained in accordance with Title 49, United States Code, the regulations and the terms, conditions and assurances in this Grant Agreement and shall ensure that such arrangement also requires compliance therewith.

g. Sponsors of commercial service airports will not permit or enter into any arrangement that results in permission for the owner or tenant of a property used as a residence, or zoned for residential use, to taxi an aircraft between that property and any location on airport. Sponsors of general aviation airports entering into any arrangement that results in permission for the owner of residential real property adjacent to or near the airport must comply with the requirements of Sec. 136 of Public Law 112-95 and the sponsor assurances.

6. Consistency with Local Plans.

The project is reasonably consistent with plans (existing at the time of submission of this application) of public agencies that are authorized by the State in which the project is located to plan for the development of the area surrounding the airport.

7. Consideration of Local Interest.

It has given fair consideration to the interest of communities in or near where the project may be located.

8. Consultation with Users.

In making a decision to undertake any airport development project under Title 49, United States Code, it has undertaken reasonable consultations with affected parties using the airport at which project is proposed.

9. Public Hearings.

In projects involving the location of an airport, an airport runway, or a major runway extension, it has afforded the opportunity for public hearings for the purpose of considering the economic, social, and environmental effects of the airport or runway location and its consistency with goals and objectives of such planning as has been carried out by the community and it shall, when requested by the Secretary, submit a copy of the transcript of such hearings to the Secretary. Further, for such projects, it has on its management board either voting representation from the communities where the project is located or has advised the communities that they have the right to petition the Secretary concerning a proposed project.

10. Metropolitan Planning Organization.

In projects involving the location of an airport, an airport runway, or a major runway extension at a medium or large hub airport, the sponsor has made available to and has provided upon request to the metropolitan planning organization in the area in which the airport is located, if any, a copy of the proposed amendment to the airport layout plan to depict the project and a copy of any airport master plan in which the project is described or depicted.

11. Pavement Preventive Maintenance-Management.

With respect to a project approved after January 1, 1995, for the replacement or reconstruction of pavement at the airport, it assures or certifies that it has implemented an effective airport pavement maintenance-management program and it assures that it will use such program for the useful life of any pavement constructed, reconstructed or repaired with Federal financial assistance at the airport. It will provide such reports on pavement condition and pavement management programs as the Secretary determines may be useful.

12. Terminal Development Prerequisites.

For projects which include terminal development at a public use airport, as defined in Title 49, it has, on the date of submittal of the project grant application, all the safety equipment required for certification of such airport under 49 U.S.C. § 44706, and all the security equipment required by rule or regulation, and has provided for access to the passenger enplaning and deplaning area of such airport to passengers enplaning and deplaning from aircraft other than air carrier aircraft.

13. Accounting System, Audit, and Record Keeping Requirements.

a. It shall keep all project accounts and records which fully disclose the amount and disposition by the recipient of the proceeds of this Grant, the total cost of the project in connection with which this Grant is given or used, and the amount or nature of that portion of the cost of the project supplied by other sources, and such other financial records pertinent to the project. The

accounts and records shall be kept in accordance with an accounting system that will facilitate an effective audit in accordance with the Single Audit Act of 1984.

b. It shall make available to the Secretary and the Comptroller General of the United States, or any of their duly authorized representatives, for the purpose of audit and examination, any books, documents, papers, and records of the recipient that are pertinent to this Grant. The Secretary may require that an appropriate audit be conducted by a recipient. In any case in which an independent audit is made of the accounts of a sponsor relating to the disposition of the proceeds of a grant or relating to the project in connection with which this Grant was given or used, it shall file a certified copy of such audit with the Comptroller General of the United States not later than six (6) months following the close of the fiscal year for which the audit was made.

14. Minimum Wage Rates.

It shall include, in all contracts in excess of $2,000 for work on any projects funded under this Grant Agreement which involve labor, provisions establishing minimum rates of wages, to be predetermined by the Secretary of Labor under 40 U.S.C. §§ 3141-3144, 3146, and 3147, Public Building, Property, and Works), which contractors shall pay to skilled and unskilled labor, and such minimum rates shall be stated in the invitation for bids and shall be included in proposals or bids for the work.

15. Veteran's Preference.

It shall include in all contracts for work on any project funded under this Grant Agreement which involve labor, such provisions as are necessary to insure that, in the employment of labor (except in executive, administrative, and supervisory positions), preference shall be given to Vietnam era veterans, Persian Gulf veterans, Afghanistan-Iraq war veterans, disabled veterans, and small business concerns owned and controlled by disabled veterans as defined in 49 U.S.C. § 47112. However, this preference shall apply only where the individuals are available and qualified to perform the work to which the employment relates.

16. Conformity to Plans and Specifications.

It will execute the project subject to plans, specifications, and schedules approved by the Secretary. Such plans, specifications, and schedules shall be submitted to the Secretary prior to commencement of site preparation, construction, or other performance under this Grant Agreement, and, upon approval of the Secretary, shall be incorporated into this Grant Agreement. Any modification to the approved plans, specifications, and schedules shall also be subject to approval of the Secretary, and incorporated into this Grant Agreement.

17. Construction Inspection and Approval.

It will provide and maintain competent technical supervision at the construction site throughout the project to assure that the work conforms to the plans, specifications, and schedules approved by the Secretary for the project. It shall subject the construction work on any project contained in an approved project application to inspection and approval by the Secretary and such work shall be in accordance with regulations and procedures prescribed by the Secretary. Such regulations and procedures shall require such cost and progress reporting by the sponsor or sponsors of such project as the Secretary shall deem necessary.

18. Planning Projects.

In carrying out planning projects:

a. It will execute the project in accordance with the approved program narrative contained in the project application or with the modifications similarly approved.

b. It will furnish the Secretary with such periodic reports as required pertaining to the planning project and planning work activities.

c. It will include in all published material prepared in connection with the planning project a notice that the material was prepared under a grant provided by the United States.

d. It will make such material available for examination by the public, and agrees that no material prepared with funds under this project shall be subject to copyright in the United States or any other country.

e. It will give the Secretary unrestricted authority to publish, disclose, distribute, and otherwise use any of the material prepared in connection with this grant.

f. It will grant the Secretary the right to disapprove the sponsor's employment of specific consultants and their subcontractors to do all or any part of this project as well as the right to disapprove the proposed scope and cost of professional services.

g. It will grant the Secretary the right to disapprove the use of the sponsor's employees to do all or any part of the project.

h. It understands and agrees that the Secretary's approval of this project grant or the Secretary's approval of any planning material developed as part of this grant does not constitute or imply any assurance or commitment on the part of the Secretary to approve any pending or future application for a Federal airport grant.

19. Operation and Maintenance.

a. The airport and all facilities which are necessary to serve the aeronautical users of the airport, other than facilities owned or controlled by the United States, shall be operated at all times in a safe and serviceable condition and in accordance with the minimum standards as may be required or prescribed by applicable Federal, state, and local agencies for maintenance and operation. It will not cause or permit any activity or action thereon which would interfere with its use for airport purposes. It will suitably operate and maintain the airport and all facilities thereon or connected therewith, with due regard to climatic and flood conditions. Any proposal to temporarily close the airport for non-aeronautical purposes must first be approved by the Secretary. In furtherance of this assurance, the sponsor will have in effect arrangements for:

   1. Operating the airport's aeronautical facilities whenever required;

   2. Promptly marking and lighting hazards resulting from airport conditions, including temporary conditions; and

   3. Promptly notifying pilots of any condition affecting aeronautical use of the airport. Nothing contained herein shall be construed to require that the airport be operated for aeronautical use during temporary periods when snow, flood, or other climatic conditions interfere with such operation and maintenance. Further, nothing herein shall be construed as requiring the maintenance, repair, restoration, or replacement of any structure or

facility which is substantially damaged or destroyed due to an act of God or other condition or circumstance beyond the control of the sponsor.

b. It will suitably operate and maintain noise compatibility program items that it owns or controls upon which Federal funds have been expended.

20. Hazard Removal and Mitigation.

It will take appropriate action to assure that such terminal airspace as is required to protect instrument and visual operations to the airport (including established minimum flight altitudes) will be adequately cleared and protected by removing, lowering, relocating, marking, or lighting or otherwise mitigating existing airport hazards and by preventing the establishment or creation of future airport hazards.

21. Compatible Land Use.

It will take appropriate action, to the extent reasonable, including the adoption of zoning laws, to restrict the use of land adjacent to or in the immediate vicinity of the airport to activities and purposes compatible with normal airport operations, including landing and takeoff of aircraft. In addition, if the project is for noise compatibility program implementation, it will not cause or permit any change in land use, within its jurisdiction, that will reduce its compatibility, with respect to the airport, of the noise compatibility program measures upon which Federal funds have been expended.

22. Economic Nondiscrimination.

a. It will make the airport available as an airport for public use on reasonable terms and without unjust discrimination to all types, kinds and classes of aeronautical activities, including commercial aeronautical activities offering services to the public at the airport.

b. In any agreement, contract, lease, or other arrangement under which a right or privilege at the airport is granted to any person, firm, or corporation to conduct or to engage in any aeronautical activity for furnishing services to the public at the airport, the sponsor will insert and enforce provisions requiring the contractor to:

   1. Furnish said services on a reasonable, and not unjustly discriminatory, basis to all users thereof, and

   2. Charge reasonable, and not unjustly discriminatory, prices for each unit or service, provided that the contractor may be allowed to make reasonable and nondiscriminatory discounts, rebates, or other similar types of price reductions to volume purchasers.

c. Each fixed-based operator at the airport shall be subject to the same rates, fees, rentals, and other charges as are uniformly applicable to all other fixed-based operators making the same or similar uses of such airport and utilizing the same or similar facilities.

d. Each air carrier using such airport shall have the right to service itself or to use any fixed-based operator that is authorized or permitted by the airport to serve any air carrier at such airport.

e. Each air carrier using such airport (whether as a tenant, non-tenant, or subtenant of another air carrier tenant) shall be subject to such nondiscriminatory and substantially comparable rules, regulations, conditions, rates, fees, rentals, and other charges with respect to facilities directly and substantially related to providing air transportation as are applicable to all such air carriers which make similar use of such airport and utilize similar facilities, subject to reasonable

classifications such as tenants or non-tenants and signatory carriers and non-signatory carriers. Classification or status as tenant or signatory shall not be unreasonably withheld by any airport provided an air carrier assumes obligations substantially similar to those already imposed on air carriers in such classification or status.

f. It will not exercise or grant any right or privilege which operates to prevent any person, firm, or corporation operating aircraft on the airport from performing any services on its own aircraft with its own employees (including, but not limited to maintenance, repair, and fueling) that it may choose to perform.

g. In the event the sponsor itself exercises any of the rights and privileges referred to in this assurance, the services involved will be provided on the same conditions as would apply to the furnishing of such services by commercial aeronautical service providers authorized by the sponsor under these provisions.

h. The sponsor may establish such reasonable, and not unjustly discriminatory, conditions to be met by all users of the airport as may be necessary for the safe and efficient operation of the airport.

i. The sponsor may prohibit or limit any given type, kind or class of aeronautical use of the airport if such action is necessary for the safe operation of the airport or necessary to serve the civil aviation needs of the public.

23. Exclusive Rights.

It will permit no exclusive right for the use of the airport by any person providing, or intending to provide, aeronautical services to the public. For purposes of this paragraph, the providing of the services at an airport by a single fixed-based operator shall not be construed as an exclusive right if both of the following apply:

a. It would be unreasonably costly, burdensome, or impractical for more than one fixed-based operator to provide such services, and

b. If allowing more than one fixed-based operator to provide such services would require the reduction of space leased pursuant to an existing agreement between such single fixed-based operator and such airport. It further agrees that it will not, either directly or indirectly, grant or permit any person, firm, or corporation, the exclusive right at the airport to conduct any aeronautical activities, including, but not limited to charter flights, pilot training, aircraft rental and sightseeing, aerial photography, crop dusting, aerial advertising and surveying, air carrier operations, aircraft sales and services, sale of aviation petroleum products whether or not conducted in conjunction with other aeronautical activity, repair and maintenance of aircraft, sale of aircraft parts, and any other activities which because of their direct relationship to the operation of aircraft can be regarded as an aeronautical activity, and that it will terminate any exclusive right to conduct an aeronautical activity now existing at such an airport before the grant of any assistance under Title 49, United States Code.

24. Fee and Rental Structure.

It will maintain a fee and rental structure for the facilities and services at the airport which will make the airport as self-sustaining as possible under the circumstances existing at the particular airport, taking into account such factors as the volume of traffic and economy of collection. No part of the Federal share of an airport development, airport planning or noise compatibility project for

which a Grant is made under Title 49, United States Code, the Airport and Airway Improvement Act of 1982, the Federal Airport Act or the Airport and Airway Development Act of 1970 shall be included in the rate basis in establishing fees, rates, and charges for users of that airport.

25. Airport Revenues.

a. All revenues generated by the airport and any local taxes on aviation fuel established after December 30, 1987, will be expended by it for the capital or operating costs of the airport; the local airport system; or other local facilities which are owned or operated by the owner or operator of the airport and which are directly and substantially related to the actual air transportation of passengers or property; or for noise mitigation purposes on or off the airport. The following exceptions apply to this paragraph:

   1. If covenants or assurances in debt obligations issued before September 3, 1982, by the owner or operator of the airport, or provisions enacted before September 3, 1982, in governing statutes controlling the owner or operator's financing, provide for the use of the revenues from any of the airport owner or operator's facilities, including the airport, to support not only the airport but also the airport owner or operator's general debt obligations or other facilities, then this limitation on the use of all revenues generated by the airport (and, in the case of a public airport, local taxes on aviation fuel) shall not apply.

   2. If the Secretary approves the sale of a privately owned airport to a public sponsor and provides funding for any portion of the public sponsor’s acquisition of land, this limitation on the use of all revenues generated by the sale shall not apply to certain proceeds from the sale. This is conditioned on repayment to the Secretary by the private owner of an amount equal to the remaining unamortized portion (amortized over a 20-year period) of any airport improvement grant made to the private owner for any purpose other than land acquisition on or after October 1, 1996, plus an amount equal to the federal share of the current fair market value of any land acquired with an airport improvement grant made to that airport on or after October 1, 1996.

   3. Certain revenue derived from or generated by mineral extraction, production, lease, or other means at a general aviation airport (as defined at 49 U.S.C. § 47102), if the FAA determines the airport sponsor meets the requirements set forth in Section 813 of Public Law 112-95.

b. As part of the annual audit required under the Single Audit Act of 1984, the sponsor will direct that the audit will review, and the resulting audit report will provide an opinion concerning, the use of airport revenue and taxes in paragraph (a), and indicating whether funds paid or transferred to the owner or operator are paid or transferred in a manner consistent with Title 49, United States Code and any other applicable provision of law, including any regulation promulgated by the Secretary or Administrator.

c. Any civil penalties or other sanctions will be imposed for violation of this assurance in accordance with the provisions of 49 U.S.C. § 47107.

26. Reports and Inspections.

It will:

a. submit to the Secretary such annual or special financial and operations reports as the Secretary may reasonably request and make such reports available to the public; make available to the

public at reasonable times and places a report of the airport budget in a format prescribed by the Secretary;

b. for airport development projects, make the airport and all airport records and documents affecting the airport, including deeds, leases, operation and use agreements, regulations and other instruments, available for inspection by any duly authorized agent of the Secretary upon reasonable request;

c. for noise compatibility program projects, make records and documents relating to the project and continued compliance with the terms, conditions, and assurances of this Grant Agreement including deeds, leases, agreements, regulations, and other instruments, available for inspection by any duly authorized agent of the Secretary upon reasonable request; and

d. in a format and time prescribed by the Secretary, provide to the Secretary and make available to the public following each of its fiscal years, an annual report listing in detail:

   1. all amounts paid by the airport to any other unit of government and the purposes for which each such payment was made; and

   2. all services and property provided by the airport to other units of government and the amount of compensation received for provision of each such service and property.

27. Use by Government Aircraft.

It will make available all of the facilities of the airport developed with Federal financial assistance and all those usable for landing and takeoff of aircraft to the United States for use by Government aircraft in common with other aircraft at all times without charge, except, if the use by Government aircraft is substantial, charge may be made for a reasonable share, proportional to such use, for the cost of operating and maintaining the facilities used. Unless otherwise determined by the Secretary, or otherwise agreed to by the sponsor and the using agency, substantial use of an airport by Government aircraft will be considered to exist when operations of such aircraft are in excess of those which, in the opinion of the Secretary, would unduly interfere with use of the landing areas by other authorized aircraft, or during any calendar month that:

a. Five (5) or more Government aircraft are regularly based at the airport or on land adjacent thereto; or

b. The total number of movements (counting each landing as a movement) of Government aircraft is 300 or more, or the gross accumulative weight of Government aircraft using the airport (the total movement of Government aircraft multiplied by gross weights of such aircraft) is in excess of five million pounds.

28. Land for Federal Facilities.

It will furnish without cost to the Federal Government for use in connection with any air traffic control or air navigation activities, or weather-reporting and communication activities related to air traffic control, any areas of land or water, or estate therein as the Secretary considers necessary or desirable for construction, operation, and maintenance at Federal expense of space or facilities for such purposes. Such areas or any portion thereof will be made available as provided herein within four months after receipt of a written request from the Secretary.

29. Airport Layout Plan.

a. Subject to the FAA Reauthorization Act of 2018, Public Law 115-254, Section 163, it will keep up to date at all times an airport layout plan of the airport showing:

1. boundaries of the airport and all proposed additions thereto, together with the boundaries of all offsite areas owned or controlled by the sponsor for airport purposes and proposed additions thereto;

2. the location and nature of all existing and proposed airport facilities and structures (such as runways, taxiways, aprons, terminal buildings, hangars and roads), including all proposed extensions and reductions of existing airport facilities;

3. the location of all existing and proposed non-aviation areas and of all existing improvements thereon; and

4. all proposed and existing access points used to taxi aircraft across the airport's property boundary.

Such airport layout plans and each amendment, revision, or modification thereof, shall be subject to the approval of the Secretary which approval shall be evidenced by the signature of a duly authorized representative of the Secretary on the face of the airport layout plan. The sponsor will not make or permit any changes or alterations in the airport or any of its facilities which are not in conformity with the airport layout plan as approved by the Secretary and which might, in the opinion of the Secretary, adversely affect the safety, utility or efficiency of the airport.

b. Subject to the FAA Reauthorization Act of 2018, Public Law 115-254, Section 163, if a change or alteration in the airport or the facilities is made which the Secretary determines adversely affects the safety, utility, or efficiency of any federally owned, leased, or funded property on or off the airport and which is not in conformity with the airport layout plan as approved by the Secretary, the owner or operator will, if requested, by the Secretary:

1. eliminate such adverse effect in a manner approved by the Secretary; or

2. bear all costs of relocating such property (or replacement thereof) to a site acceptable to the Secretary and all costs of restoring such property (or replacement thereof) to the level of safety, utility, efficiency, and cost of operation existing before the unapproved change in the airport or its facilities except in the case of a relocation or replacement of an existing airport facility due to a change in the Secretary's design standards beyond the control of the airport sponsor.

30. Civil Rights.

It will promptly take any measures necessary to ensure that no person in the United States shall, on the grounds of race, color, and national origin (including limited English proficiency) in accordance with the provisions of Title VI of the Civil Rights Act of 1964 (78 Stat. 252, 42 U.S.C. §§ 2000d to 2000d-4); creed and sex (including sexual orientation and gender identity) per 49 U.S.C. § 47123 and related requirements; age per the Age Discrimination Act of 1975 and related requirements; or disability per the Americans with Disabilities Act of 1990 and related requirements, be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination in any program and activity conducted with, or benefiting from, funds received from this Grant.

a. Using the definitions of activity, facility, and program as found and defined in 49 CFR §§ 21.23(b) and 21.23(e), the sponsor will facilitate all programs, operate all facilities, or conduct all programs in compliance with all non-discrimination requirements imposed by or pursuant to these assurances.

b. Applicability

   1. Programs and Activities. If the sponsor has received a grant (or other federal assistance) for any of the sponsor's program or activities, these requirements extend to all of the sponsor's programs and activities.

   2. Facilities. Where it receives a grant or other federal financial assistance to construct, expand, renovate, remodel, alter, or acquire a facility, or part of a facility, the assurance extends to the entire facility and facilities operated in connection therewith.

   3. Real Property. Where the sponsor receives a grant or other Federal financial assistance in the form of, or for the acquisition of real property or an interest in real property, the assurance will extend to rights to space on, over, or under such property.

c. Duration.

   The sponsor agrees that it is obligated to this assurance for the period during which Federal financial assistance is extended to the program, except where the Federal financial assistance is to provide, or is in the form of, personal property, or real property, or interest therein, or structures or improvements thereon, in which case the assurance obligates the sponsor, or any transferee for the longer of the following periods:

   1. So long as the airport is used as an airport, or for another purpose involving the provision of similar services or benefits; or

   2. So long as the sponsor retains ownership or possession of the property.

d. Required Solicitation Language. It will include the following notification in all solicitations for bids, Requests For Proposals for work, or material under this Grant Agreement and in all proposals for agreements, including airport concessions, regardless of funding source:

   "The (**[Selection Criteria: Sponsor Name]**), in accordance with the provisions of Title VI of the Civil Rights Act of 1964 (78 Stat. 252, 42 U.S.C. §§ 2000d to 2000d-4) and the Regulations, hereby notifies all bidders or offerors that it will affirmatively ensure that for any contract entered into pursuant to this advertisement, [select businesses, or disadvantaged business enterprises or airport concession disadvantaged business enterprises] will be afforded full and fair opportunity to submit bids in response to this invitation and no businesses will be discriminated against on the grounds of race, color, national origin (including limited English proficiency), creed, sex (including sexual orientation and gender identity), age, or disability in consideration for an award."

e. Required Contract Provisions.

   1. It will insert the non-discrimination contract clauses requiring compliance with the acts and regulations relative to non-discrimination in Federally-assisted programs of the Department of Transportation (DOT), and incorporating the acts and regulations into the contracts by reference in every contract or agreement subject to the non-discrimination in Federally-assisted programs of the DOT acts and regulations.

2. It will include a list of the pertinent non-discrimination authorities in every contract that is subject to the non-discrimination acts and regulations.

3. It will insert non-discrimination contract clauses as a covenant running with the land, in any deed from the United States effecting or recording a transfer of real property, structures, use, or improvements thereon or interest therein to a sponsor.

4. It will insert non-discrimination contract clauses prohibiting discrimination on the basis of race, color, national origin (including limited English proficiency), creed, sex (including sexual orientation and gender identity), age, or disability as a covenant running with the land, in any future deeds, leases, license, permits, or similar instruments entered into by the sponsor with other parties:

    a. For the subsequent transfer of real property acquired or improved under the applicable activity, project, or program; and

    b. For the construction or use of, or access to, space on, over, or under real property acquired or improved under the applicable activity, project, or program.

f. It will provide for such methods of administration for the program as are found by the Secretary to give reasonable guarantee that it, other recipients, sub-recipients, sub-grantees, contractors, subcontractors, consultants, transferees, successors in interest, and other participants of Federal financial assistance under such program will comply with all requirements imposed or pursuant to the acts, the regulations, and this assurance.

g. It agrees that the United States has a right to seek judicial enforcement with regard to any matter arising under the acts, the regulations, and this assurance.

31. Disposal of Land.

a. For land purchased under a grant for airport noise compatibility purposes, including land serving as a noise buffer, it will dispose of the land, when the land is no longer needed for such purposes, at fair market value, at the earliest practicable time. That portion of the proceeds of such disposition which is proportionate to the United States' share of acquisition of such land will be, at the discretion of the Secretary, (1) reinvested in another project at the airport, or (2) transferred to another eligible airport as prescribed by the Secretary. The Secretary shall give preference to the following, in descending order:

    1. Reinvestment in an approved noise compatibility project;

    2. Reinvestment in an approved project that is eligible for grant funding under 49 U.S.C. § 47117(e);

    3. Reinvestment in an approved airport development project that is eligible for grant funding under 49 U.S.C. §§ 47114, 47115, or 47117;

    4. Transfer to an eligible sponsor of another public airport to be reinvested in an approved noise compatibility project at that airport; or

    5. Payment to the Secretary for deposit in the Airport and Airway Trust Fund.

    If land acquired under a grant for noise compatibility purposes is leased at fair market value and consistent with noise buffering purposes, the lease will not be considered a disposal of the land. Revenues derived from such a lease may be used for an approved airport development

project that would otherwise be eligible for grant funding or any permitted use of airport revenue.

b. For land purchased under a grant for airport development purposes (other than noise compatibility), it will, when the land is no longer needed for airport purposes, dispose of such land at fair market value or make available to the Secretary an amount equal to the United States' proportionate share of the fair market value of the land. That portion of the proceeds of such disposition which is proportionate to the United States' share of the cost of acquisition of such land will, upon application to the Secretary, be reinvested or transferred to another eligible airport as prescribed by the Secretary. The Secretary shall give preference to the following, in descending order:

    1. Reinvestment in an approved noise compatibility project;
    2. Reinvestment in an approved project that is eligible for grant funding under 49 U.S.C. § 47117(e);
    3. Reinvestment in an approved airport development project that is eligible for grant funding under 49 U.S.C. §§ 47114, 47115, or 47117;
    4. Transfer to an eligible sponsor of another public airport to be reinvested in an approved noise compatibility project at that airport; or
    5. Payment to the Secretary for deposit in the Airport and Airway Trust Fund.

c. Land shall be considered to be needed for airport purposes under this assurance if (1) it may be needed for aeronautical purposes (including runway protection zones) or serve as noise buffer land, and (2) the revenue from interim uses of such land contributes to the financial self-sufficiency of the airport. Further, land purchased with a grant received by an airport operator or owner before December 31, 1987, will be considered to be needed for airport purposes if the Secretary or Federal agency making such grant before December 31, 1987, was notified by the operator or owner of the uses of such land, did not object to such use, and the land continues to be used for that purpose, such use having commenced no later than December 15, 1989.

d. Disposition of such land under (a), (b), or (c) will be subject to the retention or reservation of any interest or right therein necessary to ensure that such land will only be used for purposes which are compatible with noise levels associated with operation of the airport.

32. Engineering and Design Services.

If any phase of such project has received Federal funds under Chapter 471 subchapter 1 of Title 49 U.S.C., it will award each contract, or sub-contract for program management, construction management, planning studies, feasibility studies, architectural services, preliminary engineering, design, engineering, surveying, mapping or related services in the same manner as a contract for architectural and engineering services is negotiated under Chapter 11 of Title 40 U S.C., or an equivalent qualifications-based requirement prescribed for or by the sponsor of the airport.

33. Foreign Market Restrictions.

It will not allow funds provided under this Grant to be used to fund any project which uses any product or service of a foreign country during the period in which such foreign country is listed by

the United States Trade Representative as denying fair and equitable market opportunities for products and suppliers of the United States in procurement and construction.

34. Policies, Standards, and Specifications.

It will carry out any project funded under an Airport Improvement Program Grant in accordance with policies, standards, and specifications approved by the Secretary including, but not limited to, current FAA Advisory Circulars (https://www.faa.gov/airports/aip/media/aip-pfc-checklist.pdf) for AIP projects as of [Selection Criteria: Project Application Date].

35. Relocation and Real Property Acquisition.

a. It will be guided in acquiring real property, to the greatest extent practicable under State law, by the land acquisition policies in Subpart B of 49 CFR Part 24 and will pay or reimburse property owners for necessary expenses as specified in Subpart B.

b. It will provide a relocation assistance program offering the services described in Subpart C of 49 CFR Part 24 and fair and reasonable relocation payments and assistance to displaced persons as required in Subpart D and E of 49 CFR Part 24.

c. It will make available within a reasonable period of time prior to displacement, comparable replacement dwellings to displaced persons in accordance with Subpart E of 49 CFR Part 24.

36. Access By Intercity Buses.

The airport owner or operator will permit, to the maximum extent practicable, intercity buses or other modes of transportation to have access to the airport; however, it has no obligation to fund special facilities for intercity buses or for other modes of transportation.

37. Disadvantaged Business Enterprises.

The sponsor shall not discriminate on the basis of race, color, national origin, or sex, in the award and performance of any DOT-assisted contract covered by 49 CFR Part 26, or in the award and performance of any concession activity contract covered by 49 CFR Part 23. In addition, the sponsor shall not discriminate on the basis of race, color, national origin or sex in the administration of its Disadvantaged Business Enterprise (DBE) and Airport Concessions Disadvantaged Business Enterprise (ACDBE) programs or the requirements of 49 CFR Parts 23 and 26. The sponsor shall take all necessary and reasonable steps under 49 CFR Parts 23 and 26 to ensure nondiscrimination in the award and administration of DOT-assisted contracts, and/or concession contracts. The sponsor's DBE and ACDBE programs, as required by 49 CFR Parts 26 and 23, and as approved by DOT, are incorporated by reference in this agreement. Implementation of these programs is a legal obligation and failure to carry out its terms shall be treated as a violation of this agreement. Upon notification to the sponsor of its failure to carry out its approved program, the Department may impose sanctions as provided for under Parts 26 and 23 and may, in appropriate cases, refer the matter for enforcement under 18 U.S.C. § 1001 and/or the Program Fraud Civil Remedies Act of 1986 (31 U.S.C. §§ 3801-3809, 3812).

38. Hangar Construction.

If the airport owner or operator and a person who owns an aircraft agree that a hangar is to be constructed at the airport for the aircraft at the aircraft owner's expense, the airport owner or operator will grant to the aircraft owner for the hangar a long term lease that is subject to such terms and conditions on the hangar as the airport owner or operator may impose.

39. Competitive Access.

a. If the airport owner or operator of a medium or large hub airport (as defined in 49 U.S.C. § 47102) has been unable to accommodate one or more requests by an air carrier for access to gates or other facilities at that airport in order to allow the air carrier to provide service to the airport or to expand service at the airport, the airport owner or operator shall transmit a report to the Secretary that:

   1. Describes the requests;
   2. Provides an explanation as to why the requests could not be accommodated; and
   3. Provides a time frame within which, if any, the airport will be able to accommodate the requests.

b. Such report shall be due on either February 1 or August 1 of each year if the airport has been unable to accommodate the request(s) in the six month period prior to the applicable due date.

Exhibit D

FEDERAL AVIATION ADMINISTRATION AIRPORT CONCESSIONS DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION REQUIREMENTS

Airport Concessions Disadvantaged Business Enterprises ("ACDBE"): The requirements of 49 CFR Part 23, regulations of the U.S. Department of Transportation, applies to this concession. It is the policy of the City of Flagstaff, AZ/Flagstaff Pulliam Airport to practice nondiscrimination based on race, color, sex, or national origin in the award or performance of this contract. All firms qualifying under this solicitation are encouraged to submit bids/proposals. Award of this concession will be conditioned upon satisfying the requirements of this proposal/bid specification. These requirements apply to all concession firms and suppliers, including those who qualify as an ACDBE.

The City of Flagstaff, AZ/Flagstaff Pulliam Airport strictly prohibits all unlawful discrimination and preferential treatment in contracting, subcontracting and purchasing, leasing or any subleasing under this Agreement. Furthermore, the City of Flagstaff, AZ/Flagstaff Pulliam Airport has established an Airport Concession Disadvantaged Business Enterprise program in accordance with regulations of the U.S. Department of Transportation, 49 Code of Federal Regulations Part 23. Concessionaires shall comply with the Discrimination Policy and the ACDBE Rules and shall not discriminate against any business owner because of the owner's race, color, national origin, or sex in connection with its performance under this Agreement, the management of the concession, subleasing, or purchasing. Concessionaire shall cooperate with the City of Flagstaff, AZ/Flagstaff Pulliam Airport in its program of recruiting, training, providing technical assistance and holding workshops to ensure that contracting, subcontracting, and purchasing opportunities available under this Agreement are accessible and available to all qualified business owners, including Airport Concession Disadvantaged Business Enterprises (ACDBEs). In order to assure compliance with the Non-Discrimination Policy and the ACDBE Rules, the Concessionaire agrees as follows:

49 CFR §23.9(c)(1) - This agreement is subject to the requirements of the U.S. Department of Transportation's regulations, 49 CFR Part 23. The concessionaire or contractor agrees that it will not discriminate against any business owner because of the owner's race, color, national origin, or sex in connection with the award or performance of any concession agreement, management contract, or subcontract, purchase or lease agreement, or other agreement covered by 49 CFR Part 23.

49 CFR §23.9(c)(2) - The concessionaire or contractor agrees to include the above statements in any subsequent concession agreement or contract covered by 49 CFR part 23, that it enters and cause those businesses to similarly include the statements in further agreements.

49 CFR §26.13(b) - The contractor, sub recipient, or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The contractor shall carry out applicable requirements of 49 CFR Part 26 in the award and administration of DOT-assisted contracts. Failure by the contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the City of Flagstaff, AZ/Flagstaff Pulliam Airport deems appropriate, which may include, but is not limited to:

(1) Withholding monthly progress payments;

(2) Assessing sanctions;

(3) Liquidated damages; and/or

(4) Disqualifying the contractor from future bidding as non-responsible.

The City of Flagstaff, AZ/Flagstaff Pulliam Airport strictly prohibits all unlawful discrimination and preferential treatment in contracting, subcontracting and purchasing, leasing or any subleasing under this Agreement. Furthermore, the City of Flagstaff, AZ/Flagstaff Pulliam Airport has established an Airport Concession Disadvantaged Business Enterprise program in accordance with regulations of the U.S. Department of Transportation, 49 Code of Federal Regulations Part 23. Concessionaires shall comply with the Discrimination Policy and the ACDBE Rules and shall not discriminate against any business owner because of the owner's race, color, national origin, or sex in connection with its performance under this Agreement, the management of the concession, subleasing, or purchasing. Concessionaire shall cooperate with the City of Flagstaff, AZ/Flagstaff Pulliam Airport in its program of recruiting, training, providing technical assistance and holding workshops to ensure that contracting, subcontracting, and purchasing opportunities available under this Agreement are accessible and available to all qualified business owners, including Airport Concession Disadvantaged Business Enterprises (ACDBEs). In order to assure compliance with the Non-Discrimination Policy and the ACDBE Rules, the Concessionaire agrees as follows:

- The ACDBE participation percentage commitment made by the Concessionaire at the time of award is deemed to be contractual in nature.

- Concessionaires shall have no right to terminate any ACDBE without the City of Flagstaff, AZ/Flagstaff Pulliam Airport's prior written consent. If an ACDBE is terminated by the Concessionaire with written consent or because of the ACDBE default, then the Concessionaire shall provide the City of Flagstaff, AZ/Flagstaff Pulliam Airport with evidence satisfactory to the City or Flagstaff, AZ/Flagstaff Pulliam Airport that the Concessionaire will continue to comply with its non-discrimination obligations under this Agreement. Concessionaire shall make a good faith effort as defined by 49 CFR 26 to replace an ACDBE with a certified ACDBE, to the extent needed to meet the concession goal.

- Concessionaire shall submit in a timely manner reports and verification requests by Flagstaff Pulliam Airport and shall provide financial or other information deemed necessary to support and document the ACDBE commitment. Flagstaff Pulliam Airport shall have the right until six years after the expiration or termination and at all reasonable times, to review books, records, and financial information of the concessionaire (and where applicable, all individuals, joint venture partners, team members, or other business entities that are a party or engaged in concession activity) as requested by Flagstaff Pulliam Airport to substantiate compliance with 49 CFR Parts 23 and 26. Concessionaire will cooperate fully with requests for information and monitoring requirements related to ACDBE participation in the concession. ACDBE Utilization reporting forms or other forms of reporting deemed necessary by Flagstaff Pulliam Airport shall be submitted to the airport's ACDBELO.

- Concessionaire's breach of its obligations shall be a default of the Concessionaire and shall entitle the City of Flagstaff, AZ/Flagstaff Pulliam Airport to exercise all of its contractual and legal remedies, including termination of this Agreement.

An “Airport Concessions Disadvantaged Business Enterprise” generally means a concession that is a for-profit small business (gross receipts must not exceed $56.42 million averaged out over 3 years), and that is at least 51% owned, managed, and controlled by one or more socially and economically disadvantaged individuals. Please refer to federal regulations.

Airport Concessionaire Services License Agreement



FLAGSTAFF AIRPORT

GRAND DESTINATIONS

Airport Micro-Market

Airport Food and Beverage Concessionaire History

- Café in terminal (pre-security) and vending machines in passenger waiting area (post-security) until 2023.
- Currently, food and beverage vending machines pre- and post-security.
- In 2023, two RFPs were issued for the restaurant space. No viable vendors submitted.
  - Challenges: 365 day/year requirement; desired operating hours (4:00am – 6:00pm); high staffing costs with limited customers
- Revised RFP in 2024 for unattended food and beverage sales options.
- Two proposals were received, and Hi-Line Snack & Vending was selected as the highest-scoring proposer.

Airport Micro-Market

License Agreement Scope

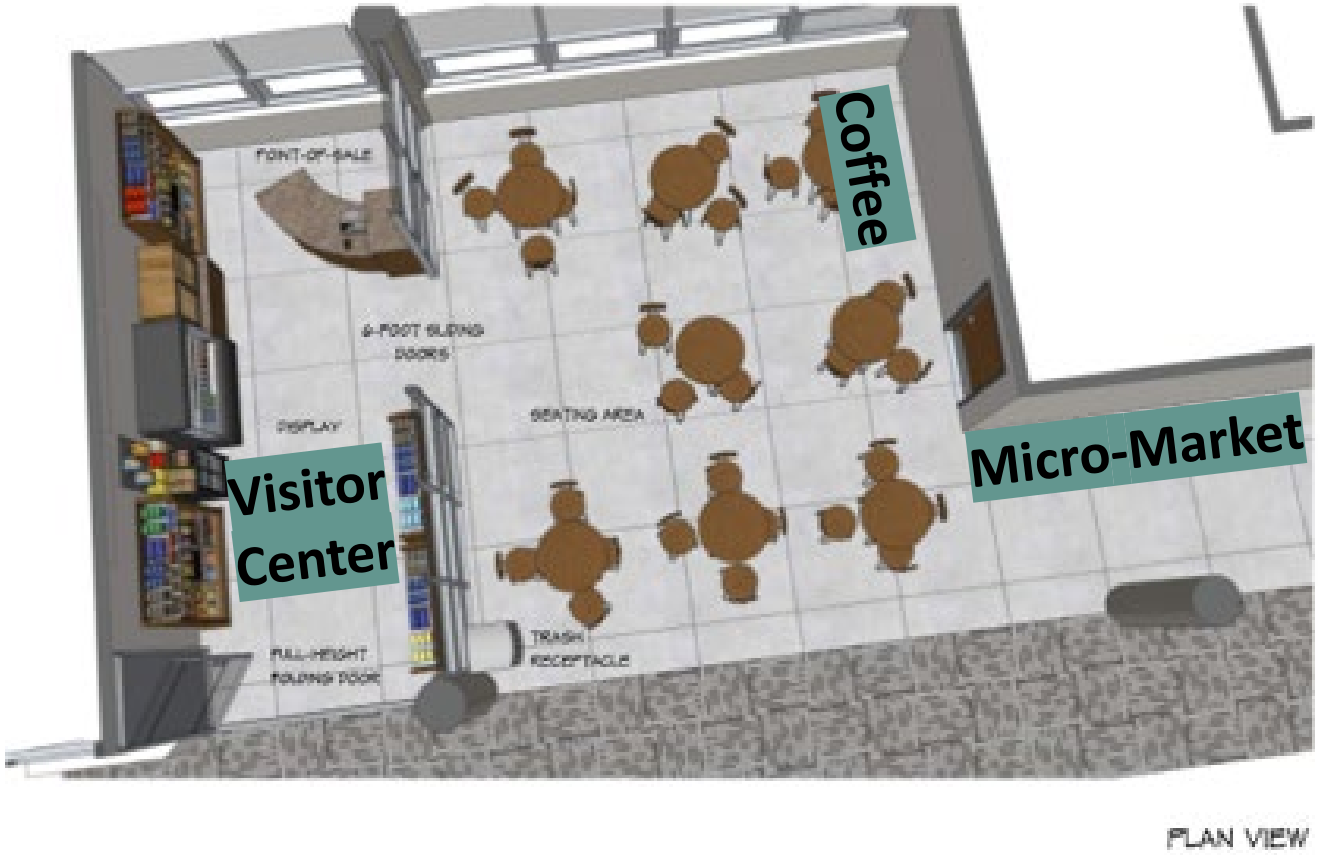
- 2 x micro-markets (pre- and post-security)
- 1 x coffee kiosk (pre-security)
- Airport receives 20% of gross quarterly receipts, plus an additional commission if annual volume exceeds $120k.
- Scheduled opening in the end of April 2025.

Airport Micro-Market

Pre-security micro-market and coffee kiosk

- In previous restaurant space across from TSA checkpoint
- Adjacent to proposed visitor center



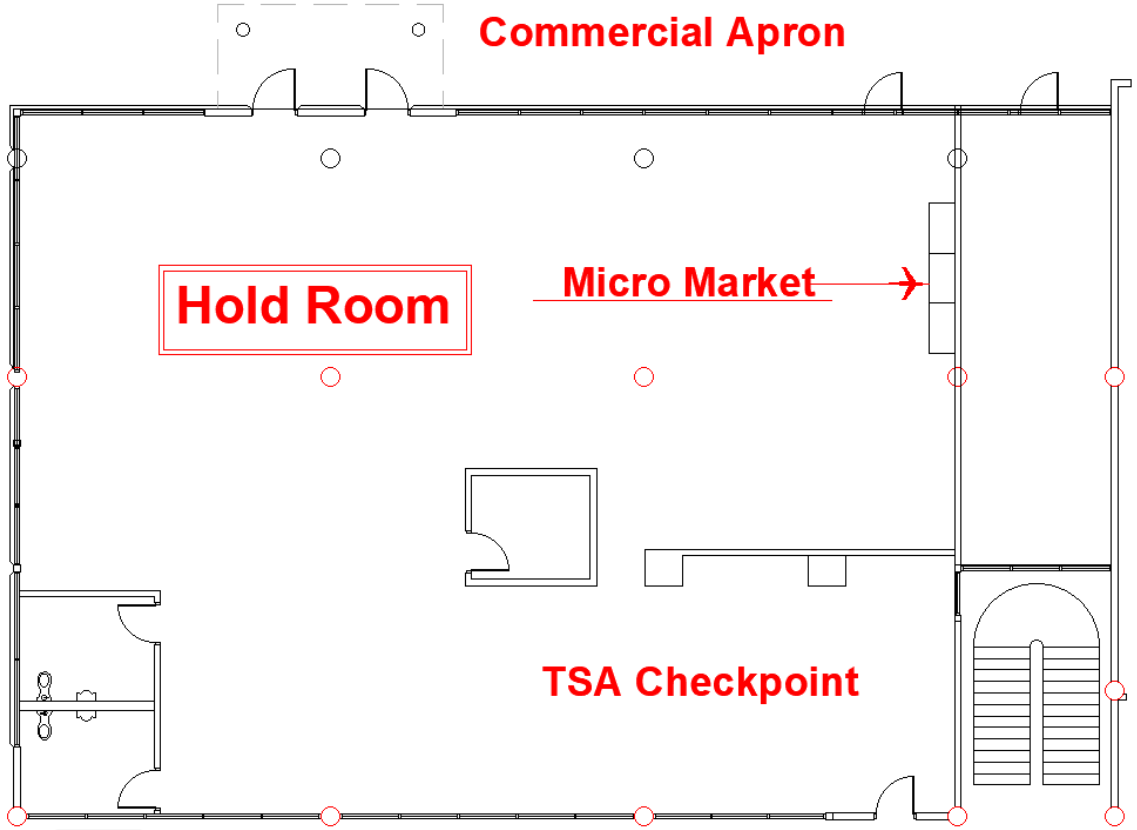


Airport Micro-Market

Post-security micro-market

- Along west wall in passenger waiting area
- Possible future coffee kiosk (pending plumbing improvements)





Airport Micro-Market

Customer experience and interface

- Stocked and maintained by Hi-Line with support from Visitor Center and Airport staff







Airport Micro-Market

Customer experience and interface

- Includes fresh sandwiches, wraps, salads, fruit, and coffee.
- Travel accessories also available.





Airport Micro-Market

Staff Recommended Action

1. Approve the Concessionaire Services License Agreement with Hi-Line Snack and Vending, Inc. to add two micro-markets and a coffee-kiosk at the Flagstaff Pulliam Airport; and
2. Authorize the City Manager to execute the necessary documents

Questions?

TEAM FLAGSTAFF

WE MAKE THE CITY BETTER

CITY OF FLAGSTAFF

STAFF SUMMARY REPORT

To: The Honorable Mayor and Council

From: Wesley Welch, Planner

Date: 02/26/2025

Meeting Date: 03/04/2025

TITLE:

Consideration and Adoption of Resolution No. 2025-05: A resolution of the Flagstaff City Council, authorizing the execution of the Second Amendment to the Mill Town Development Agreement between Vintage Partners, LLC and the City of Flagstaff related to the development of approximately 13 acres of real property generally located at 1801 S Milton Road.

STAFF RECOMMENDED ACTION:

1. Read Resolution No. 2025-05 by title only
2. City Clerk reads Resolution No. 2025-05 by title only (if approved above)
3. Adopt Resolution No. 2025-05

Executive Summary:

State law allows the City to enter into development agreements by resolution of the City Council. The Second Amendment to the Mill Town Development Agreement will be between Vintage Partners, LLC and the City of Flagstaff. The development agreement amendment governs the terms and conditions of the entitlements and clarifies which version of the Zoning Code [Title 10 of the Flagstaff City Code] will be used for future development on the site if it is not developed in accordance with the current approved site plan. If approved, staff will apply the version of the Zoning Code in effect on May 5, 2017 to all new development applications submitted through December 13, 2027, however current standards for outdoor lighting will apply. The proposed Mill Town project consists of a total of 13 acres at 1801 South Milton Road.

Financial Impact:

There are no financial impacts associated with this amendment to the Mill Town Development Agreement.

Policy Impact:

There are no policy impacts affiliated with this amendment to the Development Agreement.

Previous Council Decision or Community Discussion:

The City Council approved a Zoning Map Amendment, Preliminary Plat and Development Agreement for the Mill Town project, as part of a public-private-partnership (P3), on April 17, 2018. The P3 project was formalized through a Pre-Development Agreement between Vintage, the City, and the Arizona Department of Transportation in March 2015. The First Amendment to the Development Agreement was approved on October 19, 2021 and recorded on October 22, 2021.

Options and Alternatives to Recommended Action:

1. Approve the Second Amendment of the Mill Town Development Agreement as presented.
2. Approve the Second Amendment of the Mill Town Development Agreement with additional, modified, or deleted terms.
3. Remand the Second Amendment of the Mill Town Development Agreement back to staff for additional

negotiations with Vintage Partners.
4. Deny the Second Amendment of the Mill Town Development Agreement.

Background and History:
On April 17, 2018, the Flagstaff City Council approved the rezoning of approximately 18 acres of land owned by Vintage Partners, LLC ("Vintage") generally located at 1801 S. Milton Road and commonly referred to as the Mill Town property. The rezoning was part of a public private partnership (P3) between the City, Vintage, and the Arizona Department of Transportation (ADOT) that relocated the Harkins theater to the east side of Flagstaff, relocated the local ADOT offices to the old Harkins site, combined the delivery of City transportation improvements to Beulah and University with improvements required for Vintage's project mitigation (including the Milton pedestrian underpass), and opened the Mill Town property for residential and commercial development by Vintage. The rezoning ordinance contains multiple conditions, one of which is that the Mill Town property must be developed in accordance with the approved site plan (PZ-16-00239-01) that was presented to Council at the time the rezoning was approved. This site plan contained 3 commercial pads and a multi-family building that contained 340 units and 1,221 bedrooms, as well as an associated parking garage.

As part of the rezoning of the Mill Town property, the City and Vintage entered into a development agreement on June 4, 2018, to facilitate development of the Mill Town property and related transportation improvements. Understanding the complexity of the P3 project and the amount of time to develop a project like Mill Town, the City agreed that the development rights granted by the rezoning ordinance would be vested for five years, and that development of Vintage's approved site plan would be governed by the Zoning Code in existence as of the effective date of the development agreement. Such provisions allowing a developer to rely on a specific version of the Zoning Code for a period of time until the property is ultimately developed are not uncommon in development agreements, as they provide certainty for the developer and recognize the development process can take years.

Unfortunately, development of the Mill Town property stalled after the ADOT facility was moved. With development of the Mill Town property on hold, the transportation improvements that Vintage was required to deliver pursuant to the development agreement were also on hold.

On October 22, 2021, the City and Vintage entered into the first amendment to the Mill Town development agreement to, among other things, (1) allow the City to assume responsibility for administering design and construction of both the City and Vintage transportation improvements, (2) describe how Vintage will reimburse the City for the cost of its required transportation improvements (including the pedestrian underpass), and (3) extend Vintage's right to develop the Mill Town property in accordance with the rezoning ordinance and approved site plan for an additional two years (now seven total).

In 2024, Vintage informed City planning staff that it had found a partner to develop the residential component of the Mill Town property (apartment complex), but the new partner wanted to amend the approved site plan beyond what would be covered under a Minor Modification to Site Plan Approval which would allow for changes up to approximately 10% from what was initially approved. However, because the rezoning was conditioned on development in accordance with the original site plan, Vintage was informed that it would need to request an amendment to the rezoning ordinance and a second amendment to the development agreement. In addition, the two-year extension of the right to develop effectuated by the first amendment to the development agreement was specific to the approved site plan, which was now going to be amended. Accordingly, City staff, working with Vintage, drafted the proposed second amendment to the Mill Town development agreement to clarify and confirm that Vintage could develop an amended site plan--that must be approved by Council--under the same Zoning Code that was initially utilized for the project.

The Zoning Code that the original site plan was developed under did not contain code regulations for High Occupancy Housing (HOH). After the initial approval, the City adopted the HOH Specific Plan and subsequent Zoning Code updates. There are a few differences between the pre- and post-HOH zoning code. The HOH Specific to Use section (10-40.60.170) identifies general requirements for HOH projects. A few key items are that a minimum of 20 percent of the bedrooms shall be contained in studio and/or one-bedroom dwelling units and that a maximum of 30% of bedrooms are contained in dwelling units with four bedrooms or more. Additionally, there is a requirement that the maximum building footprint of the development shall be equal to,

or less than, 22,000 square feet.

With the HOH Zoning Code updates, there was also a new parking calculation provided for HOH projects. Previously, a project like this would utilize the multi-family parking calculations. That would require the following parking requirements:

i. Studio requires 1.25 spaces per unit
ii. 1 bedroom requires 1.5 spaces per unit
iii. 2+ bedroom requires 2 spaces per unit
iv. Guest parking is .25 spaces for each 2+ bedroom unit

The parking requirements for an HOH development are as follows:

i. 1-75 bedrooms is 1 space per bedroom
ii. 76-325 bedrooms is .90 space per bedroom
iii. 326-650 is .80 space per bedroom
iv. 650+ is .70 space per bedroom

It is important to note that there are no guest parking space requirements for HOH projects.

Additionally, although Vintage is requesting to develop using a prior version of the Zoning Code, it has committed to following the current zoning regulations for outdoor lighting to be up to date on current Dark Sky lighting regulations. Eventually, Vintage will need to submit for an Outdoor Lighting Permit which will be reviewed against the current code regulations at the time of submittal.

By approving this Development Agreement amendment, Council will only be allowing current and future submittals to be reviewed against the requested Zoning Code. Since this project was approved as a Direct to Ordinance Zoning Map Amendment, the new site plan will need to go through another rezoning process and be approved by Council. Before the site plan comes back to Council for review, it will be reviewed by staff to determine compliance with City Codes and Regional Plan Conformance. The site plan will need to be approved by all relevant departments during the Interdepartmental Staff review meetings. Once the site plan has been administratively approved, it will then go through the neighborhood meeting and public hearing process requirements that are required for all Zoning Map Amendments. The project will then return to Council for its review and approval or denial.

Connection to PBB Priorities and Objectives:
Livable Community - Achieve a well-maintained community through comprehensive and equitable code compliance, and development that is compatible with community values.
Environmental Stewardship - Implement sustainable building practices, enhance waste diversion programs, alternative energy programs and multi-modal transportation options.
Environmental Stewardship - Strengthen Flagtaff's resilience to climate change impacts on built, natural, economic, health, and social systems.

Connection to Regional Plan:
Goal E&C.5. Preserve dark skies as an unspoiled natural resource, basis for an important economic sector, and core element of community character.
Policy CC.4.3. Employ design solutions that balance the interface of the natural and built environments, with the most urbanized core activity areas being the most built, and the most rural areas being the most natural.
Policy L.U.1.6 Establish greater flexibility in development standards and processes to assist developers in overcoming challenges posed by redevelopment and infill sites.
Policy LU.3.1.Within the urban, suburban, and rural context, use neighborhoods, activity centers, corridors, public spaces, and connectivity as the structural framework for development.

Connection to Carbon Neutrality Plan:
DD - 1: Encourage vibrancy, appropriate density, and attainability in existing neighborhoods, so that more

residents are within walking distance of their daily needs.
DD - 2: Create inclusive networks for walking and biking that are continuous, attractive, safe, comprehensive, and convenient for people of all ages.

Connection to 10-Year Housing Plan:
Create 4.8 - Explore allowing additional flexibility for homeowners and landlords to increase density.

Attachments:
Power Point - Final
Res. 2025-05
UPDATED - Ex. A - Proposed Mill Town Development Agreement 2nd Amendment
Mill Town Development Agreement (Original)
Mill Town Development Agreement 1st Amendment

Mill Town

Development Agreement

2nd Amendment

Wesley Welch, AICP

Senior Planner

TEAM FLAGSTAFF

WE MAKE THE CITY BETTER

Development Agreement

Development Agreement:

- **On 4/17/18, Flagstaff City Council approved the rezoning of approximately 18 acres of land owned by Vintage Partners, LLC.**

- **The rezoning was part of a public-private partnership (P3) between the City, Vintage, and ADOT that relocated the Harkins theater to the east side of Flagstaff, relocated the local ADOT offices to the old Harkins site, delivered transportation improvements to Beulah and University (including the pedestrian underpass) and opened the Mill Town property for residential and commercial development by Vintage.**

- **The rezoning ordinance contains multiple conditions, one of which is that the Mill Town property must be developed in accordance with the approved site plan (PZ-16-00239-01).**

Development Agreement

2. Entitlements. Vintage hereby agrees to be subject to all the terms, conditions, and stipulations of the Rezoning Ordinance for PZ-16-00239-02 (City Ordinance No. 2018-13), Site Plan (PZ-16-00239-01), and preliminary plat (PZ-16-00239-03) (collectively, the "Entitlements"). The City acknowledges and agrees that the development rights granted by the Rezoning Ordinance are vested for a term of five (5) years from the Effective Date of this Agreement (the "Vested Rights") and that Vintage shall have a right to develop the Mill Town Property consistent with the Vested Rights, subject to the Applicable Rules (as defined in Section 3, below) and any changes to the Rules as permitted by this Agreement. Further, the City acknowledges that the recordation of the final plat for the Mill Town Property ("Final Plat") will occur only after (i) the New ADOT Facilities have been constructed on the Vintage Property pursuant to the Implementation Agreement, (ii) the City has conveyed the City Property to ADOT pursuant to the IGA, and (iii) the Mill Town Property has been conveyed to Vintage by ADOT in exchange for the conveyance by Vintage to ADOT of the Vintage Property with the New ADOT Facilities constructed thereon pursuant to the Implementation Agreement. As a result, the parties agree that the preliminary plat approval will remain valid for three (3) years from the Effective Date to allow sufficient time for the transactions contemplated by clauses (i) through (iii) to be completed.

Development Agreement

Development Agreement:

- **The City agreed that that the development rights granted by the rezoning ordinance would be vested for five years.**

- **The City also agreed that the development of Vintage's approved site plan would be governed by the Zoning Code in existence as of the effective date of the development agreement.**

- **This is not an uncommon practice in development agreements, as they provide certainty for the developer to recognize the development process can take years.**

Development Agreement

3. Development Standards. The development of the Mill Town Property, as well as the standards for off-site and on-site public improvements, will be governed by the City's codes, ordinances, regulations, rules, guidelines, and policies controlling permitted uses of the Mill Town Property, design review guidelines, the density and intensity of uses, the maximum height and size of the buildings within the Mill Town Property in existence as of the Effective Date of this Agreement (for purposes of the Zoning Code [Title 10 of the Flagstaff City Code], the version in place as of May 5, 2017 will apply), except as modified herein or otherwise agreed to, in writing, by Vintage and the City (collectively, the "Applicable Rules" or "Rules"); provided, however, that if Vintage fails to apply for any Construction Permits for development of the Mill Town Property within five (5) years following the Effective Date of this Agreement, and thereafter diligently proceeds with construction pursuant to those Construction Permits, then development of the Mill Town Property will be subject to the City's codes, ordinances, regulations, rules, guidelines, and policies in effect at the time Vintage applies for such Construction Permits. "Construction Permits" shall mean any permit issued by the City or other jurisdiction that is required in order to begin construction of any on-site or off-site improvements related to development of the Mill Town Property, including but not limited to public improvements, grading, electrical, gas, plumbing, mechanical, or structural.

Development Agreement

1st Amendment:

- **On 10/22/21 the City and Vintage entered into the first amendment to the Mill Town development agreement to do the following:**

1. Allow the City to assume responsibility for administering design and construction of the transportation improvements

2. Define Vintage's contribution towards the transportation improvements and method of payment.

3. Extend Vintage's right to develop the Mill Town property in accordance with the rezoning ordinance and approved site plan for an additional two years (seven total).

Development Agreement

1. Administration of Combined Roadway Project. The Parties agree that (i) the City shall be responsible for administering the remaining design of the Combined Roadway Project and the construction of the Combined Roadway Project, and (ii) the City will be responsible for all of the remaining costs to complete the design of the Combined Roadway Project and all of the costs of constructing the Combined Roadway Project, except for the Vintage Contribution (as defined below). In furtherance of the foregoing, the City and Vintage agree as follows:

3. Effective Date; Extension of Entitlements. The Parties acknowledge and agree that the Effective Date of the Agreement is December 14, 2018. The City agrees to extend the right to develop the Mill Town Property in accordance with the Entitlements set forth in the Development Agreement for an additional two (2) years, for a total of seven (7) years from the Effective Date. If, however, the Fixed Payment is not made when due, and such failure is not cured within five (5) business days following written notice from the City to Vintage, then there will be no extension and the Entitlements will terminate on December 13, 2023. In the event that the City fails to diligently pursue the construction of the Combined Roadway Project to completion and Vintage exercises its right to assume responsibility for administering the construction of the Combined Roadway Project, then the Entitlements will terminate on December 13, 2025.

Development Agreement

2nd Amendment:

- **In 2024, Vintage informed planning staff that it had found a partner to develop the residential component of the Mill Town property.**

- **Rezone was conditioned on development in accordance with the original site plan, so amendment to the development agreement required.**

- **Additionally, the two-year extension of the right to develop effectuated by the first amendment to the development agreement was specific to the approved site plan, which was not going to be amended.**

Development Agreement

Entitlements. Vintage hereby agrees to be subject to all the terms, conditions, and stipulations of the Rezoning Ordinance for PZ-16-00239-02 (City Ordinance No. 2018-13), Site Plan (PZ-16-00239-01), and preliminary plat (PZ-16-00239-03), **AS MAY BE AMENDED OR REPLACED WITH CITY COUNCIL APPROVAL** (collectively, the "Entitlements"). The City acknowledges and agrees that the development rights granted by the **ENTITLEMENTS,** are vested for a term of ~~five~~**NINE** (~~5~~**9**) years ~~from~~**AFTER** the Effective Date ~~of this Agreement~~ (the "Vested Rights") and that Vintage shall have a right to develop the Mill Town Property consistent with the Vested Rights, subject to the Applicable Rules (as defined in Section 3, below) and any changes to the Rules as permitted by this Agreement. Further, the City acknowledges that the recordation of the final plat for the Mill Town Property ("Final Plat") will occur only after (i) the New ADOT Facilities have been constructed on the Vintage Property pursuant to the Implementation Agreement, (ii) the City has conveyed the City Property to ADOT pursuant to the IGA, and (iii) the Mill Town Property has been conveyed to Vintage by ADOT in exchange for the conveyance by Vintage to ADOT of the Vintage Property with the New ADOT Facilities constructed thereon pursuant to the Implementation Agreement. As a result, the parties agree that the preliminary plat approval will remain valid for three (3) years from the Effective Date to allow sufficient time for the transactions contemplated by clauses (i) through (iii) to be completed.

Development Agreement

Development Standards. ~~The development of Mill Town Property, as well as standards for off-site and on-site public improvements will be governed by the City's codes, ordinances, regulations, rules, guidelines, and policies controlling permitted uses of the Mill Town Property, design review guidelines, the density and intensity of uses, the maximum height and size of buildings within the Mill Town Property in existence as of the Effective Date of this Agreement (for purposes~~ **CURRENT CITY ENGINEERING STANDARDS, BUILDING CODE, FIRE CODE, REGULATIONS, RULES, GUIDELINES, AND OTHER CODE PROVISIONS SHALL APPLY TO DEVELOPMENT OF THE MILL TOWN PROPERTY, EXCEPT THAT THE MILL TOWN PROPERTY MAY BE DEVELOPED UNDER THE PROVISIONS** of the Zoning Code [Title 10 of the Flagstaff City Code] **IN EFFECT ON MAY 5, 2017** ~~the version in place as of May 5, 2017 will apply),~~ **FOR A PERIOD OF NINE (9) YEARS AFTER THE EFFECTIVE DATE.** ~~except as modified herein or otherwise agreed to, in writing, by Vintage and the City (collectively, the "Applicable Rules" or "Rules");~~ **IF, HOWEVER, THE MILL TOWN PROPERTY IS DEVELOPED IN CONFORMANCE WITH REZONING ORDINANCE FOR PZ-16-00239-02 (CITY ORDINANCE NO. 2018-13), SITE PLAN (PZ-16-**

Development Agreement

00239-01), AND PRELIMINARY PLAT (PZ-16-00239-03), WITHOUT ANY MONDIFICATION EXCEPT FOR MINOR MODIFICATIONS PERMITTED UNDER CITY CODE, THEN CITY ENGINEERING STANDARDS, BUILDING CODE, FIRE CODE, REGULATIONS, RULES, GUIDELINES, AND OTHER CODE PROVISIONS IN EXISTENCE ON MAY 5, 2017, INCLUDING THE ZONING CODE, SHALL APPLY. ~~provided, however, that i~~ **I**f Vintage fails to apply for any Construction Permits ~~for development of the Mill Town Property~~ within ~~five~~**NINE** (~~5~~**9**) years following the Effective Date ~~of this Agreement,~~ **(**and thereafter diligently proceeds with construction pursuant to those Construction Permits**)**, then development of the Mill Town Property ~~will~~**SHALL** be subject to the City's codes, ordinances, regulations, rules, guidelines, and policies in effect at the time Vintage applies for Construction Permits. "Construction Permits" ~~shall~~ mean**S** any permit issued by the City or other jurisdiction that is required in order to begin construction of any on-site or off-site improvements related to development of the Mill Town Property, including but not limited to public improvements, grading, electrical, gas, plumbing, mechanical, or structural.

High Occupancy Housing (HOH)

High Occupancy Code Update (Section 10-40.60.170): Adopted 11/17/2020 by Ordinance 2020-28, amended 12/5/2023 by ordinance 2023-28:

All requirements can be found in code, a few highlights include:

- **HOHD or MHOHD with four dwelling units or more shall be located inside a pedestrian shed of an activity center**
- **HOHD or MHOHD with four dwelling units or more, and that has more than 29 dwelling units per acre or more than 72.5 bedrooms per acre shall have:**
- **Minimum of 20% of bedrooms contained in studio or one bedroom dwelling units**
- **Maximum of 30% of bedrooms contained in dwelling units with four bedrooms or more**

High Occupancy Housing (HOH)

High Occupancy Code Update (Section 10-40.60.170): Adopted 11/17/2020 by Ordinance 2020-28, amended 12/5/2023 by ordinance 2023-28:

- **MHOHD shall be on a lot or parcel that abuts a street classified as a commercial corridor.**
- **HOHD or MHOHD must have a building footprint no larger than 22,000 square feet.**
- **Requires the property maintain compliance with the Flagstaff Police Department's Crime Free Multi-Housing Program.**
- **A Conditional Use Permit is required for all HOHD and MHOHD and requires adequate transit service available to the development site that meets distance requirements of roughly ¼ mile.**

Milltown

Milltown:

- **Approved for a Direct to Ordinance Zoning Map Amendment, Preliminary Plat, and Development agreement in 2018 as part of a public-private-partnership.**
- **The approved site plan consisted of 3 commercial pads along Milton as well as a large housing development on the property.**
  - **The housing component contained 340 units and 1221 bedrooms, this would have triggered HOH regulations if the site were to gain entitlements after the HOH code was passed.**

Milltown

Milltown:

- **The City adopted HOH code (Ordinance 2020-28) on 11/17/2020, effective 3/1/2021.**
- **The timeframe for Prop 207 claims is 3 years, closing the window 3/1/2024.**
- **Vintage could not bring a claim for Milltown because they were grandfathered in and continue to be grandfathered into what they can develop – as long as it is tied to the site plan that was approved with the rezone.**
- **The original DA was effective 12/14/18 with entitlements expiring on 12/13/23.**

Milltown

Milltown:

- 1st DA amendment, entered into late 2021, extended the expiration date for another 2 years, with entitlements expiring around 12/14/2025.
- This new DA amendment will avoid HOH provisions.
- The applicant did request for a Prop 207 claim, cannot submit a claim because they are not allowed to build except what is already approved and they are already allowed to build it without HOH. Their claim wouldn't have been allowed until late 2025.
- This project will still come through the public hearing process for a revision to the Direct to Ordinance Zoning Map amendment in which a more complete picture of the development site will be presented.

Timeline

Timeline	Mill Town	HOH History
2018	Mill Town Approved in April 2018 Development Agreement was entered into in June 2018	HOH Specific Plan adopted by Council in February 2018
2019		
2020		HOH Zoning Code Update adopted on 11/17/2020 with an effective date of 3/1/2021
2021	Mill Town 1st DA Amendment Adopted on 10/22/21	
2022		
2023	Initial Mill Town DA Expiration Date	
2024		
2025	Mill Town DA expiration Date from 1st DA Amendment in December 2025	

Code Comparison – HOH

May 2016 Zoning Code

- No Zoning Code Requirements for High Occupancy Housing
- Developed as mixed-use multi-family housing

2025 Zoning Code

10-40.60.170 High Occupancy Housing Developments and Mixed-Use High Occupancy Housing Developments

A. **General Requirements.**

1. The applicant of an HOHD or MHOHD with four dwelling units or more shall submit typical floor plans or a typical residential unit study that illustrates how the residential units of an HOHD or MHOHD could be converted to a residential unit that is no longer an HOHD or MHOHD with minimal structural or minimal plumbing modifications. The required study shall be designed and sealed by an Arizona registrant.

2. An HOHD or MHOHD with four or more dwelling units shall be located inside of a pedestrian shed of an activity center delineated in the General Plan or applicable Specific Plan.

3. An HOHD or MHOHD with four dwelling units or more, and that has more than 29 dwelling units per acre or more than 72.5 bedrooms per acre shall have:

   a. A minimum of 20 percent of the bedrooms contained in studio and/or one-bedroom dwelling units; and

   b. A maximum of 30 percent of bedrooms contained in dwelling units with four bedrooms or more.

4. An HOHD or MHOHD with four dwelling units or more, and that has 29 dwelling units per acre or less or 72.5 bedrooms per acre or less shall not exceed a Bedroom-to-Dwelling Unit Ratio greater than 3.5.

5. The maximum number of bedrooms in a two-unit HOHD or MHOHD: 10.

6. The maximum number of bedrooms in a three-unit HOHD or MHOHD: 12.

7. Inside of a pedestrian shed of a Regional Activity Center, an HOHD or MHOHD in a commercial zone may contain more than 50 dwelling units per acre and/or 125 bedrooms per acre.

8. An HOHD in a Commercial Zone shall be:

   a. On a lot or parcel that is setback at least 300 feet from the centerline of a street classified as a Commercial Corridor identified on the General Plan; and

   b. There shall be an existing primary mixed-use development or commercial use(s), excluding primary transportation and infrastructure uses, on the lot(s) or parcel(s) between the HOHD and the Commercial Corridor street.

Code Comparison – HOH

May 2016 Zoning Code

- No Zoning Code Requirements for High Occupancy Housing
- Developed as mixed-use multi-family housing

2025 Zoning Code

9. An MHOHD shall comply with the mixed-use development standards of Section 10-40.60.260.

10. Prior to the final approval of a land division that creates one or more lots or parcels with a development that conforms to the definition of an HOHD or MHOHD, the property owner shall obtain approval of a Conditional Use Permit for the Development Site that will contain the HOHD or MHOHD.

11. An MHOHD shall be on a lot or parcel that abuts a street classified as a commercial corridor shown on the General Plan.

B. **Building Footprint[1] Sizes and Separation Requirements.**

1. Maximum building footprint[1] inside a pedestrian shed of a Historic Activity Center delineated in the General Plan or applicable Specific Plan, excluding properties zoned Commercial Business (CB): Equal to, or less than, 5,000 square feet.

2. Maximum building footprint[1] inside a pedestrian shed of a Historic Activity Center delineated in the General Plan or applicable Specific

Plan, and on a property zoned Commercial Business (CB): Equal to, or less than, 22,000 square feet.

3. Maximum building footprint[1] inside a pedestrian shed of a Regional Activity Center delineated in the General Plan or applicable Specific Plan: No Maximum.

4. Maximum building footprint[1] inside a pedestrian shed of an activity center in all other areas not described in subsections B.1., B.2., and B.3. of this section: Equal to, or less than, 22,000 square feet.

5. Excluding the Commercial Business (CB) zone, the minimum separation between the building footprints of structures on the same lot or parcel, and structures on an abutting lot or parcel, shall be separated by a distance that is the greater of 10 feet, or one-third the height of the taller structure.

6. Where the area of a pedestrian shed of an activity center intersects with the area of a pedestrian shed of another activity center, the pedestrian shed with the more restrictive maximum building footprint requirement shall govern the intersecting area. The locations of the pedestrian sheds of the activity centers are identified in the General Plan, including any applicable Specific Plans.

Code Comparison – HOH

May 2016 Zoning Code

- No Zoning Code Requirements for High Occupancy Housing
- Developed as mixed-use multi-family housing

2025 Zoning Code

Note 1: For the purpose of the requirements of subsection B. of this section, the maximum allowable building footprint is equal to the largest floor plate of a structure, including interior courtyards, abutting and interior, or partial interior, podium and above ground parking structure(s), and structures connected with a continuous roof.

C. **Waste Management Plan.**

1. The property owner of an HOHD or MHOHD with four dwelling units or more shall obtain approval of a waste management plan from the City's Public Works Director, or designee, prior to the approval of the site plan.

2. Prior to the issuance of any building permit, the property owner shall incorporate into the construction documents the improvements required to comply with the approved waste management plan.

3. If a Certificate of Occupancy is not required, the property owner shall provide all necessary apparatus, equipment, and improvements within 182 days from the date of the approval of the CUP, or another date specified in the conditions of approval for the CUP.

   a. The Director may approve a one-time 91-day extension, for no more than 273 days from the date of the CUP approval, to allow the property owner to complete the improvements. The property owner shall request an extension at least 14 days prior to the date indicated in subsection C.3. of this section.

4. The HOHD or MHOHD shall be maintained in compliance with the approved Waste Management Plan.

D. **Crime Free Multi-Housing Program.**

1. The property owner of an HOHD or MHOHD shall maintain compliance with the Flagstaff Police Department's Crime Free Multi-Housing Program, unless exempted by the Police Department's Crime Free Multi-Housing Program representative.

2. Prior to the issuance of the Conditional Certificate of Occupancy, or Certificate of Occupancy, whichever is first, or within 63 days of the approval of the Conditional Use Permit if a Certificate of Occupancy is not required, the property owner of a HOHD or MHOHD shall enter into an agreement with the City to comply with the Flagstaff Police Department's Crime Free Multi-Housing Program.

Code Comparison – HOH

May 2016 Zoning Code

- No Zoning Code Requirements for High Occupancy Housing
- Developed as mixed-use multi-family housing

2025 Zoning Code

3. The property owner, or agent, shall:

   a. Utilize a Crime Free Lease Addendum, or an alternative approved by the Flagstaff Police Department's representative as part of each tenant lease;

   b. Obtain written verification as part of a tenant lease that each tenant has received and agreed to the Crime Free Lease Addendum or the approved alternative; and

   c. Have completed the Flagstaff Police Department's Crime Free Multi-Housing Program required training within the Program's required time frames.

4. Within 182 days from the date of the agreement, the property owner, or managing agent, shall have completed the first phase requirements of the Flagstaff Police Department's Crime Free Multi-Housing Program.

5. A new Flagstaff Police Department's Crime Free Multi-Housing Program first phase training and related requirements shall be completed within 182 days from the date of a change of ownership, management company, or a site manager of an existing HOHD or MHOHD.

6. Every two years from the date of the agreement, the property owner, or managing agent, shall complete the required training that complies with the Flagstaff Police Department's Crime Free Multi-Housing Program.

E. **Additional Conditional Use Permit Criteria.** In addition to the criteria of Section 10-20.40.050.E., the Planning and Zoning Commission shall not approve a Conditional Use Permit unless:

1. For the properties subject to Division 10-30.30, Heritage Preservation, the City's Historic Preservation Officer or the Heritage Preservation Commission has made a determination that the proposed HOHD or MHOHD has no adverse effect or has appropriately mitigated its effects on the historic cultural resource.

2. Adequate transit service is available to the Development Site containing four dwelling units or more. Adequate transit service from a Development Site to a permanent transit stop is:

   a. Less than or equal to 1,320 feet; or

   b. A distance greater than 1,320 feet when the Planning and Zoning Commission finds that the route to the permanent transit stop has adequate nighttime lighting and does not have a significant grade change, and the distance does not impede reasonable access to transit.

   The distance between the permanent transit stop to the Development Site shall be measured following a continuously improved sidewalk and/or public paved trail.

Code Comparison – Parking

May 2016 Zoning Code

Market Rate (all dwelling classifications)	
Studio	1.25
1 Bedroom	1.5
2+ Bedroom	2.0
Guest Spaces for Multi-Family Dwelling (Includes boats and RVs)	0.25 per each 2+ bedroom unit

2025 Zoning Code

High Occupancy Housing Development

a.	Single-Family – Attached and Detached, Duplex, and Development Sites with three units or less	1 space per bedroom
b.	Developments Sites with four units or more	The sum of: 1 to 75 bedrooms = 1 space per bedroom, plus 76 to 325 bedrooms = 0.90 spaces per bedroom, plus 326 to 650 bedrooms = 0.80 spaces per bedroom, plus Greater than 650 bedrooms = 0.70 spaces per bedroom

Council Options

1. Approve the Second Amendment of the Mill Town Development Agreement as presented.
2. Approve the Second Amendment of the Mill Town Development Agreement with additional, modified, or deleted terms.
3. Remand the Second Amendment of the Mill Town Development Agreement back to staff for additional negotiations with the owner.
4. Deny the Second Amendment of the Mill Town Development Agreement.

RESOLUTION NO. 2025-05

A RESOLUTION OF THE FLAGSTAFF CITY COUNCIL, AUTHORIZING THE EXECUTION OF THE SECOND AMENDMENT TO THE MILL TOWN DEVELOPMENT AGREEMENT BETWEEN VINTAGE PARTNERS, LLC, AND THE CITY OF FLAGSTAFF RELATED TO THE DEVELOPMENT OF APPROXIMATELY 13 ACRES OF REAL PROPERTY GENERALLY LOCATED AT 1801 S MILTON ROAD AND ESTABLISHING AN EFFECTIVE DATE

RECITALS:

WHEREAS, Vintage Partners, LLC ("the Developer") is the owner of approximately 13 acres of real property generally located at 1801 South Milton Road (the "Property"); and

WHEREAS, the Developer and the City wish to enter into a second amendment to the existing Mill Town Development Agreement between Vintage Partners, LLC and the City, in the form attached to this Resolution as Exhibit A (the "Second Amendment to Development Agreement"), to provide for the terms and conditions under which the Property will be developed and to set forth in detail certain obligations of the Developer and the City; and

WHEREAS, developing the Property under the terms and condition of the proposed Second Amendment to Development Agreement would be consistent with the Flagstaff Regional Plan 2030, and the Developer and the City acknowledge that the Second Amendment to Development Agreement would operate to the benefit of both parties; and

WHEREAS, Arizona Revised Statutes § 9-500.05 authorizes the City to enter into development agreements in order to facilitate the orderly and effective development of properties.

ENACTMENTS:

NOW, THEREFORE, BE IT RESOLVED BY THE COUNCIL OF THE CITY OF FLAGSTAFF AS FOLLOWS:

SECTION 1. The Second Amendment to Development Agreement provides benefit to the City of Flagstaff.

SECTION 2. The Second Amendment to Development Agreement is consistent with the purpose, intent, goals, policies, programs and land use designations of the General Plan, any applicable specific plans, and the Zoning Code.

SECTION 3. The Second Amendment to Development Agreement complies with the requirements of A.R.S. § 9-500.05.

SECTION 4. That the City of Flagstaff be hereby authorized to enter into the Second Amendment to Development Agreement in the form attached to this Resolution as Exhibit A.

SECTION 5. The Mayor, the City Manager, the City Clerk and the City Attorney are hereby authorized and directed to take all steps necessary to cause the execution of the Second Amendment to Development Agreement and its related documents and to take all steps

necessary to carry out the purpose and intent of this Resolution.

SECTION 6. That City Clerk be hereby directed to record a copy of the agreement with the Coconino County recorder no later than ten days after it is executed.

SECTION 7. This Resolution shall become effective thirty (30) days following adoption by the City Council.

PASSED AND ADOPTED by the City Council of the City of Flagstaff this 4th day of March, 2025.

MAYOR

ATTEST:

CITY CLERK

APPROVED AS TO FORM:

CITY ATTORNEY

Exhibits:
A. - Development Agreement

When recorded, mail to:

City Clerk
City of Flagstaff
211 West Aspen Avenue
Flagstaff, Arizona 86001

SECOND AMENDMENT TO
MILL TOWN DEVELOPMENT AGREEMENT

This Second Amendment to Mill Town Development Agreement ("**Second Amendment**") is entered into and effective January _____, 2025, by and between City of Flagstaff, a municipal corporation organized and existing under the laws of the State of Arizona ("**City**"), and Vintage Partners, LLC, an Arizona limited liability company ("**Vintage**").

RECITALS

A. City and Vintage entered into that certain Mill Town Development Agreement dated June 4, 2018, and recorded in the Official Records of Coconino County as Instrument Number: 3816763 (the "**Agreement**"). Unless otherwise defined in this Second Amendment, initially capitalized terms used herein have the meanings given them in the Agreement.

B. The Agreement was amended on October 22, 2021, as recorded in the Official Records of Coconino County as Instrument Number: 3937357, to provide for the City to assume the obligation to administer the design and construction of the Combined Roadway Project and to extend the Entitlements for an additional two years.

C. Vintage intends to revise the previously approved site plan referenced in the Agreement to reduce the number of residential units that will be developed on the Milltown Property.

D. The Parties desire to amend the Agreement for a second time on the terms and conditions more fully set forth below to clarify the Applicable Rules for development of a revised site plan, which amendment is made pursuant to Section 10.4 of the Agreement.

AMENDMENT

NOW, THEREFORE, in consideration of the mutual promises and covenants contained herein and for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the Parties hereby agree as follows:

1. Section 2 of the Agreement (Entitlements) is amended to read as follows (deleted text is shown with a ~~strikethrough~~ and new text is **bolded** in red and ALL CAPS):

> Entitlements. Vintage hereby agrees to be subject to all the terms, conditions, and stipulations of the Rezoning Ordinance for PZ-16-00239-

02 (City Ordinance No. 2018-13), Site Plan (PZ-16-00239-01), and preliminary plat (PZ-16-00239-03), **AS MAY BE AMENDED OR REPLACED WITH CITY COUNCIL APPROVAL** (collectively, the "Entitlements"). The City acknowledges and agrees that the development rights granted by the **ENTITLEMENTS,** are vested for a term of ~~five~~**NINE** (~~5~~**9**) years ~~from~~**AFTER** the Effective Date ~~of this Agreement~~ (the "Vested Rights") and that Vintage shall have a right to develop the Mill Town Property consistent with the Vested Rights, subject to the Applicable Rules (as defined in Section 3, below) and any changes to the Rules as permitted by this Agreement. Further, the City acknowledges that the recordation of the final plat for the Mill Town Property ("Final Plat") will occur only after (i) the New ADOT Facilities have been constructed on the Vintage Property pursuant to the Implementation Agreement, (ii) the City has conveyed the City Property to ADOT pursuant to the IGA, and (iii) the Mill Town Property has been conveyed to Vintage by ADOT in exchange for the conveyance by Vintage to ADOT of the Vintage Property with the New ADOT Facilities constructed thereon pursuant to the Implementation Agreement. As a result, the parties agree that the preliminary plat approval will remain valid for three (3) years from the Effective Date to allow sufficient time for the transactions contemplated by clauses (i) through (iii) to be completed.

2. Section 3 of the Agreement (Development Standards) is amended to read as follows (deleted text is shown with a ~~strikethrough~~ and new text is **bolded** in red and ALL CAPS):

Development Standards. ~~The development of Mill Town Property, as well as standards for off-site and on-site public improvements will be governed by the City's codes, ordinances, regulations, rules, guidelines, and policies controlling permitted uses of the Mill Town Property, design review guidelines, the density and intensity of uses, the maximum height and size of buildings within the Mill Town Property in existence as of the Effective Date of this Agreement (for purposes~~ **CURRENT CITY ENGINEERING STANDARDS, BUILDING CODE, FIRE CODE, REGULATIONS, RULES, GUIDELINES, AND OTHER CODE PROVISIONS SHALL APPLY TO DEVELOPMENT OF THE MILL TOWN PROPERTY, EXCEPT THAT THE MILL TOWN PROPERTY MAY BE DEVELOPED UNDER THE PROVISIONS** of the Zoning Code [Title 10 of the Flagstaff City Code] **IN EFFECT ON MAY 5, 2017** ~~the version in place as of May 5, 2017 will apply),~~ **FOR A PERIOD OF NINE (9) YEARS AFTER THE EFFECTIVE DATE.** ~~except as modified herein or otherwise agreed to, in writing, by Vintage and the City (collectively, the "Applicable Rules" or "Rules");~~ **IF, HOWEVER, THE MILL TOWN PROPERTY IS DEVELOPED IN CONFORMANCE WITH REZONING ORDINANCE FOR PZ-16-00239-02 (CITY ORDINANCE NO. 2018-13), SITE PLAN (PZ-16-**

00239-01), AND PRELIMINARY PLAT (PZ-16-00239-03), WITHOUT ANY MONDIFICATION EXCEPT FOR MINOR MODIFICATIONS PERMITTED UNDER CITY CODE, THEN CITY ENGINEERING STANDARDS, BUILDING CODE, FIRE CODE, REGULATIONS, RULES, GUIDELINES, AND OTHER CODE PROVISIONS IN EXISTENCE ON MAY 5, 2017, INCLUDING THE ZONING CODE, SHALL APPLY. ~~provided, however, that i~~ **I**f Vintage fails to apply for any Construction Permits ~~for development of the Mill Town Property~~ within ~~five~~**NINE** (~~5~~**9**) years following the Effective Date ~~of this Agreement,~~ **(**and thereafter diligently proceeds with construction pursuant to those Construction Permits**)**, then development of the Mill Town Property ~~will~~**SHALL** be subject to the City's codes, ordinances, regulations, rules, guidelines, and policies in effect at the time Vintage applies for Construction Permits. "Construction Permits" ~~shall~~ mean**S** any permit issued by the City or other jurisdiction that is required in order to begin construction of any on-site or off-site improvements related to development of the Mill Town Property, including but not limited to public improvements, grading, electrical, gas, plumbing, mechanical, or structural.

3. Section 5.3 is hereby added to the Agreement:

5.3 Outdoor Lighting Standards. Notwithstanding the Development Standards described in Section 3 of this Agreement, the Milltown Property will be developed in accordance with the Outdoor Lighting Standards (Zoning Code Division 10-50.70) in effect at the time of development.

4. Miscellaneous. Except as stated herein, the Agreement shall remain in full force and effect and is hereby ratified and approved. If there is any inconsistency between the terms of the Agreement and the terms of this Amendment, the provisions of this Amendment will govern and control the rights and obligations of the Parties. This Second Amendment may be signed in counterparts.

5. Conflict of Interest. This Amendment and the Development Agreement may be cancelled by the City pursuant to A.R.S. § 38-511.

[Balance of Page Intentionally Left Blank; Signature Page Follows]

IN WITNESS WHEREOF, City and Vintage have executed this Amendment as of the date first set forth above.

"City"

City of Flagstaff, an Arizona municipal corporation

_____
_____, Mayor

Attest:

_____
City Clerk

Approved as to form:

_____
City Attorney

"Vintage"

Vintage Partners, LLC, an Arizona limited liability company

By: Edward & Company, LLC, an Arizona limited liability company
Its: Administrative Member

By: _____
Mark Ortman, Jr.
Its: Manager

STATE OF ARIZONA)
COUNTY OF COCONINO)

ACKNOWLEDGMENT

On this _____ day of _____, 2024, before me, a Notary Public, personally appeared _____, Mayor of the City Flagstaff, known to be or satisfactorily proven to be the person whose name is subscribed to the foregoing instrument and acknowledged that she executed the same on behalf of the City of Flagstaff, for the purposes therein contained.

_____
Notary Public
My Commission Expires:_____

STATE OF ARIZONA)
COUNTY OF MARICOPA)

ACKNOWLEDGMENT

On this _____day of_____, 2024, before me, a Notary Public, personally appeared Mark Ortman, Jr., known to me to be or satisfactorily proven to be the person whose name is subscribed to the foregoing instrument and acknowledged that he/she executed the same on behalf of Vintage Partners LLC, an Arizona limited liability company, for the purposes therein contained.

_____
Notary Public
My Commission Expires:_____

Official Records of Coconino County 3816763
Patty Hansen - Recorder 06/05/2018 09:22 AM Pgs: 29
CITY OF FLAGSTAFF AM $19.00

DEV-2015-023-AG2

City Clerk
City of Flagstaff
211 West Aspen Avenue
Flagstaff, Arizona 86001

MILL TOWN DEVELOPMENT AGREEMENT

AMONG

CITY OF FLAGSTAFF

AND

VINTAGE PARTNERS, LLC

DEVELOPMENT AGREEMENT

THIS DEVELOPMENT AGREEMENT ("Agreement") is made as of this 4 day of June, 2018, among the City of Flagstaff, a municipal corporation organized and existing under the laws of the State of Arizona ("City"), and Vintage Partners, LLC, an Arizona limited liability company ("Vintage"). The effective date of this Agreement will be determined in accordance with Section 1 below.

RECITALS

A. A.R.S. § 9-500.05 authorizes the City to enter into development agreements with landowners and persons having an interest in real property located in the City.

B. The Arizona Department of Transportation, a division of the State of Arizona ("ADOT"), owns certain real property (the "ADOT Property") located at the southwest corner of Milton and University in Flagstaff, Arizona as legally described in Exhibit A, attached hereto and incorporated herein by this reference.

C. The City owns certain real property located adjacent to the ADOT Property (the "City Property") as legally described on Exhibit B, attached hereto and incorporated herein by this reference.

D. An affiliate of Vintage owns certain real property located at the southwest corner of University Avenue and Woodlands Village Boulevard ("Vintage Property") as legally described on Exhibit C, attached hereto and incorporated herein by this reference.

E. Vintage, the City, and ADOT previously entered into a Pre-Development Agreement recorded in the Official Records of Coconino County, Arizona on March 17, 2015 as Instrument Number 2015-023, as amended (the "PDA").

F. Pursuant to the PDA, Vintage has the right to seek rezoning of the City and ADOT Property. The City and ADOT Property are collectively referred to in this Agreement as the "Mill Town Property".

G. The City and Vintage are entering into this Agreement pursuant to the provisions of Arizona Revised Statutes ("A.R.S.") § 9-500.05 (pertaining to development agreements) in order to facilitate development of the Mill Town Property and related transportation improvements, which include the "City Transportation Improvements" and the "Milton Underpass Improvements" identified in Exhibit D.

NOW, THEREFORE, in consideration of the foregoing and the mutual promises and covenants contained in this Agreement, and for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the parties agree as follows:

AGREEMENT

1. Effective Date/Sequence of Approvals. The Parties agree that this Agreement will not become effective, and no party will have any obligation under this Agreement unless each of the following occurs: (1) this Agreement is executed by all parties, (2) the City has entered into an Intergovernmental Agreement with ADOT, pursuant to which the City will convey the City Property to ADOT (the "IGA"), (3) Vintage has entered into an Implementation Agreement with ADOT, pursuant to which Vintage will design and construct new operational facilities for ADOT on the Vintage Property ("New ADOT Facilities") and, immediately following the completion of the New ADOT Facilities, ADOT will transfer its property to Vintage and, concurrently, the City will convey the City Property to ADOT pursuant to the IGA, ADOT will transfer the Mill Town Property to Vintage, and the City-approved final plat dedicating all right-of-way required for the City Transportation Improvements will be recorded (the "Implementation Agreement"), (4) Vintage's application to rezone the Mill Town Property to Highway Commercial ("HC") and Resource Protection Overlay ("RPO") is approved by the City Council and the rezoning becomes final and effective (the "Rezoning Ordinance"), and (5) this Agreement is recorded as required by A.R.S. § 9-500.05(D). The City, Vintage, and ADOT will use an escrow process to ensure that all transfers of property and recordation of right-of-way and public easement dedications occur simultaneously. The date on which all of the foregoing items have been completed is the "Effective Date" of this Agreement. If a challenge is properly made to the Agreement or the Rezoning Ordinance, this Agreement will become effective after resolution of any such challenges in favor of the City. If requested by either party, the parties shall execute an amendment to this Agreement confirming the Effective Date.

1.1 No Default. Any delay relative to the Effective Date of this Agreement by judicial challenge, referendum, or injunction filed by parties acting independently of and not under the control of the City will not be deemed a default by the City.

1.2 Duration. If the Effective Date has not occurred within five (5) years from the date of this Agreement, then this Agreement shall automatically terminate. In addition, this Agreement will automatically terminate on the tenth (10th) anniversary of the Effective Date, unless this Agreement is rescinded or terminated earlier as provided for herein. Notwithstanding any automatic termination, if requested by either party, the parties shall execute an instrument confirming the termination of this Agreement.

2. Entitlements. Vintage hereby agrees to be subject to all the terms, conditions, and stipulations of the Rezoning Ordinance for PZ-16-00239-02 (City Ordinance No. 2018-13), Site Plan (PZ-16-00239-01), and preliminary plat (PZ-16-00239-03) (collectively, the "Entitlements"). The City acknowledges and agrees that the development rights granted by the Rezoning Ordinance are vested for a term of five (5) years from the Effective Date of this Agreement (the "Vested Rights") and that Vintage shall have a right to develop the Mill Town Property consistent with the Vested Rights, subject to the Applicable Rules (as defined in Section 3, below) and any changes to the Rules as permitted by this Agreement. Further, the City acknowledges that the recordation of the final plat for the Mill Town Property ("Final Plat") will occur only after (i) the New ADOT Facilities have been constructed on the Vintage Property pursuant to the Implementation Agreement, (ii) the City has conveyed the City Property to ADOT pursuant to the IGA, and (iii)

the Mill Town Property has been conveyed to Vintage by ADOT in exchange for the conveyance by Vintage to ADOT of the Vintage Property with the New ADOT Facilities constructed thereon pursuant to the Implementation Agreement. As a result, the parties agree that the preliminary plat approval will remain valid for three (3) years from the Effective Date to allow sufficient time for the transactions contemplated by clauses (i) through (iii) to be completed.

3. Development Standards. The development of the Mill Town Property, as well as the standards for off-site and on-site public improvements, will be governed by the City's codes, ordinances, regulations, rules, guidelines, and policies controlling permitted uses of the Mill Town Property, design review guidelines, the density and intensity of uses, the maximum height and size of the buildings within the Mill Town Property in existence as of the Effective Date of this Agreement (for purposes of the Zoning Code [Title 10 of the Flagstaff City Code], the version in place as of May 5, 2017 will apply), except as modified herein or otherwise agreed to, in writing, by Vintage and the City (collectively, the "Applicable Rules" or "Rules"); provided, however, that if Vintage fails to apply for any Construction Permits for development of the Mill Town Property within five (5) years following the Effective Date of this Agreement, and thereafter diligently proceeds with construction pursuant to those Construction Permits, then development of the Mill Town Property will be subject to the City's codes, ordinances, regulations, rules, guidelines, and policies in effect at the time Vintage applies for such Construction Permits. "Construction Permits" shall mean any permit issued by the City or other jurisdiction that is required in order to begin construction of any on-site or off-site improvements related to development of the Mill Town Property, including but not limited to public improvements, grading, electrical, gas, plumbing, mechanical, or structural.

4. Permits and Fees. Vintage agrees and understands that all building permit fees, Development Fees enacted under A.R.S. § 9-463.05, and other fees normally applicable to construction within the City at the time of application shall apply to construction of all on-site and off-site improvements related to the development of the Mill Town Property (collectively, "User Fees"), and that User Fees are subject to change at the discretion of the City Council. From and after the date of this Agreement until the expiration of the fifth (5^{th}) year following the Effective Date, the City agrees that no User Fee payable to the City in connection with the development of the Mill Town Property will be increased by more than 7% per calendar year. For example, if the City does not change the User Fees during the first three (3) years following the date of this Agreement, but during the fourth (4^{th}) year the City increases a User Fee by 30%, then the User Fee applicable to Vintage will be limited to a 28% increase. From and after the expiration of such five (5) year period, all User Fees will be charged at the then-current rate, regardless of the percentage increase(s) from the prior year(s), if any.

5. Project Description, Site Layout, and Design Considerations. The Mill Town Property will be developed according to the approved Site Plan including the conditions of approval, which is attached as Exhibit E and incorporated into this Agreement by reference. Development according to the approved Site Plan is a condition to the approved Rezoning Ordinance.

5.1 Development Allocations. As depicted on the Site Plan, the overall maximum number of residential units to be developed on the Mill Town Property is 348 units and 1186 beds. Recognizing that the residential units within the project are not age restricted, to encourage

multigenerational living, marketing for the ground level units will be age-targeted to attract mature residents and, to the extent permitted by law, the ground level units will be (i) restricted to tenants who are not full-time undergraduate students and (ii) subsidized a minimum of 30% below market, as measured against comparable units in the Project, in accordance with affordability criteria to be mutually agreed upon by Vintage and the City. This provision shall survive the term of this Agreement and shall continue in full force and effect for a period of ten (10) years from issuance of certificate of occupancy on the residential building and provided that the Project's residential units remain rental units. The parties agree to meet and negotiate in good faith for an extension of this provision following its expiration in ten (10) years.

5.2 Safety Plan. Owner agrees to participate in the City of Flagstaff Crime Free Multi-Housing Program and agrees that a final safety plan that addresses events, parties, general safety requirements, staffing and operations shall be approved by the Planning Director prior to final Certificate of Occupany for the residential portion of the development.

6. Resource Protection Plan. The Rezoning Ordinance provides that the Mill Town Property will be included within the City's Resource Protection Overlay. In connection with the Preliminary Plat and Site Plan, a Natural Resource Protection Plan (the "NRPP") was prepared by Shepard Westnitzer ("Engineer") dated February 5, 2018, that contains the approved resource protection strategy for the Mill Town Property. The City acknowledges that the NRPP exempts disturbance related to the City's Transportation Improvements and governs future plat submittals for the individual development parcels.

7. Combined Roadway Project. Vintage, through the Public Private Partnership ("P3 Partnership"), has been selected to manage the design and construction of the City Transportation Improvements. Vintage will manage the procurement process for the design and construction of the City Transportation Improvements and the upsized 12" sewer line in University Drive described in Section 7.5 below ("University Sewer"), utilizing a public procurement process in compliance with Title 34 of the Arizona Revised Statutes pertaining to construction of public infrastructure. The City will assign a Construction Manager to coordinate with Vintage's Project Manager and to determine the method of project delivery and serve as the project liaison through the construction phase. Vintage has previously engaged Engineer to prepare the thirty percent (30%) plans (the "30% Plans") for the City Transportation Improvements, University Sewer, and the Milton Underpass Improvements (collectively, the "Combined Roadway Project"). The parties have determined which improvements within the Combined Roadway Project will be categorized as City Transportation Improvements or Milton Underpass Improvements, and that summary is provided as Exhibit D. Milton Underpass Improvements are generally limited to those that would not otherwise have been required to be completed as a part of the City Transportation Improvements. The City will be responsible for City Transportation Improvement costs and Vintage will be responsible for Milton Underpass Improvement costs, except as otherwise expressly provided herein.

7.1 Design Phase. Vintage intends to utilize Engineer as the primary professional consultant to complete the final design for the Combined Roadway Project. Within ninety (90) days following the Effective Date of this Agreement, Vintage's Project Manager, in coordination with the City's Construction Manager, will complete the final design budget for the Combined

Roadway Project ("Design Budget"). The Design Budget will include the cost of the 30% Plans, and identify, by line item, each major component of the Combined Roadway Project and assign allocations to the City Transportation Improvements, the University Sewer, and the Milton Underpass Improvements. Vintage will be entitled to reimbursements for the amount paid to the Engineer for the 30% Plans related to City Transportation Improvements and the University Sewer. If the actual cost of any line item is more or less than the estimate shown on the Design Budget, then the party responsible for such line item shall be responsible for any excess costs and entitled to the benefit of any cost savings for that line item, subject to the other limitations set forth in this Agreement.

7.1.1 Final Design and Right-of-Way Adjustments. The parties acknowledge that the right-of-way required for the final design for the Combined Roadway Project ("Roadway ROW"), including related transit facilities, may require modifications to the design of the roadway, and that some of these changes may require minor adjustments to the right-of-way lines between preliminary and final plat. Both parties acknowledge that if the final Roadway ROW lines must adjust beyond what is shown on the preliminary plat, the City will facilitate the administrative approval of Site Plan modifications. Any such adjustment will not impact the approvals granted through theEntitlements.

7.1.2 High Frequency Bus Lanes and Bus Stop Locations. The parties agree to design and construct the City Transportation Improvements in a manner that supports the future addition of High Frequency Bus Lanes, if adequate funding for High Frequency Bus Lanes and construction by a third party are provided to the satisfaction of the City and the City determines that the addition of High Frequency Bus Lanes is in the best interest of the community, in the City's sole discretion. If adequate funding is provided prior to the completion of the Final Design for the Combined Roadway Project, and the City determines that the addition of High Frequency Bus Lanes is in the best interest of the community, the City will eliminate the requirement for bus pull-outs within the Combined Roadway Project. The City further agrees to work with ADOT to coordinate High Frequency Bus Routes on their jurisdictional roadways to be consistent with the adopted results of the Milton Road Corridor Master Plan.

7.2 Land Transfers.

7.2.1 ROW Dedications. At the time of approval of the 100% Plans, the City will consider the Final Plat. Upon approval of the Final Plat and transfer of the Mill Town Property to Vintage, Vintage and the City shall take all action necessary to record the Final Plat which will provide for the dedication by Vintage to the City and the City's acceptance of the Roadway ROW, including public easements.

7.2.2 University Remnant. The City acknowledges and agrees that the realignment of University will cause a portion of the prior alignment to become remnant right-of-way as depicted in Exhibit G hereto (the "University Property"). Concurrently with the recordation of the Final Plat, the City agrees to take all action necessary to transfer the University Property to Vintage in exchange for the Roadway ROW, which process is

provided for and permitted under A.R.S. § 28-7203. Upon such transfer, the University Property shall become part of the Mill Town Property for purposes of this Agreement.

7.2.3 Additional Public Easements and Rights-of-Way. Vintage will use good faith, best efforts to obtain agreements with relevant property owners for any and all public easements, public right-of-way, rights of entry, and/or other use rights required for construction of the City Transportation Improvements and University Sewer. Vintage shall use good faith, best efforts to negotiate commercially reasonable terms for the acquisitions of the easements by the City; provided, however, if despite the exercise of such efforts, Vintage is unable to secure agreements for any necessary easements, the City shall take steps to obtain such easements, which may include use of the City's power of eminent domain and the obtaining of immediate possession, all in accordance with applicable law. Such costs of obtaining the easements necessary for the City Transportation Improvements or University Sewer (including, without limitation, the costs of eminent domain, including legal fees and court costs) shall be paid by the City and included in the cost of the City Transportation Improvements. Costs of obtaining easements for the Milton Underpass Improvements will be borne by Vintage, and if Vintage is unable to obtain any easements required for the Milton Underpass Improvements, the City shall take steps to obtain such easements at Vintage's expense, which may include use of the City's power of eminent domain and the obtaining of immediate possession, all in accordance with applicable law.

7.3 Construction Phase. The City has budgeted $7,375,000 for the City Transportation Improvements and an additional $300,000 for related sewer upsizing detailed in Section 7.5 below. Engineer has prepared an Estimate of Probable Costs based on the Roadway ROW design drawings as of the date of this Agreement, and based on that Estimate the City intends to program an additional $400,000, subject to City Council approval, for the City Transportation Improvements, which is expected to be available no later than July 1, 2018.

7.3.1 Construction Budget. Following the completion of the Combined Roadway Project design, Vintage's Project Manager shall initiate the procurement of a contractor properly licensed by the State of Arizona Registrar of Contractors in coordination with the City's Construction Manager to construct the Combined Roadway Project (the "Work"). After contractor selection and prior to contract approval by the City Engineer, Vintage's Project Manager will prepare a final budget in coordination with the City's Construction Manager which will identify, by line item, each major component of the Combined Roadway Project and shall allocate each component to the City Transportation Improvements, the University Sewer, or the Milton Underpass Improvements ("Construction Budget"). Pursuant to Section 7.4.2 and 7.5 below, the City will be responsible for the costs of the line items for the City Transportation Improvements and Vintage will be responsible for the cost of the line items for the Milton Underpass Improvements, subject to the contributions to be made by the City to the Milton Underpass Improvements as provided in Section 7.4.2 below. If the actual costs of any line item at the completion of the Work is more or less then the estimate shown on the Construction Budget, then the party responsible for such line item shall be responsible for any excess costs and entitled to the benefit of any cost savings for that line item, subject to the other limitations set forth in this Agreement. The Construction Budget will account for all costs

related to the construction of the Combined Roadway Project pursuant to the final design. Such costs include without limitation surveying, testing, permits, bonding, construction management fees, overhead, taxes, as well as a contingency.

7.3.2 Construction. Vintage, through the selected contractor, shall diligently complete the construction of the Work in accordance with the Applicable Rules and secure all necessary Construction Permits for the Work. The City shall provide inspection services for the Work that is within the City's jurisdiction to ensure construction in accordance with the final design, and will accept the Work completed with the City's jurisdiction when the project has been completed subject to the requirements of this Agreement.

7.4 Project Payments.

7.4.1 Design Costs. Following the Effective Date of this Agreement and within ten (10) working days of the completion of the Design Budget, the parties will deposit their respective allocations into an escrow account, pursuant to separate escrow instructions to be prepared by Vintage's Project Manager with approval of the City's Construction Manager.

7.4.2 Construction Costs. Within ten (10) business days of the completion of the Construction Budget, the parties will deposit their respective allocations in an escrow account pursuant to separate escrow instructions to be prepared by Vintage's Project Manager with approval of the City's Construction Manager and which will ensure payments are made in accordance with the prompt pay requirements under A.R.S. § 34-221 for the Work. The City will also contribute $400,000 toward the costs of the Milton Underpass Improvements as the City's share of the regional transportation improvement. Further, at final acceptance of the City Transportation Improvements, the total cost for the City Transportation Improvements, University Sewer, and Milton Underpass Improvements will be established, and if the actual cost of the City Transportation Improvements is less than $7,775,000, then such cost savings will be contributed to the costs of the Milton Underpass Improvement; provided that, the City's total contribution to the Milton Underpass Improvements must not exceed 50% of the total cost of the Milton Underpass Improvements.

7.4.3 Alternate Funding Sources. The City agrees to support Vintage's efforts to secure other non-City funding sources for the Milton Underpass Improvements, but only to the extent that such funding sources do not trigger Federal procurement processes or construction related processes. Vintage agrees that it will not pursue funding sources that "Federalize" the City Transportation Improvements.

7.5 University Sewer. The Combined Roadway Project includes a section of sewer upsizing from 8" to 12" in University Avenue, and a new 12" sewer extension in University Drive to be funded separately by the City Water Services Division with a budget of $300,000. The funds for the oversizing and extension of the 12" sewer lines will be deposited and dispersed as part of the City Transportation Improvement funds as provided in Section 7.4.2 above. The Design and

Construction Budgets will separate the University Sewer cost so that they can be allocated to the correct City Division.

7.6 No Further Financial Assurance. The parties agree that the escrow requirement for the estimated cost of the Milton Underpass Improvements, as set forth in Section 7.4.2 above, will satisfy any requirement for financial assurances in connection with the Final Plat for the Mill Town Property and that no additional assurance beyond the escrow account will be required by the City for the Milton Underpass Improvements.

8. Vintage Project Infrastructure.

8.1 Impact Analyses. The City and Vintage acknowledge that the following impact analyses are approved in connection with the Entitlements and applicable to the Mill Town Property:

- Water and Sewer Impact Analysis, dated March 23, 2017 ("WSIA")
- Traffic Impact Analysis, dated October 30, 2017 ("Traffic Study")
- Preliminary Drainage Report and Drainage Impact Analysis, dated October 5, 2017 (collectively the "DIA")

8.2 Offsite Infrastructure. Provided that Vintage proceeds with the development of the Mill Town Property in accordance with the Entitlements, the City agrees no offsite infrastructure improvements are required by the Mill Town Projectbeyond the City's Transportation Improvements, except for the Milton Underpass Improvements and Milton Turn Lane described below. As part of the overall P3 Partnership, the Combined Roadway Project mitigates the offsite development impacts of the Mill Town Project. Vintage agrees to mitigate the identified onsite drainage impacts arising from the development of the Mill Town Property in accordance with the DIA. Further, the parties acknowledge that the DIA goes beyond the analysis of the Mill Town Property by providing for the necessary improvements related to the City Transportation Improvements. The City agrees that any offsite drainage improvement requirements that are a component of DIA are City Transportation Improvements and as a result will be included in the completion of the Plans and treated as a City Transportation Improvement cost under Section 7 of this Agreement. As a result, no financial assurances for offsite drainage improvements are required.

8.2.1 Milton Turn Lane. The Traffic Study identifies that a right-turn lane into the Mill Town Property from Milton will be required, and that such improvement is not a component of City Transportation Improvements and will be completed as a separate project by Vintage, at Vintage's sole cost and expense.

8.2.2 Milton Underpass. As provided for in the Rezoning Ordinance, the Milton Underpass Improvements must be completed before any certificate of occupancy is issued for development on the Mill Town Property. Following completion of the Milton Underpass Improvements and acceptance by the City, Vintage will make a one-time

payment not to exceed $60,000 to the City to contribute to the operation and maintenance costs of the Underpass. In addition to the $60,000 one-time payment, Vintage will be responsible for all warranty work related to the Milton Underpass for one year after acceptance by the City or ADOT.

8.3 Onsite Construction. The parties hereto acknowledge and agree that to the extent Vintage develops the Mill Town Property, including the frontage improvements along Milton Road, it shall have the right and the obligation, at any time after the Effective Date of this Agreement, to construct or cause to be constructed and installed, in accordance with the Applicable Rules, regulations, construction standards, and governmental review processes, all portions of the onsite improvements that relate to the phase or portion of the Mill Town Property to be developed by Vintage subject to approved civil plans, and the construction of the project will be concurrent with the Work provided that adequate fire flow is available to the Mill Town Property. However, no certificate of occupancy will be issued for any portion of the Mill Town Property until the Combined Roadway Project is completed and accepted by the City and/or ADOT.

8.3.1 Vintage shall restore such City easements and rights-of-way, used pursuant to the encroachment permit, to their condition prior to Vintage's entry upon completion of such construction, repairs, or maintenance. Vintage, its agent, and employees, also shall have the right, upon receipt from the City of an appropriate encroachment permit, to enter and remain upon and cross over any City easements or rights-of-way to the extent reasonably necessary to install and maintain landscaping material within the portion of the City right-of-way not used for vehicular travel.

8.4 Eco-Pass. Vintage has committed to providing each residential lessee within the Mill Town Project a NAIPTA Eco-Pass till such time that NAIPTA implements a higher education bulk rate pass program (U-Pass) which will provide students of both NAU and CCC with fare-free access to the entire Mountain Line network.

9. Notices. Any notice or other communication required or permitted to be given under this Agreement will be in writing and will be deemed to have been given if (1) delivered to the party at the address set forth below during normal business hours, (2) deposited in the U.S. Mail, registered or certified, return receipt requested, to the address set forth below, with sufficient postage, or (3) given to a recognized and reputable overnight delivery service, to the address set forth below, with the person giving the notice paying all required charges and instructing the delivery service to deliver on the following business day or at such other address, and to the attention of such other person or officer, as any party may designate in writing by notice duly given pursuant to this Section.

To City:

City Manager
City of Flagstaff
211 West Aspen Avenue
Flagstaff, Arizona 86001

To Vintage:

Mark Ortman
VP Flagstaff P3, LLC
2502 E. Camelback Road, Suite 214
Phoenix, AZ 85016

Notices will be deemed received (1) when delivered to the party, (2) three business days after being sent by U.S. mail, certified and return receipt requested, properly addressed, with sufficient postage, or (3) the following business day after being given to a recognized and reputable overnight delivery service.

10. General Provisions.

10.1 Further Assurances. Each party, promptly upon the request of the other, will take such further actions and will execute, acknowledge, and deliver to the other any and all further instruments as may be necessary or proper to carry out the purpose and intent of this Agreement.

10.2 Successors and Assigns. All of the provisions hereof will inure to the benefit of and be binding upon the successors and assigns of the parties hereto pursuant to A.R.S. § 9-500.05(D), except as provided below. Vintage's rights and obligations hereunder may only be assigned to (i) a person or entity that has acquired the Vintage Property or the Mill Town Property or a portion thereof and only by a written instrument, recorded in the official records of Coconino County, Arizona, expressly assigning such rights and obligations, or (ii) a related entity including any subsidiary, business, corporation, partnership, limited liability company, or other entity in which Vintage (or its principals) holds a substantial interest, directly or indirectly. All rights and obligations of Vintage under this Agreement will constitute covenants that run with the land and will be binding on all of Vintage's respective successors and assigns.

10.2.1 Notwithstanding the foregoing, the City agrees that Vintage's ownership, operation, and maintenance obligations provided by this Agreement may be assigned to one or multiple property owners' association(s) ("POA(s)") to be established by Vintage. Vintage agrees to provide the City with written notice of any assignment of Vintage's rights or obligations within a reasonable period of time following such assignment.

10.2.2 Notwithstanding any other provisions of this Agreement, Vintage may assign all or part of its rights and duties under this Agreement to any financial institution from which Vintage has borrowed funds for developing the Mill Town Property or a portion thereof.

10.3 Entire Agreement. This Agreement contains the entire understanding and agreement between the parties with respect to the subject matter hereof and supersedes any prior written or oral understandings or agreements between the parties.

10.4 Modification of Agreement. This Agreement may be amended at any time by written amendment executed by and between the City and Vintage. All amendments to this Agreement must be recorded in the official records of Coconino County, Arizona, within ten (10) days following execution, as required by A.R.S. § 9-500.05(D).

10.5 Default. Failure of a party to perform a material obligation of this Agreement shall constitute a breach by that party of this Agreement and, if the breach is not cured within thirty (30) days after written notice thereof from the other party (the "Cure Period"), shall constitute a default under this Agreement; provided, however, that if the failure is such that more than thirty (30) days

would be reasonably required to perform such action or comply with any term or provision thereof, then the breaching party shall have such additional time as may be necessary to perform or comply so long as the party commences performance or compliance within said thirty (30) day period and diligently proceeds to complete such performance or fulfill such obligation. In the event a breach is not cured within the Cure Period, the non-defaulting party shall have all the rights and remedies that may be available under law or equity, including the right to institute an action for damages.

10.6 Waiver. No delay in exercising any right or remedy shall constitute a waiver thereof and no waiver by the parties of the breach of any provision of this Agreement shall be construed as a waiver of any preceding or succeeding breach of the same or any other provision of this Agreement. Nothing in this Agreement shall constitute or be deemed to be a waiver by Vintage of its right to request future rezonings or changes in development standards for all or any portion(s) of the Property pursuant to City procedures and requirements existing at the time of the request. Nothing in this Agreement shall be deemed to be a waiver by the City of the right to act, by approval or denial, on such rezoning or change. Further, nothing in this Agreement shall constitute or be deemed to be a waiver or relinquishment by Vintage of its rights to continue nonconforming uses of all or any portion(s) of the Mill Town Property which may exist, or have existed, as of the date of this Agreement, subject to legal principles applicable to such non-conforming uses.

10.7 Counterparts. This Agreement may be executed in any number of counterparts, each of which will constitute an original, but all of which will constitute one and the same agreement.

10.8 Terms. Common nouns and pronouns will be deemed to refer to the masculine, feminine, neuter, singular, and plural, as the identity of the person may in the context require; and the word "person" or "party" will include a corporation, limited liability company, firm, partnership, proprietorship, or other form of association.

10.9 Descriptive Headings. The descriptive headings throughout this Agreement are for convenience and reference only, and the words contained therein will in no way be held to explain, modify, amplify, or aid in the interpretation, construction, or meaning of the provisions of this Agreement.

10.10 Construction of Agreement. This Agreement has been arrived at by negotiation and will not be construed against either party or against the party who prepared the last draft.

10.11 Recordation and Effect. This Agreement will be recorded by the City in its entirety, inclusive of all exhibits, in the official records of Coconino County, Arizona, as required by A.R.S. § 9-500.05(D).

10.12 Governing Law. This Agreement and the rights of the parties shall be governed by and construed in accordance with the laws of the State of Arizona.

10.13 Cancellation for Conflict of Interest. This Agreement is subject to the cancellation provisions of A.R.S. § 38-511.

10.14 Time of the Essence. Time is of the essence in implementing the terms of this Agreement.

10.15 Authorization. The execution and performance of this Agreement has been duly authorized by all necessary laws, resolutions, or corporate actions of the respective parties. The parties to this Agreement represent and warrant that the persons executing this Agreement have full authority to bind the respective parties.

10.16 Severability. If any provision or provisions of this Agreement, or the application thereof to any person or circumstance, is determined to be invalid or unenforceable to any extent, the remainder of this Agreement, or the application of such provision to persons or circumstances other than those as to which it is so determined invalid or unenforceable, will not be affected thereby, and each provision hereof will be valid and will be enforced to the fullest extent permitted by law unless the enforcement of the remaining provisions would defeat the benefit of the bargain for either party in any material respect.

10.17 Exhibits. All exhibits attached hereto are incorporated herein by reference as though fully set forth herein.

10.18 Dispute Resolution. If a dispute arises out of or relates to this Agreement and if the dispute cannot be settled through negotiation, the parties agree first to try in good faith to resolve the dispute by mediation before resorting to litigation or some other dispute resolution procedure.

10.18.1 Mediation Procedure. Mediation will take place in Flagstaff, Arizona, be self-administered and be conducted under the CPR Mediation Procedures established by the CPR Institute for Dispute Resolution, 366 Madison Avenue, New York, New York 10017, (212) 949-6490, www.cpradr.org, with the exception of the mediator selection provisions, unless other procedures are agreed upon by the parties.

10.18.1.1 Commencement of Mediation. Either party may refer the dispute to mediation by sending by U.S. mail, certified and return receipt requested, to the other party or parties a written notice (the "Mediation Notice") calling on the other party or parties to proceed to mediation. The party or parties who have received a Mediation Notice will contact the party calling for mediation seven (7) days from receipt of the Mediation Notice to confirm receipt of the Mediation Notice and to begin the mediator selection process.

10.18.1.2 Mediator Selection. Unless the parties agree otherwise, the parties will select the mediator(s) from the roster of attorney mediators trained under the Alternative Dispute Resolution Program of the Coconino County Superior Court. If the parties are unable to agree upon a mediator within ten (10) business days of the confirmation of receipt of Mediation Notice, each party will independently inform the Director of the Alternative Dispute Resolution Program of the Coconino County Superior Court (the "Director") of three attorney mediators from that roster that are acceptable to the party, and further, inform the Director of any preference as to matters such as whether co-mediation is preferable, mediation

style, subject matter expertise, or other factors pertinent to the case. The Director will then select one or more attorney mediators from the parties' lists or such other attorney mediator(s) from the above noted roster as the Director may deem, in the Director's sole discretion, appropriate under the circumstances.

10.18.1.3 Fees and Costs. Each party agrees to bear its own fees and costs in mediation. The parties will enter into a written agreement with the mediator(s) regarding the mediator(s)' fees and expenses before the first mediation session. The parties will share equally the mediators' fees and mediation expenses.

10.18.1.4 Subsequent or Contemporaneous Contracts. The parties will include this provision in all subsequent or contemporaneous contracts relative to this matter, absent specific written agreement of the parties otherwise.

10.18.1.5 Participation in Mediation. The parties agree to encourage participation in mediation by all relevant parties. The parties will not be obligated to mediate if an indispensable party is unwilling to join the mediation.

10.18.1.6 Waiver. This section does not constitute a waiver of the parties' rights to arbitrate or initiate legal action if a dispute is not resolved through good faith negotiation or mediation, or if provisional relief is required under the Arizona Rules of Civil Procedure.

10.19 Venue and Attorneys' Fees. Except as otherwise agreed by the parties, any litigation brought by either party against the other to enforce the provisions of this Agreement must be filed in the Coconino County Superior Court or in the United States District Court for the District of Arizona, if appropriate under 28 U.S.C. § 1331. In the event any action at law or in equity is instituted between the parties in connection with this Agreement, the prevailing party in the action will be entitled to its costs including reasonable attorneys' fees and court costs from the non-prevailing party, as well as expenses incurred in connection with the prosecution or defense of such action. For purposes of this Agreement, the term "attorneys' fees" or "attorneys' fees and costs" will mean the reasonable fees and expenses of in-house and outside counsel to the parties hereto, which may include reasonable printing, photocopying, duplicating and other expenses, air freight charges, and fees billed for law clerks, paralegals, and other persons performing services under the supervision of an attorney, and the reasonable costs and fees incurred in connection with the enforcement or collection of any judgment obtained in any such proceeding. The provisions of this Section will survive the entry of any judgment, and will not merge, or be deemed to have merged, into any judgment.

10.20 Negation of Partnership. The parties specifically acknowledge that the Project will be developed as private property, that no party is acting as the agent of any other party in any respect, and that each party is an independent contracting entity with respect to the terms, covenants, and conditions contained in this Agreement. None of the terms or provisions of this Agreement are intended to create a partnership or other joint enterprise between the parties.

10.21 No Obligation to Develop Property. Except as expressly set forth in this Agreement, neither the City nor Vintage will be required to complete any part or all of the development of the Mill Town Property. City reserves the right to design and construct the City Transportation Improvements if Vintage has not commenced development of the Mill Town Property (i.e., construction of related on-site or off-site improvements) within three (3) years of the effective date of this Agreement.

10.22 No Third Party Beneficiaries. The City and Vintage acknowledge and agree that the terms, provisions, and conditions of this Agreement are for the sole benefit of, and may be enforced solely by, the City and Vintage, and none of the terms, provisions, conditions, and obligations are for the benefit of or may be enforced by any third party.

10.23 Compliance with All Laws. Vintage will comply with all applicable Federal, State, County, and City laws, regulations, and policies.

10.24 Recitals. The Recitals set forth above are incorporated in this Agreement by reference as though fully restated.

11. Estoppel Certificate. Vintage may request of the City Manager, and the City Manager shall, within thirty (30) calendar days, respond and certify by written instrument to the requesting party that (a) the Rezoning Ordinance is unmodified and in full force and effect, or if there have been modifications, that the Site Plan is in full force and effect as modified, stating the nature and date of such modification; (b) there is or is not a default under the Rezoning Ordinance or this Agreement and the scope and nature of the default; and (c) the City has or does not have any existing or pending legal or equitable claims against any party with an ownership interest in the Mill Town Property. In the event Vintage has not received an estoppel certificate within thirty (30) days from the date of the request, then in such event, Vintage shall be entitled to prepare an estoppel certificate and deliver the certificate to the City Manager, and such estoppel certificate shall be binding upon City.

12. Performance Under Agreements. The City shall perform its obligations under and pursuant to the IGA, subject to all provisions of the IGA, including provisions related to termination, and subject to and conditioned upon ADOT's performance under and pursuant to the IGA. Termination of the IGA by the City or ADOT pursuant to any provision in the IGA related to termination will not result in a default by the City of any obligations under this Section. In the event of a default by the City of its obligations under this Section, Vintage's sole and exclusive remedy shall be limited to specific performance (i.e., transfer of the City Property to ADOT), thereby waiving any right to seek damages of any kind from the City. However, in no event will Vintage have any rights to specific performance or enforcement of this Section if either Vintage or ADOT is in default of its obligations under the Implementation Agreement, separately entered into by those parties.

[Signature page follows.]

IN WITNESS WHEREOF, the City has caused this Agreement to be executed by its duly authorized representatives, and Vintage has signed the same on or as of the day and year first above written.

"City"

City of Flagstaff, an Arizona municipal corporation

Coral Evans, Mayor

Attest:

City Clerk

Approved as to form:

City Attorney

"Vintage"

By: Vintage Partners, LLC, an Arizona limited liability company

Mark E. Ortman, Jr., Its Manager

STATE OF ARIZONA)
COUNTY OF COCONINO)

ACKNOWLEDGMENT

On this 4 day of June, 2018, before me, a Notary Public, personally appeared Coral Evans, Mayor of the City Flagstaff, known to be or satisfactorily proven to be the person whose name is subscribed to the foregoing instrument and acknowledged that she executed the same on behalf of the City of Flagstaff, for the purposes therein contained.

STACY SALTZBURG
Notary Public - State of Arizona
COCONINO COUNTY
My Commission Expires
January 24, 2022

Stacy Saltzburg
Notary Public
My Commission Expires: 1/24/22

STATE OF ARIZONA)
COUNTY OF MARICOPA)

ACKNOWLEDGMENT

On this 16th day of May, 2018, before me, a Notary Public, personally appeared Mark E. Ahlman, Jr., known to be or satisfactorily proven to be the person whose name is subscribed to the foregoing instrument and acknowledged that he/she executed the same on behalf of Vintage Partners LLC, an Arizona limited liability company, for the purposes therein contained.

Notary Public
My Commission Expires:
April 24, 2020

LIST OF EXHIBITS

Exhibit A	Legal Description of ADOT Property
Exhibit B	Legal Description of City Property
Exhibit C	Legal Description of Vintage Property
Exhibit D	Identification of City Transportation Improvements and Milton Underpass Improvements
Exhibit E	Site Plan for Mill Town Property
Exhibit F	[RESERVED]
Exhibit G	Depiction of University Property

LEGAL DESCRIPTION

EXHIBIT 'A'

STATE LAND/ADOT PARCEL
APN: 103-21-001

PARCEL NO. 1:

A PARCEL OF LAND SITUATED IN THE SOUTHWEST QUARTER OF SECTION 21, TOWNSHIP 21 NORTH, RANGE 7 EAST, GILA AND SALT RIVER BASE AND MERIDIAN, COCONINO COUNTY, STATE OF ARIZONA, BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING AT THE INTERSECTION OF THE WEST BOUNDARY LINE OF OAK CREEK HIGHWAY, AND THE SECTION LINE BETWEEN SECTION 21 AND 28, TOWNSHIP 21 NORTH, RANGE 7 EAST, WHICH IS NORTH 89° 55' EAST, 1336.8 FEET FROM SECTION CORNER COMMON TO SECTIONS 20, 21, 29 AND 28, WHICH IS THE SOUTHEAST CORNER OF THE PLOT TO BE CONVEYED;

THENCE NORTH 1° 23' WEST 760 FEET, WHICH IS THE NORTHEAST CORNER OF PLOT TO BE CONVEYED;

THENCE SOUTH 89° 55' WEST 286.57 FEET, WHICH IS THE NORTHWEST CORNER OF THE PLOT TO BE CONVEYED;

THENCE SOUTH 1° 23' EAST, 760 FEET, WHICH IS THE SOUTHWEST CORNER OF THE PLOT TO BE CONVEYED;

THENCE NORTH 89° 55' EAST, 286.57 FEET, WHICH IS THE POINT OF BEGINNING.

CONTAINING 5.00 ACRES, MORE OR LESS

PARCEL NO. 2:

A PARCEL OF LAND SITUATED IN THE SOUTHWEST QUARTER OF SECTION 21, TOWNSHIP 21 NORTH, RANGE 7 EAST, GILA AND SALT RIVER BASE AND MERIDIAN, COCONINO COUNTY, STATE OF ARIZONA, BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING AT THE SOUTHWEST CORNER OF THE EXISTING FLAGSTAFF SHOP SITE ON THE SOUTH LINE OF SECTION 21, TOWNSHIP 21 NORTH, RANGE 7 EAST, FROM WHENCE THE SOUTHWEST CORNER OF SECTION 21 BEARS SOUTH 89° 55' WEST 1050.23 FEET;

THENCE NORTH 1° 23' WEST ALONG THE WEST LINE OF SAID SHOP SITE 760 FEET TO THE NORTHWEST CORNER THEREOF;

THENCE NORTH 89° 55' EAST ALONG THE NORTH LINE OF SAID SHOP SITE 286.57 FEET TO THE NORTHEAST CORNER THEREOF;

THENCE NORTH 1° 23' WEST 150 FEET;

THENCE SOUTH 89° 55' WEST 386.57 FEET;

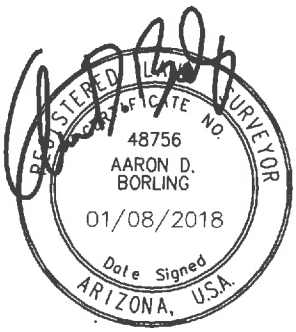
THENCE SOUTH 1° 23 EAST 910 FEET TO A POINT ON THE AFORESAID SOUTH SECTION LINE;

THENCE NORTH 89º 55' EAST ALONG SAID SECTION LINE 100 FEET TO THE POINT OF BEGINNING.

CONTAINING 3.12 ACRES, MORE OR LESS

SEE EXHIBIT 'B ' ATTACHED HERETO AND MADE A PART HEREOF.

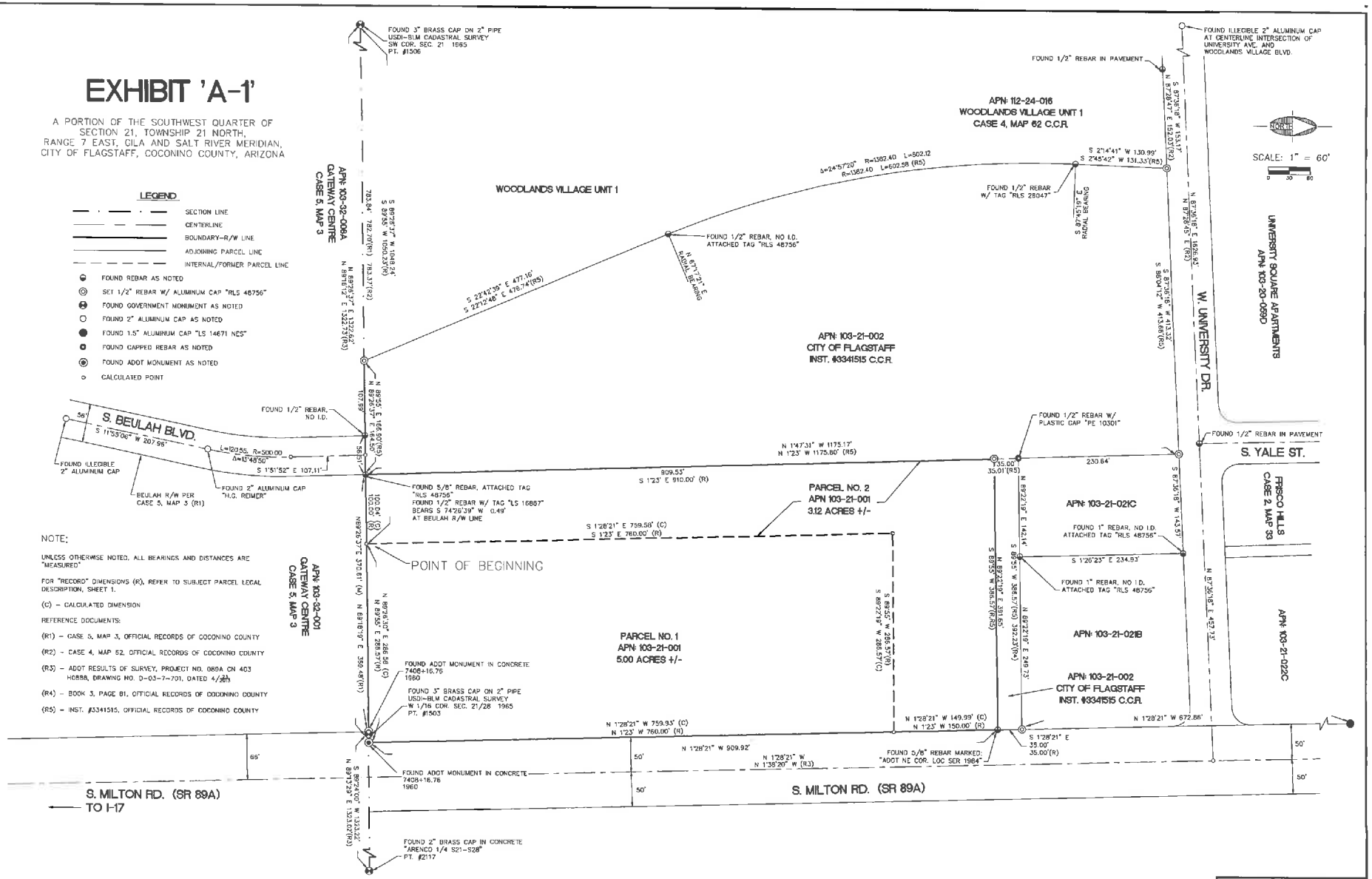
THIS LEGAL DESCRIPTION WAS PREPARED BY AARON D. BORLING, RLS 48756 ON BEHALF OF AND AT THE REQUEST OF SHEPHARD-WESNITZER, INC., FLAGSTAFF, AZ.



EXPIRES 12/31/20

EXHIBIT 'A-1'

A PORTION OF THE SOUTHWEST QUARTER OF SECTION 21, TOWNSHIP 21 NORTH, RANGE 7 EAST, GILA AND SALT RIVER MERIDIAN, CITY OF FLAGSTAFF, COCONINO COUNTY, ARIZONA



NOTE:

UNLESS OTHERWISE NOTED, ALL BEARINGS AND DISTANCES ARE "MEASURED"

FOR "RECORD" DIMENSIONS (R), REFER TO SUBJECT PARCEL LEGAL DESCRIPTION, SHEET 1.

(C) – CALCULATED DIMENSION

REFERENCE DOCUMENTS:

(R1) – CASE 5, MAP 3, OFFICIAL RECORDS OF COCONINO COUNTY

(R2) – CASE 4, MAP 62, OFFICIAL RECORDS OF COCONINO COUNTY

(R3) – ADOT RESULTS OF SURVEY, PROJECT NO. 089A ON 403 HOBBB, DRAWING NO. 0-03-7-701, DATED 4/25/89

(R4) – BOOK 3, PAGE 81, OFFICIAL RECORDS OF COCONINO COUNTY

(R5) – INST. #3341515, OFFICIAL RECORDS OF COCONINO COUNTY

CALL TWO WORKING DAYS BEFORE YOU DIG 1-800-STAKE-IT

REVISIONS			
NO.	DESCRIPTION	DATE	BY

Shephard Wesnitzer, Inc.
110 W. Dale Avenue
Flagstaff, AZ 86001
928.773.0354
928.774.6934 fax
www.swiaz.com

JOB NO:	14225
DATE:	JAN '16
SCALE:	1" = 60'
DRAWN:	ADB
DESIGN:	
CHECKED:	ADB

FLAGSTAFF, ARIZONA

LEGAL EXHIBIT

DRAWING NO. EX1

SHT NO. 1 OF 1

For location purposes only

LEGAL DESCRIPTION

EXHIBIT 'B'

CITY OF FLAGSTAFF PARCEL
APN: 103-21-002

PARCEL NO. 1:

THAT PART OF THE SOUTHWEST QUARTER OF SECTION 21, TOWNSHIP 21 NORTH, RANGE 7 EAST, GILA AND SALT RIVER BASE AND MERIDIAN, COCONINO COUNTY, ARIZONA, DESCRIBED AS FOLLOWS:

BEGINNING AT A POINT ON THE SOUTH LINE OF SECTION 21, TOWNSHIP 21 NORTH, RANGE 7 EAST, BEARING NORTH 89 DEGREES 55 MINUTES EAST A DISTANCE OF 950.23 FEET FROM THE SECTION CORNER COMMON TO SECTION 20, 21, 28 AND 29, TOWNSHIP 21 NORTH, RANGE 7 EAST;

THENCE NORTH 1 DEGREES 23 MINUTES WEST A DISTANCE OF 1175.80 FEET;

THENCE SOUTH 88 DEGREES 04 MINUTES 12 SECONDS WEST A DISTANCE OF 413.66 FEET;

THENCE SOUTH 2 DEGREES 45 MINUTES 42 SECONDS WEST A DISTANCE OF 131.33 FEET TO A POINT OF CURVE;

THENCE ALONG THE ARC OF A 1382.40 FOOT RADIUS CURVE, CONCAVE TO THE EAST A DISTANCE OF 602.58 FEET TO A POINT OF TANGENT;

THENCE SOUTH 22 DEGREES 12 MINUTES 48 SECONDS EAST ALONG THIS TANGENT LINE A DISTANCE OF 476.74 FEET TO A POINT ON THE SOUTH LINE OF SAID SECTION 21;

THENCE NORTH 89 DEGREES 55 MINUTES EAST ALONG THE SOUTH LINE OF SAID SECTION 21, A DISTANCE OF 166.90 FEET TO THE TRUE POINT OF BEGINNING;

CONTAINING 9.27 ACRES, MORE OR LESS.

PARCEL NO. 2:

THAT PART OF THE SOUTHWEST QUARTER OF SECTION 21, TOWNSHIP 21 NORTH, RANGE 7 EAST, GILA AND SALT RIVER BASE AND MERIDIAN COCONINO COUNTY, ARIZONA, DESCRIBED AS FOLLOWS:

BEGINNING AT A POINT BEARING NORTH 1 DEGREES 23 MINUTES WEST A DISTANCE OF 910.00 FEET FROM A POINT ON THE SOUTH LINE OF SECTION 21, TOWNSHIP 21 NORTH, RANGE 7 EAST THAT BEARS NORTH 89 DEGREES 55 MINUTES EAST A DISTANCE OF 950.23 FEET FROM THE SOUTHWEST CORNER OF SAID SECTION 21;

THENCE NORTH 1 DEGREES 23 MINUTES WEST A DISTANCE OF 35.01 FEET;

THENCE NORTH 89 DEGREES 55 MINUTES EAST A DISTANCE OF 386.57 FEET MORE OR LESS TO A POINT ON THE WESTERLY RIGHT OF WAY LINE OF U.S. HIGHWAY 89A, ACCORDING TO BOOK 6 OF PROMISCUOUS RECORDS, PAGE 315, RECORDS OF COCONINO COUNTY, ARIZONA;

THENCE SOUTHERLY ALONG THE WESTERLY RIGHT OF WAY LINE OF SAID U.S. HIGHWAY 89A A DISTANCE OF 35.00 FEET MORE OR LESS;

THENCE SOUTH 89 DEGREES 55 MINUTES WEST A DISTANCE OF 386.57 FEET MORE OR LESS TO THE POINT OF BEGINNING.

CONTAINING 0.31 ACRES, MORE OR LESS.

SEE EXHIBIT 'B ' ATTACHED HERETO AND MADE A PART HEREOF.

THIS LEGAL DESCRIPTION WAS PREPARED BY AARON D. BORLING, RLS 48756 ON BEHALF OF AND AT THE REQUEST OF SHEPHARD-WESNITZER, INC., FLAGSTAFF, AZ.



EXPIRES 12/31/20

EXHIBIT 'B-1'

A PORTION OF THE SOUTHWEST QUARTER OF SECTION 21, TOWNSHIP 21 NORTH, RANGE 7 EAST, GILA AND SALT RIVER MERIDIAN, CITY OF FLAGSTAFF, COCONINO COUNTY, ARIZONA

NOTE:

UNLESS OTHERWISE NOTED, ALL BEARINGS AND DISTANCES ARE "MEASURED"

FOR "RECORD" DIMENSIONS (R), REFER TO SUBJECT PARCEL LEGAL DESCRIPTION, SHEET 1.

(C) – CALCULATED DIMENSION

REFERENCE DOCUMENTS:

(R1) – CASE 5, MAP 3, OFFICIAL RECORDS OF COCONINO COUNTY

(R2) – CASE 4, MAP 62, OFFICIAL RECORDS OF COCONINO COUNTY

(R3) – ADOT RESULTS OF SURVEY, PROJECT NO. 089A CN 403 H0886, DRAWING NO. D-03-7-701, DATED 4/23/80

(R4) – BOOK 3, PAGE 81, OFFICIAL RECORDS OF COCONINO COUNTY

(R5) – INST. #3341515, OFFICIAL RECORDS OF COCONINO COUNTY

CALL TWO WORKING DAYS BEFORE YOU DIG 1-800-STAKE-IT

REVISIONS			
NO	DESCRIPTION	DATE	BY

SWI Shephard Wesnitzer, Inc.
110 W. Dale Avenue
Flagstaff, AZ 86001
928.773.0354
928.774.8934 fax
www.swiaz.com

JOB NO:	14225
DATE:	JAN '18
SCALE:	1" = 60'
DRAWN:	AOB
DESIGN:	
CHECKED:	AOB

FLAGSTAFF, ARIZONA

LEGAL EXHIBIT

DRAWING NO. EX1

SHT NO. 1 OF 1

For location purposes only

PLOTTED: Jan 08, 2018 - 4:49pm

FILE: P:\2014 Survey\14225 – Milton-Ninety\Legal Descriptions\COF Exhibit.dwg Tab: EX1-ARB

LEGAL DESCRIPTION

EXHIBIT "C"

VINTAGE PROPERTY

PARCEL NO. 1:

A PORTION OF SECTION 20, TOWNSHIP 21 NORTH, RANGE 7 EAST, GILA AND SALT RIVER MERIDIAN, COCONINO COUNTY, STATE OF ARIZONA, BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

LOT 14, WOODLANDS VILLAGE UNIT ONE, ACCORDING TO CASE 4, MAP 62, 62A AND AFFIDAVIT OF CORRECTION RECORDED IN DOCKET 1156, PAGE 392, RECORDS OF COCONINO COUNTY, ARIZONA.

EXCEPT ALL URANIUM, THORIUM, OR ANY OTHER FISSIONABLE MATERIAL WHICH IS OR MAY BE DETERMINED TO BE PECULIARLY ESSENTIAL TO THE PRODUCTION OF FISSIONABLE MATERIALS, WHETHER OR NOT OF COMMERCIAL VALUE, AS RESERVED IN PATENT FROM UNITED STATES OF AMERICA.

PARCEL NO. 2:

A PORTION OF SECTION 20, TOWNSHIP 21 NORTH, RANGE 7 EAST, GILA AND SALT RIVER MERIDIAN, COCONINO COUNTY, STATE OF ARIZONA, BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

LOT 53, WOODLANDS VILLAGE UNIT THREE, ACCORDING TO CASE 4, MAPS 131 THROUGH 131B, INCLUSIVE, RECORDS OF COCONINO COUNTY, ARIZONA.

EXCEPT ALL URANIUM, THORIUM, OR ANY OTHER FISSIONABLE MATERIAL WHICH IS OR MAY BE DETERMINED TO BE PECULIARLY ESSENTIAL TO THE PRODUCTION OF FISSIONABLE MATERIALS, WHETHER OR NOT OF COMMERCIAL VALUE, AS RESERVED IN PATENT FROM UNITED STATES OF AMERICA.

CONTAINING 355,220 SQUARE FEET, (8.15 ACRES), MORE OR LESS.

EXHIBIT D

Identification of City Transportation Improvements and Milton Underpass Improvements

Milton Underpass Improvements:

The following is a list that is intended to define the Underpass (to be only items specifically caused by the Underpass that would not already be built if the Underpass were not a part of the City Transportation Improvement project):

1. Concrete box culvert and entrance wing walls
2. Excavation/backfill including rock and unsuitable materials
3. Stairs, ADA ramps & railings
4. Landscaping, planter boxes, retaining walls and irrigation systems
5. Decorative Streetscape
6. Lighting
7. Signage
8. Drainage system
9. Utility relocations
10. Right-of-way acquisition
11. Design, plan review, permitting
12. Mobilization, traffic control, SWPPP, survey
13. Replacement of asphalt pavement, striping and edge improvements

City Transportation Improvements:

Transportation Improvements shall be defined as all improvements in the Roadway ROW including a public art installation in the Beulah and University roundabout, and excluding Milton Turn Lane Improvements (as provided for in Section 8.2.1 of the Agreement) and Milton Underpass Improvements.

EXHIBIT E

Site Plan for Mill Town Property

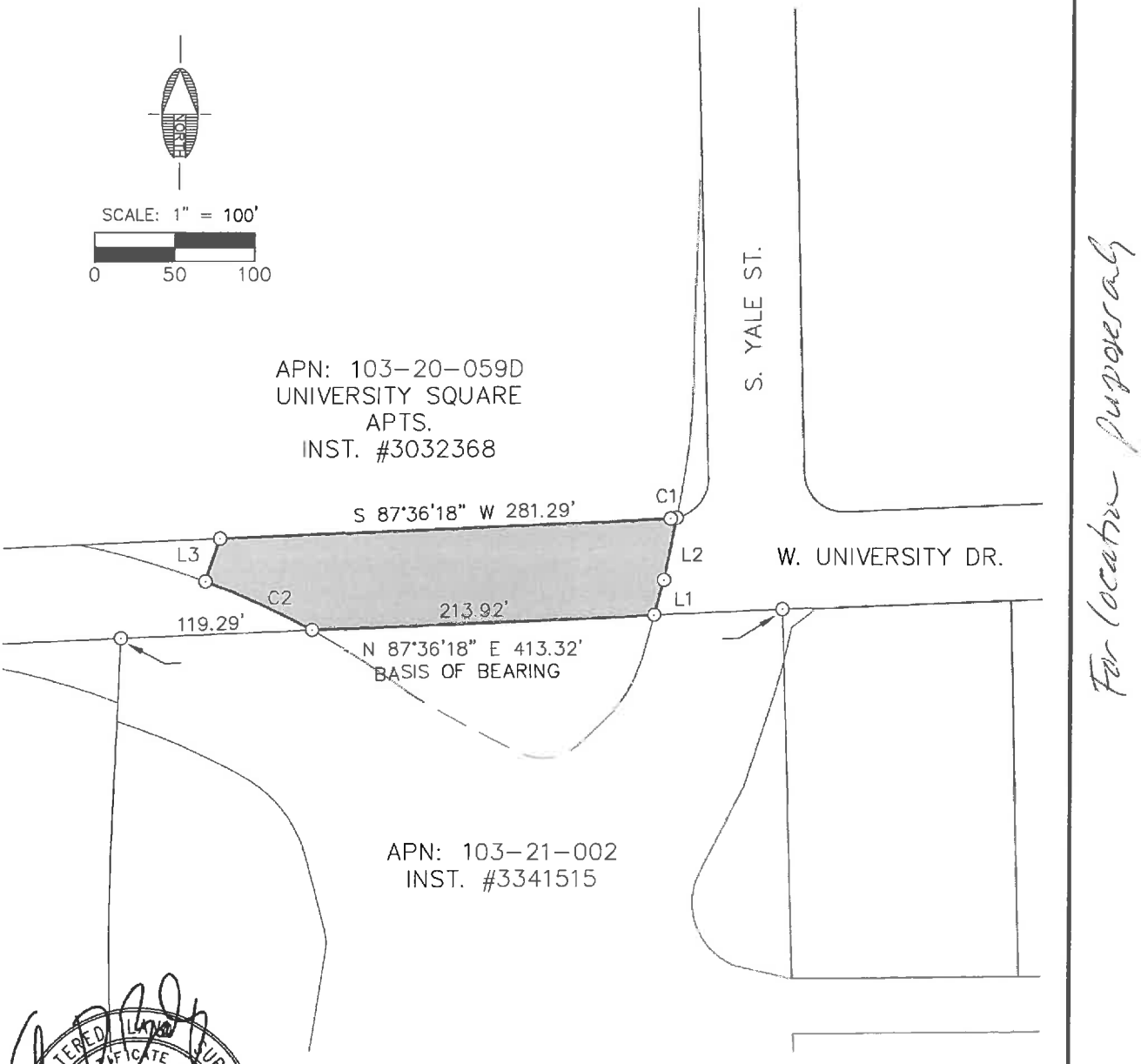
[On file with the City]

EXHIBIT F

[RESERVED]

EXHIBIT "G" - UNIVERSITY PROPERTY

A PORTION OF THE SOUTHWEST QUARTER OF SECTION 21,
TOWNSHIP 21 NORTH, RANGE 7 EAST
GILA AND SALT RIVER MERIDIAN,
COCONINO COUNTY, ARIZONA



REGISTERED LAND SURVEYOR
CERTIFICATE NO.
48756
AARON D.
BORLING
Date Signed 11/07/17
ARIZONA, U.S.A.
Expires 12/31/17

L1-N 15°12'06" E 22.63'
L2-N 11°04'06" E 39.89'
L3-S 18°30'39" W 28.27'

C1-Δ=09°44'56" R=25.00' L=4.25'
C2-Δ=07°59'31" R=528.56' L=73.73'

For location purposes

SWI
Shephard Wesnitzer, Inc. www.swiaz.com
110 West Dale Ave
Flagstaff, Az 86001
928.773.0354
928.774.8934 fax

JOB NO:	14225
DATE:	11/7/2017
SCALE:	1" = 100'
DRAWN:	ADB
DESIGN:	
CHECKED:	ADB

FLAGSTAFF, ARIZONA

LEGAL EXHIBIT G

SHEET 1 OF 1

Official Records of Coconino County 3937357
Patty Hansen - Recorder 12/14/2021 02:08 PM Pgs: 12
CITY OF FLAGSTAFF $15.00

Return To:

DO NOT REMOVE
THIS IS PART OF THE OFFICIAL DOCUMENT

Unofficial Copy

DEV-2015-023-AG2-AM1

When recorded, mail to:

City Clerk
City of Flagstaff
211 West Aspen Avenue
Flagstaff, Arizona 86001

FIRST AMENDMENT TO MILL TOWN DEVELOPMENT AGREEMENT

This First Amendment to Mill Town Development Agreement ("**Amendment**") is entered into effective as of October 22, 2021 ("**Amendment Date**"), by and between City of Flagstaff, a municipal corporation organized and existing under the laws of the State of Arizona ("**City**"), and Vintage Partners, LLC, an Arizona limited liability company ("**Vintage**").

RECITALS

A. City and Vintage entered into that certain Mill Town Development Agreement dated June 4, 2018 and recorded in the Official Records of Coconino County as Instrument Number: 3816763 (the "**Agreement**"). Unless otherwise defined in this Amendment, initially capitalized terms used herein have the meanings given them in the Agreement.

B. The Agreement provides for Vintage to administer the design and construction of the Combined Roadway Project.

C. The City desires to assume responsibility for administering the design and construction of the Combined Roadway Project.

D. The parties desire to amend the Agreement on the terms and conditions more fully set forth below to provide for the City to assume the obligation to administer the design and construction of the Combined Roadway Project, which amendment is made pursuant to Section 10.4 of the Agreement.

AMENDMENT

NOW, THEREFORE, in consideration of the mutual promises and covenants contained herein and for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the Parties hereby agree as follows:

1. Administration of Combined Roadway Project. The Parties agree that (i) the City shall be responsible for administering the remaining design of the Combined Roadway Project and the construction of the Combined Roadway Project, and (ii) the City will be responsible for all of the remaining costs to complete the design of the Combined Roadway Project and all of the costs of constructing the Combined Roadway Project, except for the Vintage Contribution (as defined below). In furtherance of the foregoing, the City and Vintage agree as follows:

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(a) Design Escrow Account. Pursuant to Section 7.4.1 of the Agreement, each Party has deposited their allocation share of the costs to design the Combined Roadway Project, as determined by the Design Budget, into an escrow account ("**Design Escrow Account**") established with Pioneer Title Agency, Inc. ("**Pioneer Title**"), pursuant to the terms of that certain Beulah Blvd. Extension and University Ave. Re-Alignment Final Design Draw Escrow Instructions dated October 22, 2020 and entered into by and between Pioneer Title, Vintage, the City, and Engineer ("**Design Escrow Agreement**"). Promptly following the completion of the design work, the Parties shall cause the Design Escrow Agreement to be terminated and the remaining funds; if any, deposited into the Design Escrow Account by a Party shall be distributed to that Party. If the funds on deposit in the Design Escrow Account are insufficient to pay for the costs of completing the design work for the Milton Underpass Improvements, then the City shall pay such additional costs, and such additional costs shall be added to the True-Up Payment (as defined below).

(b) Vintage Contribution.

(i) On or before ten (10) days following the date that the City notifies Vintage in writing that the City has entered into a contract with a contractor to construct the Combined Roadway Project, Vintage shall pay to the City the fixed sum of One Million Six Hundred Fifty Thousand and 00/100 Dollars ($1,650,000.00) ("**Fixed Payment**").

(ii) Promptly following the date that the Milton Underpass Improvements are completed and opened to the public ("**MU Completion**"), the City shall deliver to Vintage a summary of the out-of-pocket fees and costs incurred by the City to design and construct the Milton Underpass Improvements ("**MU Costs**"), together with reasonable supporting documentation of the MU Costs. No later than five (5) years following MU Completion, Vintage shall pay to the City the difference; if any, between: (A) the total MU Costs minus Four Hundred Thousand Dollars ($400,000) and (B) the Fixed Payment ("**True-Up Payment**").

(iii) As used in this Amendment, the term "**Vintage Contribution**" means: (A) the Fixed Payment, plus (B) the True-Up Payment. The Vintage Contribution shall be Vintage's sole required financial contribution to any additional costs of designing and the costs of constructing the Combined Roadway Project.

(c) Security for Payment. The obligation of Vintage to make the True-Up Payment shall be secured by the Deed of Trust, in the form attached hereto as **Exhibit A** ("**Deed of Trust**"), recorded against Lot 2 of Final Plat for Mill Town Mixed-Use recorded in the Official Records of Coconino County at Instrument No. 3861259 ("**Lot 2**"). Concurrently with the execution of this Amendment, Vintage shall execute, have acknowledged and deliver the Deed of Trust to the City and the City shall cause the Deed of Trust to be recorded in the Official Records of Coconino County. If the True-Up Payment is not paid when due, and such failure is not cured within five (5) business days following written notice from the City to Vintage, then the City may enforce payment of

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the amount due, or Deed of Trust, by taking either or both of the following actions, concurrently or separately (and, by exercising either of the remedies set forth below, the City does not prejudice or waive its right to exercise the other remedy or such additional remedies as may be available under applicable law): (i) bring an action at law against Vintage; and/or (ii) enforce the Deed of Trust.

(d) Completion of Combined Roadway Project. The City shall diligently complete the design of the Combined Roadway Project and, subject to receipt of the Fixed Payment, the City shall diligently complete the construction of the Milton Underpass Improvements in combination with the remainder of the Combined Roadway Project. The City shall construct the Milton Underpass Improvements in accordance with: (i) the design contemplated by the approved Entitlements, (ii) the approved Traffic Impact Analysis dated October 30, 2017 for Milltown, and (iii) the 60% Construction Plans for Beulah Boulevard Extension & University Avenue Realignment, dated June 2021, and prepared by Shephard Wesnitzer, Inc. under Job Number 18121 (collectively, the "**Design Standards**").

(e) Easements for Milton Underpass Improvements. The City shall be responsible for the costs of obtaining any easements for the Milton Underpass Improvements; however, the costs of such easements shall be added to the True-Up Payment.

(f) Financial Assurances. The Vintage Contribution will satisfy any requirement for financial assurances from Vintage with respect to the Milton Underpass Improvements.

(g) Certificate of Occupancy. No certificate of occupancy will be issued for any portion of the Mill Town Property until the Fixed Payment is paid to the City and the Milton Underpass Improvements are complete, except that two (2) of the three (3) commercial pads may receive certificate of occupancy earlier at the discretion of the City Engineer in consultation with the ADOT.

(h) Self-Help. If the City does not diligently pursue the construction of the Combined Roadway Project to completion, then Vintage has the right, but not the obligation, to assume responsibility for administering the construction of the Combined Roadway Project by written notice to the City in which event (i) the City will reasonably cooperate with Vintage to allow Vintage to assume responsibility for administering the construction of the Combined Roadway Project, (ii) the City will be responsible for the costs of constructing the Combined Roadway Improvements, except for the Milton Underpass Improvements, and shall pay such costs pursuant to customary draw request procedures and as set forth in the Agreement, (iii) Vintage shall be responsible for the costs of the Milton Underpass Improvements minus Four Hundred Thousand Dollars ($400,000), which is the City's contribution to the Milton Underpass Improvements; and (iv) the City will pay the City's $400,000 contribution to the Milton Underpass Improvements to Vintage within thirty (30) days following completion of the Milton Underpass Improvements. Notwithstanding the foregoing, if Vintage has made the Fixed

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Payment as of the date that Vintage exercises self-help, then the City will pay the costs of the Milton Underpass Improvements pursuant to customary draw request procedures and as set forth in the Agreement until such time as the City has paid costs of the Milton Underpass Improvements in the amount of the Fixed Payment.

Notwithstanding the foregoing, if the Fixed Payment is not made when due, and such failure is not cured within five (5) business days following written notice from the City to Vintage, then Vintage will have no right to exercise the self-help remedy in this subsection (h).

3. Effective Date; Extension of Entitlements. The Parties acknowledge and agree that the Effective Date of the Agreement is December 14, 2018. The City agrees to extend the right to develop the Mill Town Property in accordance with the Entitlements set forth in the Development Agreement for an additional two (2) years, for a total of seven (7) years from the Effective Date. If, however, the Fixed Payment is not made when due, and such failure is not cured within five (5) business days following written notice from the City to Vintage, then there will be no extension and the Entitlements will terminate on December 13, 2023. In the event that the City fails to diligently pursue the construction of the Combined Roadway Project to completion and Vintage exercises its right to assume responsibility for administering the construction of the Combined Roadway Project, then the Entitlements will terminate on December 13, 2025.

4. Miscellaneous. Except as stated herein, the Agreement shall remain in full force and effect and is hereby ratified and approved. If there is any inconsistency between the terms of the Agreement and the terms of this Amendment, the provisions of this Amendment will govern and control the rights and obligations of the Parties. This First Amendment may be signed in counterparts.

5. Conflict of Interest. This Amendment and the Development Agreement may be cancelled by the City pursuant to A.R.S. § 38-511.

[Balance of Page Intentionally Left Blank; Signature Page Follows]

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IN WITNESS WHEREOF, City and Vintage have executed this Amendment as of the date first set forth above.

"City"

City of Flagstaff, an Arizona municipal corporation

PAUL DEASY, Mayor

Attest:

City Clerk

Approved as to form:

City Attorney

"Vintage"

Vintage Partners, LLC, an Arizona limited liability company

By: Edward & Company, LLC, an Arizona limited liability company
Its: Administrative Member

By: _____
Mark Ortman, Jr.
Its: Manager

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STATE OF ARIZONA)
COUNTY OF COCONINO)

ACKNOWLEDGMENT

On this 23RD day of NOVEMBER, 2021, before me, a Notary Public, personally appeared PAUL DEASY, Mayor of the City Flagstaff, known to be or satisfactorily proven to be the person whose name is subscribed to the foregoing instrument and acknowledged that she executed the same on behalf of the City of Flagstaff, for the purposes therein contained.

MORGAN B. MULLANEY
Notary Public
Commission Number 570284
Expires: September 15, 2023
Coconino County

Notary Public
My Commission Expires: SEPTEMBER 15, 2023

STATE OF ARIZONA)
COUNTY OF MARICOPA)

ACKNOWLEDGMENT

On this 22 day of October, 2021, before me, a Notary Public, personally appeared Mark Ortman, Jr., known to me to be or satisfactorily proven to be the person whose name is subscribed to the foregoing instrument and acknowledged that he/she executed the same on behalf of Vintage Partners LLC, an Arizona limited liability company, for the purposes therein contained.

LESA A BLUNT
Notary Public – Arizona
Maricopa County
My Comm. Expires Nov 12, 2021

Notary Public
My Commission Expires: November 12, 2021

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EXHIBIT A

When recorded, return to:

_____
_____
_____

DEED OF TRUST

TRUSTOR:	Vintage Partners, LLC, an Arizona limited liability company
TRUSTOR'S MAILING ADDRESS:	2502 E. Camelback Rd, Suite 214 Phoenix, AZ 85016
BENEFICIARY:	City of Flagstaff, a municipal corporation organized and existing under the laws of the State of Arizona
BENEFICIARY'S MAILING ADDRESS:	_____
TRUSTEE:	_____
TRUSTEE'S MAILING ADDRESS:	_____

PROPERTY in Coconino County, State of Arizona, described as:

See attached Exhibit A

THIS DEED OF TRUST is made between the Trustor, Trustee and Beneficiary named above. Trustor irrevocably grants and conveys to Trustee in trust, with power of sale, the above-described Property and all buildings, improvements and fixtures located thereon or hereinafter erected thereon, subject to only to the covenants, conditions, restrictions, rights-of-way, and easements described in that certain Report of Title issued by Pioneer Title Agency, Inc., dated September 17, 2021 under file number 70515537. Trustor is the owner of legal and beneficial title to the Property, subject to this Deed of Trust.

THIS DEED OF TRUST IS MADE FOR THE PURPOSE OF SECURING: (a) performance of each agreement of Trustor herein contained; and (b) payment of the True-Up Payment pursuant to that certain First Amendment to Mill Town Development Agreement ("**DA Amendment**") entered into effective as of October 22, 2021, by and between Trustor and

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Beneficiary. Trustor has no right to set-off any amount that may be owned by Beneficiary to Trustor against the amounts secured by this Deed of Trust.

TO PROTECT THE SECURITY OF THIS DEED OF TRUST, TRUSTOR AGREES:

1. To keep the Property in good condition and repair; to pay when due all claims for labor performed and materials furnished therefor; to comply with all laws affecting the Property or requiring any alterations or improvements to be made thereon; not to commit or permit waste thereof; not to commit, suffer or permit any act upon the Property in violation of law; and do all other acts which from the character or use of the Property may be reasonably necessary.

2. To appear in and defend any action or proceeding purporting to affect the security hereof or the rights or powers of Beneficiary or Trustee and to pay all costs and expenses of Beneficiary and Trustee, including cost of evidence of title and attorneys' fees in a reasonable sum, in any such action or proceeding in which Beneficiary or Trustee may appear or be named and in any suit brought by Beneficiary to foreclose this Deed of Trust.

3. To pay, before delinquent, all taxes and assessments affecting the Property, and to pay, when due, all encumbrances, charges and liens, with interest, on said Property or any part thereof which appear to be prior or superior hereto; all costs, fees and expenses of this Trust including, without limiting the generality of the foregoing, the fees of Trustee for issuance of any Deed of Partial Release and Partial Reconveyance or Deed of Release and Full Reconveyance and all lawful charges, costs and expenses in the event of reinstatement of, following default in, this Deed of Trust or the obligations secured hereby.

Should Trustor fail to make any payment or to do any act as herein provided, then Beneficiary or Trustee, without obligation to do so and without notice to or demand upon Trustor and without releasing Trustor from any obligation hereof, may make or do the same in such manner and to such extent as either may deem necessary to protect the security hereof, Beneficiary or Trustee being authorized to enter upon the Property for such purposes: appear in and defend any action or proceeding purporting to affect the security hereof or the rights or powers of Beneficiary or Trustee; pay, purchase, contest or compromise any encumbrance, charge or lien which in the judgment of either appears to be prior or superior hereto; and, in exercising any such powers, pay necessary expenses, employ counsel, and pay counsel's reasonable fees.

4. To pay immediately and without demand all sums expended by Beneficiary or Trustee pursuant to the provisions hereof, together with interest from the date of expenditure at the rate of ten percent (10%) per annum. Any amounts so paid by Beneficiary or Trustee shall become part of the debt secured by this Deed of Trust and a lien on the Property or shall become immediately due and payable at option of Beneficiary or Trustee.

5. To maintain, during the term of this Deed of Trust, in full force, at their own expense, a policy or policies of comprehensive liability insurance, including property damage, written by one or more insurance companies licensed to do business in Arizona, which shall insure both Trustor and Beneficiary against liability for injury to persons or property and for the death of any person occurring in or about the Property.

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IT IS MUTUALLY AGREED:

6. That any award of damages in connection with any condemnation, or any such taking, or for injury to the Property by reason of public use or for damages for private trespass or injury thereto, is assigned and shall be paid to Beneficiary as further security for all obligations secured hereby (reserving unto the Trustor, however, the right to sue therefor and for the ownership thereof subject to this Deed of Trust) and, upon receipt of such moneys, Beneficiary shall apply the same to the True-Up Payment.

7. That time is of the essence of this Deed of Trust and that, by accepting payment of any sum secured hereby after its due date, Beneficiary does not waive his right either to require prompt payment when due of all other sums so secured or to declare default for failure so to pay.

8. That, at any time or from time to time, and without notice, upon written request of Beneficiary and presentation of this Deed of Trust, without liability therefor, without affecting the personal liability of any person for payment of the indebtedness secured hereby, without affecting the security hereof for the full amount secured hereby on all property remaining subject hereto and without the necessity that any sum representing the value or any portion thereof of the property affected by the Trustee's action be credited on the indebtedness, the Trustee may: (a) release and reconvey all or any part of the Property; (b) consent to the making and recording, or either, of any map or plat of the Property or any part thereof; (c) join in granting any easement thereon, and (d) join in or consent to any extension agreement or any agreement subordinating the lien, encumbrance or charge hereof.

9. That, upon written request of Beneficiary stating that all sums secured hereby have been paid, and upon surrender of this Deed of Trust, and upon payment of its fees, Trustee shall release and reconvey, without covenant or warranty, express or implied, the Property then held hereunder. The recitals in such reconveyance of any matters or facts shall be conclusive proof of the truthfulness thereof. The grantee in such reconveyance may be described as "the person or persons legally entitled thereto."

10. Trustor will be in default upon the occurrence of any of the following: (a) Trustor fails, after the expiration of any applicable grace period, to pay the True-Up Payment when due, (b) Trustor fails to perform any of its obligations contained in this Deed of Trust and such default continues for a period of ten (10) days after Trustor receives written notice thereof from Beneficiary, (c) Trustor shall become insolvent or make a general assignment for the benefit of creditors, (d) a petition in bankruptcy is filed by Trustor, or against Trustor and is not dismissed within ninety (90) days of filing, (e) Trustor is adjudicated a bankrupt, (f) any court of competent jurisdiction appoints a receiver or other custodian (permanent or temporary) for Trustor or Trustor's assets or property or any part thereof, whether or not consented to by Trustor, where possession of such assets or property is not restored to Trustor within ninety (90) days following such appointment, (g) any attachment, execution or other judicial seizure of substantially all of Trustor's assets takes place, which attachment, execution or judicial seizure is not discharged within ninety (90) days, or (h) upon the sale or transfer, without Beneficiaries prior written consent,

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which consent may be withheld by Beneficiary in its sole and absolute discretion, of all or any part of the Property, or any interest in the Property.

11. That, upon an event of default by Trustor, Beneficiary may declare all sums secured hereby immediately due and payable by delivery to Trustee of written notice thereof, setting forth the nature thereof, and of election to cause the Property to be sold under this Deed of Trust. Trustee shall record and give notice of Trustee's sale and shall sell the Property at public auction, all in the manner required by law. Any persons, including Trustee or Beneficiary, may purchase at such sale. Trustee shall deliver to such purchaser its Deed conveying the Property so sold, but without any covenant or warranty, express or implied. Trustor requests that a copy of any notice of Trustee's sale hereunder be mailed to Trustor at his address set forth above.

After deducting all costs, fees and expenses of Trustee and of this Trust, including cost of evidence of title in connection with sale and reasonable attorney's fees, Trustee shall apply the proceeds of sale in the manner provided by law. To the extent permitted by law, an action may be maintained by Beneficiary to recover a deficiency judgment for any balance due hereunder.

In lieu of sale, pursuant to the power of sale conferred hereby, this Deed of Trust may be foreclosed in the same manner provided by law for the foreclosure of mortgages on real property. Beneficiary shall also have all other rights and remedies available to it hereunder and at law or in equity. All rights and remedies shall be cumulative.

12. That Trustee may resign by mailing or delivering notice thereof to Beneficiary and Trustor. Beneficiary may appoint a successor Trustee in the manner prescribed by law. A successor Trustee herein shall, without conveyance from the predecessor Trustee, succeed to all the predecessor's title, estate, rights, powers and duties.

13. In this Deed of Trust, whenever the context so requires, the masculine gender includes the feminine and neuter, and the singular number includes the plural.

14. That Trustee accepts this Trust when this Deed of Trust, duly executed and acknowledged, is made a public record as provided by law. Trustee is not obligated to notify any party hereto of a pending sale under any other Deed of Trust or of any action or proceeding in which Trustor, Beneficiary or Trustee shall be a party unless brought by Trustee.

15. That the trust relationship created by this Deed of Trust is limited solely to the creation and enforcement of a security interest in real property. All of Trustee's duties, whether fiduciary or otherwise, are strictly limited to those duties imposed by this instrument and A.R.S. §33-801 *et seq.* and no additional duties, burdens or responsibilities are or shall be placed on Trustee.

16. That this Deed of Trust applies to, inures to the benefit of and binds all parties hereto, their heirs, legatees, devisees, administrators, executors, successors and assigns.

17. Trustor hereby agrees to indemnify, defend, protect and hold harmless Trustee and Beneficiary and their respective employees, members, managers, shareholders, officers, and directors from and against any and all liabilities, claims and obligations which may be incurred,

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asserted or imposed upon any of them as a result of or in connection with any use or operation of the Property.

DATED: October 22, 2021.

Vintage Partners, LLC

By: _____
Its: Authorized Agent

STATE OF ARIZONA)
) ss.
County of Maricopa)

The foregoing instrument was acknowledged before me, the undersigned Notary Public, this 22 day of October, 2021 by Mark Ortman Jr. the Authorized Agent of Vintage Partners, LLC an AZ Limited Liability Co on behalf of the Trustor.

LESA A BLUNT
Notary Public - Arizona
Maricopa County
My Comm. Expires Nov 12, 2021

_____
Notary Public

My commission expires: November 12, 2021

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CITY OF FLAGSTAFF

STAFF SUMMARY REPORT

To: The Honorable Mayor and Council

From: Brian Huntzinger, Water Production Manager

Co-Submitter: Stacey Brechler-Knaggs

Co-Submitter: David Pedersen

Date: 02/26/2025

Meeting Date: 03/04/2025

TITLE:

Consideration and Adoption of Resolution No. 2025-06: A resolution of the Flagstaff City Council, approving an Intergovernmental Agreement with the Arizona Game and Fish Department for wildlife drinkers along the Inner Basin Pipeline.

STAFF RECOMMENDED ACTION:

1. Read Resolution No. 2025-06 by title only
2. City Clerk reads Resolution No. 2025-06 by title only (if approved above)
3. Adopt Resolution No. 2025-06

Executive Summary:

Approval of the IGA will enable the City of Flagstaff and Arizona Game and Fish Department to re-establish existing and add additional wildlife drinkers along the Inner Basin Pipeline. Wildlife drinkers along the Inner Basin Pipeline have been in existence since the early 1990s yet due to the Schultz and Pipeline Fires in 2010 and 2022 the drinkers installed in the 1990s have become dilapidated and in disrepair. Re-establishment of existing wildlife drinkers and the addition of new ones will promote wildlife along the eastern slopes of the San Francisco Peaks.

Financial Impact:

Project Name: Inner Basin Pipeline Wildlife Drinker Restoration

Cost: All wildlife drinker infrastructure costs including valves, piping, tanks and drinkers etc. are covered by the Arizona Game & Fish Department (AZGFD). The estimated 100,000 gallons of raw, untreated, and unpressurized spring water that gravity flows from the Inner Basin down the pipeline is at essentially no cost to the City of Flagstaff.

Funding Source: AZGFD will be covering all costs of wildlife drinker infrastructure internally and from donations such as the Arizona Elk Society ($10,938.27) and Rocky Moutain Elk Foundation ($76,000).

Policy Impact:

None

Previous Council Decision or Community Discussion:

In 1992, the Flagstaff Water Commission originally approved the installation of three wildlife drinkers along the Inner Basin Pipeline.

Options and Alternatives to Recommended Action:

1. Approve the IGA with AZGFD as presented; or
2. Reject and direct staff to renegotiate the terms of the IGA.

Background and History:
Due to lack of water sources along the eastern slopes of the San Francisco Peaks, in the early 1990s the Arizona Game and Fish Department (AZGFD) in cooperation with the City of Flagstaff (COF) and Coconino National Forest proposed the installation of six (6) wildlife drinkers along the City of Flagstaff's Inner Basin Pipeline. The subject was taken to the Flagstaff Water Commission at the July 16th, 1992, meeting and was approved and later that year three (3) taps and three (3) corresponding wildlife drinkers were installed. Over the years and due primarily to the Schultz Fire in 2010 and then the Pipeline Fire in 2022, the wildlife drinkers became dilapidated and unusable. With plans and preparations underway for the COF to repair the Inner Basin Pipeline, Waterline (FS146) and Schultz Pass (FS 420) Roads after the Pipeline Fire occurred in 2022, in early 2023 the AZGFD requested the re-establishment of the three previous wildlife drinkers and addition of three more along the pipeline. The Intergovernmental Agreement for these drinkers clearly states the justifications, obligations and exclusions related to the drinkers for the AZGFD and COF to abide. In general, the three (3) taps along the Inner Basin Pipeline and associated drinkers will be re-established with the addition of two (2) more. All infrastructure, installation and maintenance costs including valves, piping, tanks, and drinkers will be covered by the AZGFD and the COF will provide raw, or untreated, Inner Basin spring water in an estimated amount of 100,000 gallons annually at no cost when available.

Connection to PBB Priorities and Objectives:
Safe and Healthy Community: Promote physical health through providing recreation opportunities, parks, open space and multiple transportation options.
Sustainable Innovative Infrastructure: Deliver outstanding services to residents through a healthy, well maintained infrastructure system.
Livable Community: Support regional partners which provide equitable & inclusive educational opportunities for Flagstaff residents of all ages.
Environmental Stewardship: Promote, protect & enhance a healthy, sustainable environment & its natural resources.

Connection to Regional Plan:
Policy E&C.6.3: Promote protection, conservation, and ecological restoration of the region's diverse ecosystem types and animals.
Policy E&C.6.6: Support cooperative efforts for forest health initiatives or practices to support healthy forests and protect our water system.
Policy E&C.10.2: Protect, conserve and when possible enhance and restore wildlife habitat on public land.
Policy E&C.10.5: Support the development of watchable wildlife recreation opportunities.
Policy E&C.10.6: Conserve and restore important wildlife corridors throughout the planning area to allow wildlife to find suitable habitat in the face of climate change by moving along vegetational and elevational gradients.

Connection to Carbon Neutrality Plan:
Inclusive Recreation: IR-1: Protect natural areas and ecosystem services that are most vulnerable to the impacts of increased visitation and climate change.
Water Security, WS-1: Improve water infrastructure and expand water reuse.
Water Security, WS-2: Improve ecosystem management for protection of water resources.
Healthy Forests and Open Spaces, HF-1: Protect existing forests, resources, and meaningful open spaces.

Connection to 10-Year Housing Plan:
None

Connection to Division Specific Plan:
Objective #5: Accelerate infrastructure maintenance and replacement.

Attachments: Presentation

Res. 2025-06
Inner Basin Wildlife Drinker IGA



Inner Basin Waterline Wildlife Drinkers

Intergovernmental Agreement with Arizona Game & Fish

March 4, 2025

TEAM FLAGSTAFF
WE MAKE THE CITY BETTER

Inner Basin Wildlife Drinkers

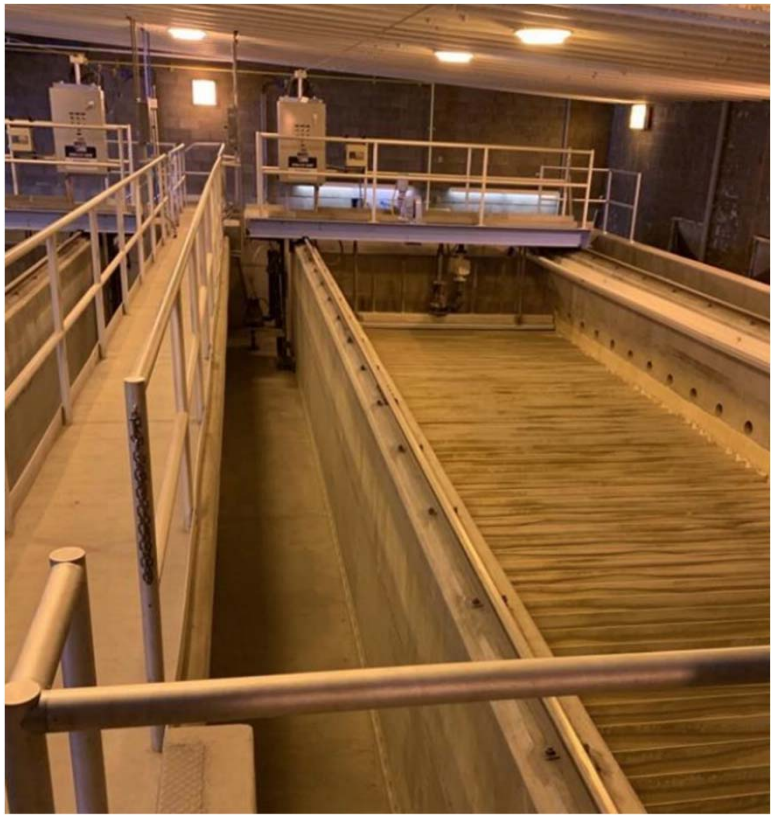




The Inner Basin Pipeline carries both spring and well water.

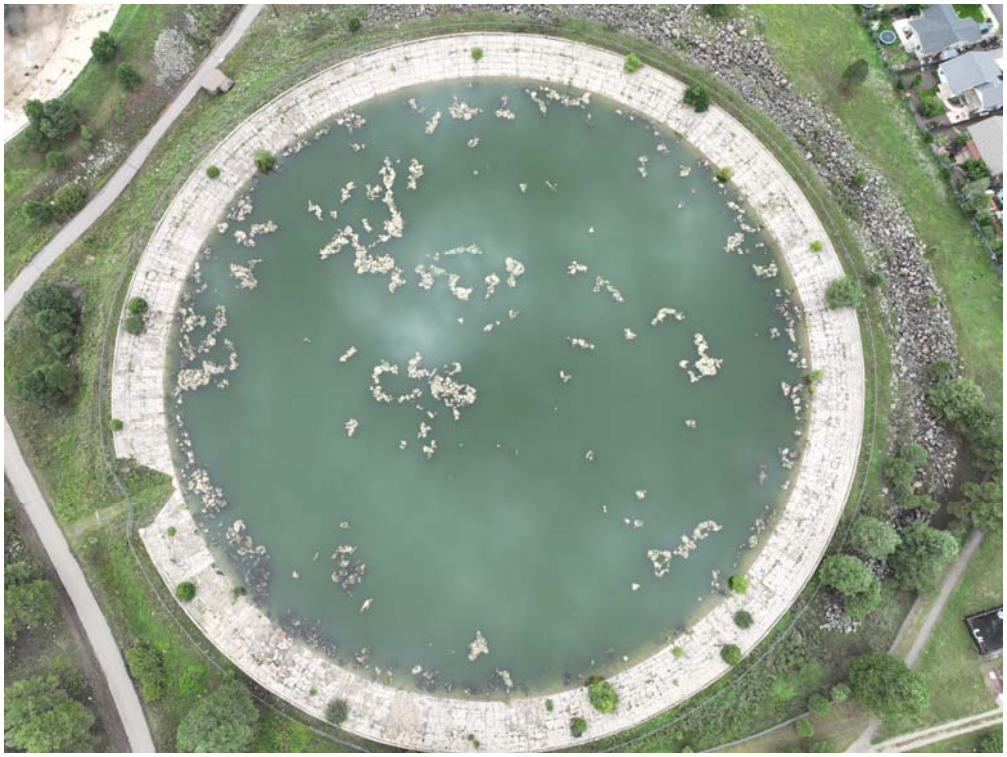
Inner Basin Wildlife Drinkers





When flow rates and quality are sufficient water is treated at the North Reservoir Filtration Plant and pumped into town.

Inner Basin Wildlife Drinkers





When both flow rates and quality are insufficient water is diverted to a vintage exposed reservoir and used for fire fighting etc.

Inner Basin Wildlife Drinkers



Spring water used to fill Francis Short Pond in fall of 2023.

Inner Basin Wildlife Drinkers







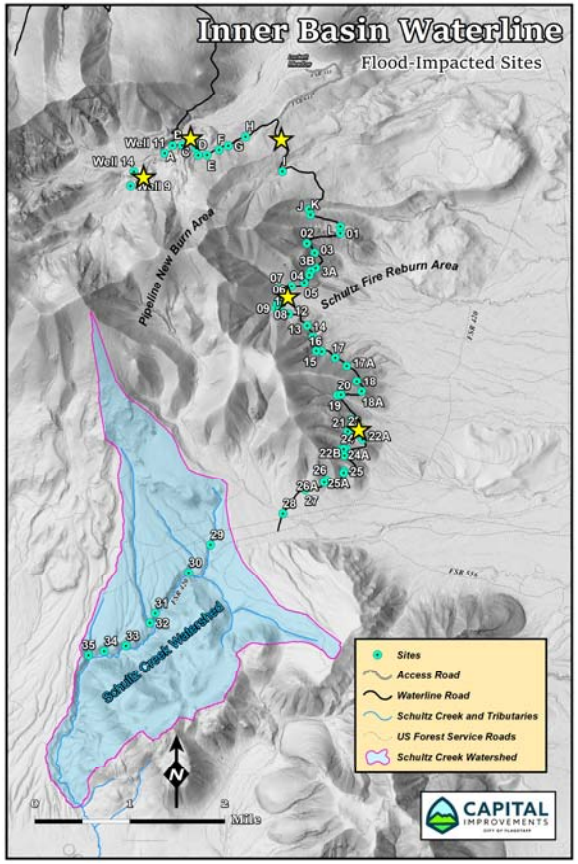
Wildlife Drinkers have been in use since 1992 along the IB Pipeline.

Inner Basin Wildlife Drinkers



Due to the Schultz and Pipeline Fires existing drinkers are dilapidated

Inner Basin Wildlife Drinkers





AZGFD propose to re-establish existing drinkers and add two additional.


Questions?
Thank you!

RESOLUTION NO. 2025-06

A RESOLUTION OF THE FLAGSTAFF CITY COUNCIL, APPROVING AN INTERGOVERNMENTAL AGREEMENT BETWEEN THE ARIZONA GAME AND FISH DEPARTMENT AND THE CITY OF FLAGSTAFF FOR WILDLIFE DRINKERS ALONG THE INNER BASIN PIPELINE

RECITALS:

WHEREAS, the Arizona Game and Fish Department and City of Flagstaff desire to enter into an Intergovernmental Agreement for installation, maintenance and operation of five (5) wildlife drinkers utilizing the Inner Basin Pipeline and associated spring and well water.

ENACTMENTS:

NOW, THEREFORE, BE IT RESOLVED BY THE COUNCIL OF THE CITY OF FLAGSTAFF AS FOLLOWS:

SECTION 1. In General.

The Flagstaff City Council hereby authorizes the Mayor to execute the Intergovernmental Agreement between the Arizona Game and Fish Department and the City of Flagstaff, Arizona, attached hereto as Exhibit A.

SECTION 2. Effective Date.

This resolution shall be immediately effective upon adoption.

PASSED AND ADOPTED by the City Council of the City of Flagstaff this 4th day of March, 2025.

_____
MAYOR

ATTEST:

_____
CITY CLERK

APPROVED AS TO FORM:

_____
CITY ATTORNEY

Exhibits:
IGA



Inner Basin Waterline Wildlife Drinkers

Intergovernmental Agreement with Arizona Game & Fish

March 4, 2025

TEAM FLAGSTAFF
WE MAKE THE CITY BETTER

Inner Basin Wildlife Drinkers

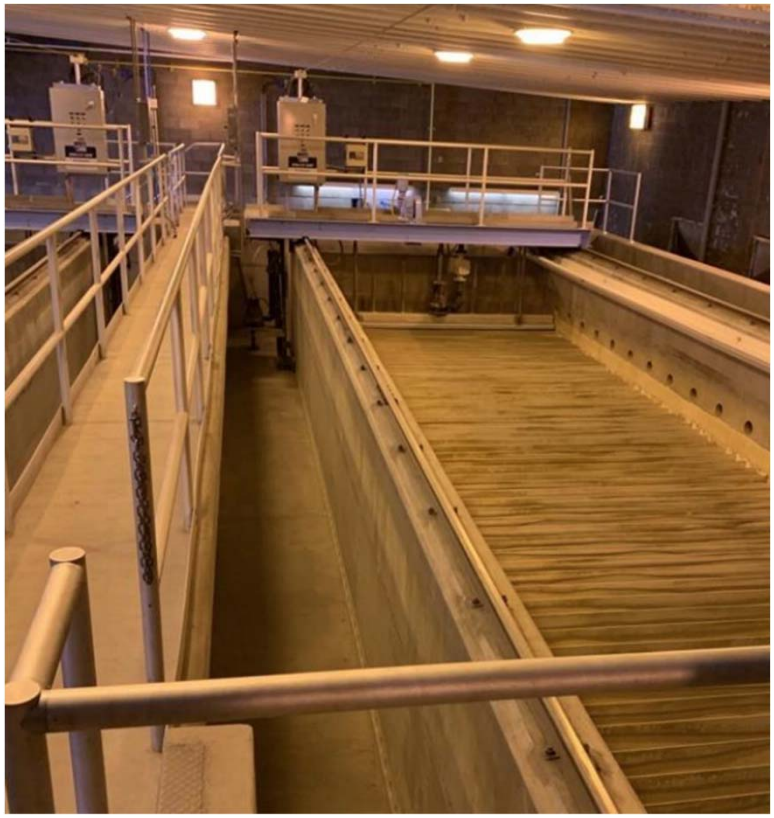




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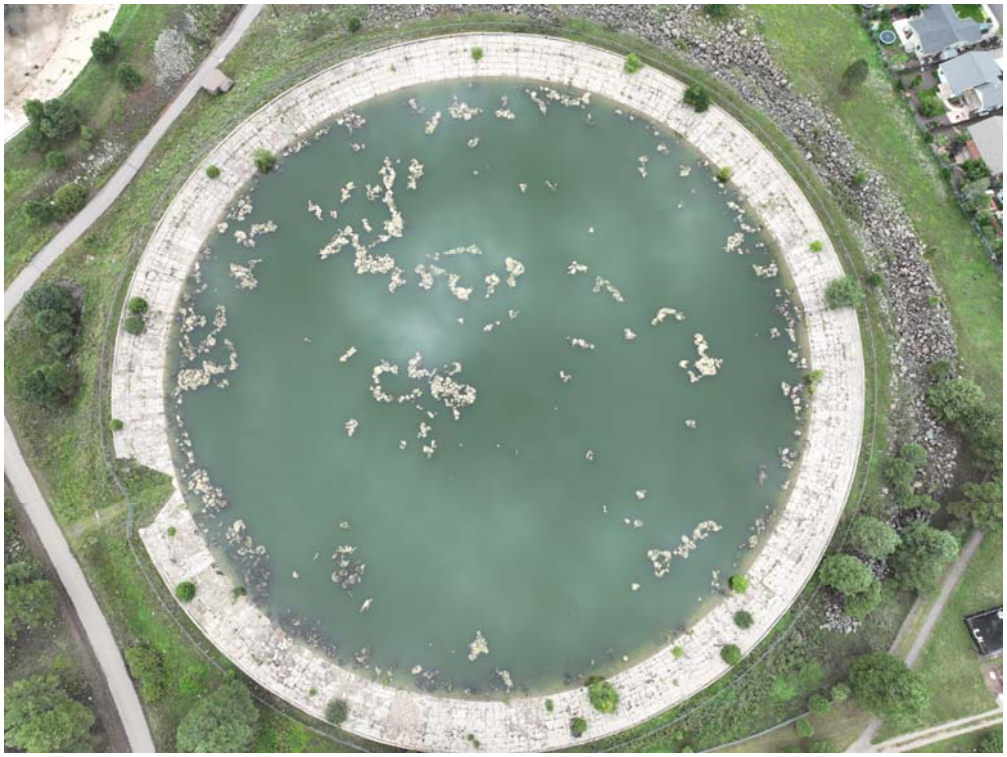
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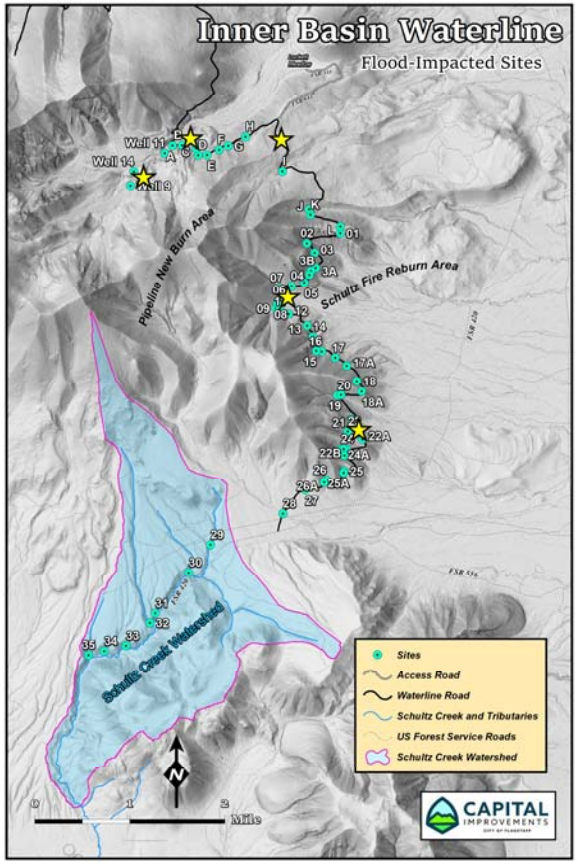
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Inner Basin Wildlife Drinkers





AZGFD propose to re-establish existing drinkers and add two additional.


Questions?
Thank you!

CITY OF FLAGSTAFF

STAFF SUMMARY REPORT

To: The Honorable Mayor and Council

From: Christopher Phair, Transportation Planner

Co-Submitter: Martin Ince

Date: 02/26/2025

Meeting Date: 03/04/2025

TITLE:

Consideration and Adoption of Resolution No. 2025-07: A resolution of the Flagstaff City Council, approving an Intergovernmental Agreement (IGA) between the State of Arizona through the Arizona Department of Transportation and City of Flagstaff for the Arizona State Match Advantage for Rural Transportation (AZ SMART) Match Reimbursement for the Butler Avenue Complete Streets Conversion project.

STAFF RECOMMENDED ACTION:

1. Read Resolution No. 2025-07 by title only
2. City Clerk reads Resolution No. 2025-07 by title only (if approved above)
3. Adopt Resolution No. 2025-07

Executive Summary:

In 2023, the City of Flagstaff and MetroPlan of Greater Flagstaff applied for a Safe Streets for All implementation grant for the Butler Avenue Complete Streets Conversion project in the amount of $9,611,991 with a total project cost of $12,014,989. The grant was awarded by the Federal Highway Administration and the City of Flagstaff assumed responsibility to pay $2,402,998 in match. City staff then applied to the AZ SMART Fund through Arizona Department of Transportation (ADOT) to cover this $2,402,998 in local match. This project was reviewed and approved by both the ADOT Priority Planning Advisory Committee and the State Transportation Board. This funding was awarded in 2024 and will cover the City's match responsibility for the Butler Avenue Complete Streets Conversion project. This resolution will authorize the City of Flagstaff to enter into the IGA.

Financial Impact:

Project Name: AZ SMART Match Reimbursement for the Butler Avenue Complete Streets Conversion project
Cost: $2,402,998 in funding; no cost to City
Account Number Budgeted: 048-10-120-3516-6-4441
FY Budgeted Amount: FY25 $1,000,000
Grant Funded: Yes
Funding Source: State of Arizona

Policy Impact:

None

Previous Council Decision or Community Discussion:

- Council adopted in 2022 and approved an amendment in 2023 to the Active Transportation Master Plan to include this project.
- Council approved the federal Safe Streets and Roads for All Grant Agreement on 6/18/2024.

Options and Alternatives to Recommended Action:
- Approve the IGA with the State of Arizona.
- Not approve the IGA with the State of Arizona which would require the City to pay the full match amount from Proposition 419.

Background and History:
The Butler Avenue Complete Streets Project will design and construct three protected intersections between Milton Road and Sawmill Road, create enhanced crossings of Butler Avenue at Humphreys Street and O'Leary Street, and create enhanced pedestrian and cyclist facilities along the length of the project area.

Connection to PBB Priorities and Objectives:
Safe & Healthy Community: Promote physical and mental well-being through providing recreational opportunities, parks, open space, and active transportation options
Sustainable and Innovative Infrastructure: Provide, manage, and maintain effective infrastructure for multimodal and active transportation
Livable Community: Provide amenities and activities that support a healthy lifestyle

Connection to Regional Plan:
Policy T.1.1. Integrate a balanced, multimodal, regional transportation system.
Policy T.1.2. Apply Complete Street Guidelines to accommodate all appropriate modes of travel in transportation improvement projects.
Policy T.1.6. Provide and promote strategies that increase alternate modes of travel and demand for vehicular travel to reduce peak period traffic.
Policy T.2.1. Design infrastructure to provide safe and efficient movement of vehicles, bicycles, and pedestrians.
Policy T.3.2. Promote transportation systems that reduce the use of fossil fuels and eventually replace with carbon neutral alternatives.

Connection to Carbon Neutrality Plan:
Decreased Dependence on Cars
DD-2: Create inclusive networks for walking and biking that are continuous, attractive, safe, comprehensive, and
convenient for people of all ages.
DD-3: Encourage Flagstaff residents and visitors to walk, bike, roll and take the bus.

Connection to 10-Year Housing Plan:
Create
5.8 Prioritize Capital Improvement Projects that facilitate affordable housing.

Connection to Division Specific Plan:
Active Transportation Master Plan Policies:
1.1 Implement networks for walking and biking that are continuous, attractive, safe, comprehensive, and convenient.
1.2 Provide frequent and comfortable crossings to eliminate barriers and avoid breaks in pedestrian and bicycle networks.
1.7 Identify and take advantage of opportunities to fund and implement the pedestrian and bicycle network.
4.5 Verify that walking and biking facilities allow and encourage safe behavior for all users.

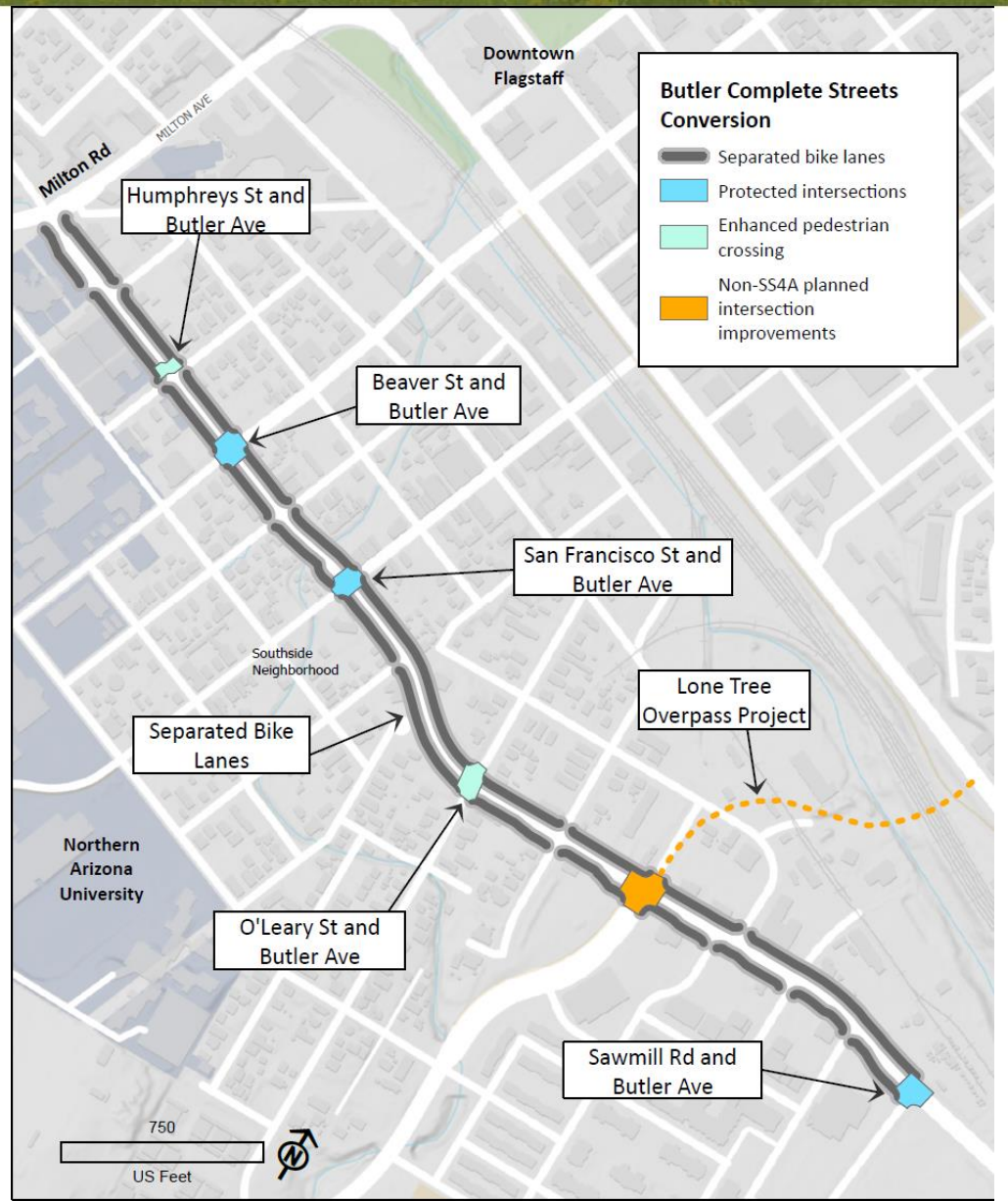
Attachments: Presentation
Res. 2025-07
AZSMART IGA Butler Avenue Complete Street Conversion

Resolution – IGA for the AZ SMART Match Reimbursement on the Butler Avenue Complete Street Conversion Project

City Engineering – 3/4/2025

AZ SMART Match IGA

- In 2023, the City of Flagstaff was awarded $9,611,991 by the Federal Highways Administration to convert Butler Avenue (Milton Rd to Sawmill Rd) to a Complete Street through the Safe Streets and Roads for All Program



AZ SMART Match IGA

Anticipated Project Costs (at time of SS4A award)

- Federal grant share - $9,611,991 (80%)
- Local share - $2,402,998 (20%)
- **Total cost - $12,014,989**

- City staff then applied to ADOT's Arizona State Match Advantage for Rural Transportation (AZ SMART) to cover the local share of $2,402,998. **This was awarded.**

AZ SMART Match IGA

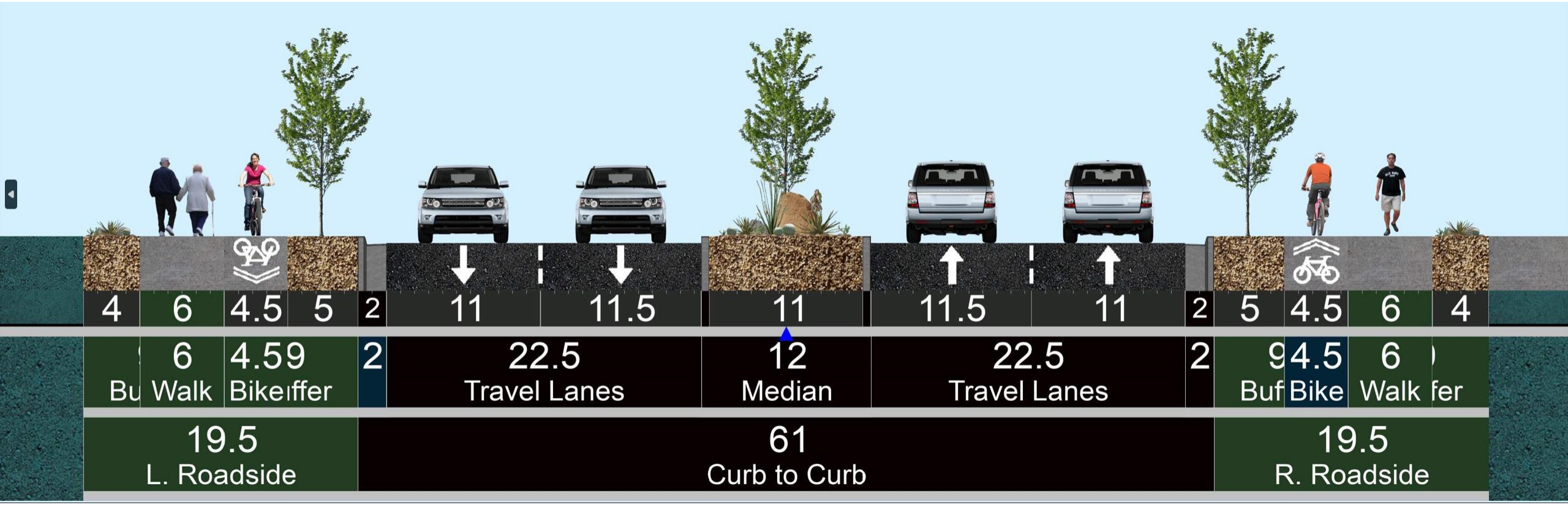
Project Costs with AZ SMART Award

- Federal grant share - $9,611,991 (80%)
- AZ SMART match - $2,402,998 (20%)
- **Total cost - $12,014,989**

- This resolution will authorize the City of Flagstaff to enter the IGA with ADOT. The City is preparing to issue an RSoQ for design and environmental consulting services.

AZ SMART Match IGA

Questions?



RESOLUTION NO. 2025-07

A RESOLUTION OF THE FLAGSTAFF CITY COUNCIL, APPROVING AN INTERGOVERNMENTAL AGREEMENT BETWEEN THE STATE OF ARIZONA AND THE CITY OF FLAGSTAFF FOR THE ARIZONA STATE MATCH ADVANTAGE FOR RURAL TRANSPORTATION (AZ SMART) FUND AWARD FOR THE BUTLER AVENUE COMPLETE STREETS CONVERSION PROJECT

RECITALS:

WHEREAS, in 2022, the Arizona Legislature established the AZ SMART Fund and program, and authorized the State Transportation Board, among other things, to award grants to Eligible Applicants for design and other engineering services ("DOES"), grant development and submission ("GDS"), and Match for a surface transportation project for which the Applicant has submitted a Federal Grant application and received an award agreement; and

WHEREAS, the City of Flagstaff has applied for and received a U.S. Department of Transportation, Federal Highway Administration Safe Streets and Roads for All grant award in the amount of $9,611,991; and

WHEREAS, the City of Flagstaff has applied for and received an award for an AZ SMART match in the amount of $2,402,998 for the Butler Avenue Complete Street Conversion project; and

WHEREAS, the State of Arizona and City of Flagstaff desire to enter into an intergovernmental agreement to establish each party's obligations and responsibilities related to the City's receipt of the AZ SMART award for the Butler Avenue Complete Streets Conversion Project.

ENACTMENTS:

NOW, THEREFORE, BE IT RESOLVED BY THE COUNCIL OF THE CITY OF FLAGSTAFF AS FOLLOWS:

SECTION 1. In General.

The Flagstaff City Council hereby authorizes the Mayor to execute the Intergovernmental Agreement between the State of Arizona and the City of Flagstaff, Arizona, attached hereto as Exhibit A.

SECTION 2. Effective Date.

This resolution shall be immediately effective upon adoption.

PASSED AND ADOPTED by the City Council of the City of Flagstaff this 4th day of March 2024.

_____

MAYOR

ATTEST:

_____
CITY CLERK

APPROVED AS TO FORM:

_____
CITY ATTORNEY

Exhibits:
IGA

ADOT CAR No.: IGA 24-0010895-I
AG Contract No.: P0012025000033
Project Location/Name: Butler Ave; Milton Road (Route 66) — Sawmill Road
Type of Work: AZ SMART Match Reimbursement
Federal-aid No.: NA
ADOT Project No.: T0629 03D/01C
TIP/STIP No.:
CFDA No.: 20.205 - Highway Planning and Construction
Budget Source Item No.: 104840

INTERGOVERNMENTAL AGREEMENT

BETWEEN
THE STATE OF ARIZONA
AND
THE CITY OF FLAGSTAFF

THIS AGREEMENT ("Agreement") is entered into this date _____, pursuant to the Arizona Revised Statutes ("A.R.S.") §§ 11-951 through 11-954, as amended, between the STATE OF ARIZONA, acting by and through its DEPARTMENT OF TRANSPORTATION (the "State" or "ADOT") and the CITY OF FLAGSTAFF, acting by and through its MAYOR and CITY COUNCIL (the " City" or "Local Agency"). The State and the Local Agency are each individually referred to as a "Party" and are collectively referred to as the "Parties."

I. RECITALS

1. The State is empowered by A.R.S. §§ 28-339 and 28-401 to enter into this Agreement and has delegated to the undersigned the authority to execute this Agreement on behalf of the State.

2. The Local Agency is empowered by A.R.S. §§ 28-339 and 48-572 to enter into this Agreement and has by resolution, a copy of which is attached and made a part of, resolved to enter into this Agreement and has authorized the undersigned to execute this Agreement on behalf of the Local Agency.

3. The federal Bipartisan Infrastructure Law (BIL), enacted as the Infrastructure Investment and Jobs Act (IIJA), Pub. L. 117-58 (November 15, 2021), created multiple new federal grant programs for surface transportation purposes to be administered by the US Department of Transportation. IIJA is currently authorized through September 30, 2026. Congress may extend IIJA prior to passing a new long-term highway program authorization, and these extensions may extend the September 30, 2026 deadline.

4. The Arizona State Match Advantage for Rural Transportation (AZ SMART) Fund was established by the Arizona State Legislature in Laws 2022, Chapter 322 House Bill 2872 which became effective on September 24, 2022 to assist eligible cities, towns, counties and

ADOT in applying for and winning federal grants for surface transportation projects.

5. The Local Agency was awarded AZ SMART Funds for match on the federal grant. The match funds which may be paid or reimbursed are restricted to those identified in the executed federal Grant Agreement (GA).

6. The Local Agency is the successful direct recipient of a Fiscal Year 2023 Safe Streets and Roads for All (SS4A) Grant for the Butler Avenue Complete Streets Conversion to convert approximately 0.9 miles of arterial road in the urban center of the City to a Complete Street to include protected intersections, enhanced crossings, separated bicycle facility, mobilization, and traffic control, (the "Project"). The purpose of this Agreement is for the State to reimburse the Local Agency an amount not to exceed $2,402,998 of eligible match funds for the Project. The Project Cost, shown in Exhibit A, is estimated at $12,014,989 which includes AZ SMART funds and a federal grant.

7. The foregoing Recitals and all Exhibits referred to in and attached are incorporated into this Agreement.

In consideration of the mutual terms expressed herein, the Parties agree as follows:

II. SCOPE OF WORK

1. The Parties agree:

   a. To adhere to A.R.S. § 28-339.

   b. The Local Agency will enter into a GA with FHWA that identifies the SS4A Grant requirements, as shown on Exhibit B. The Local Agency will provide the GA and any changes made in the GA to ADOT in a timely manner which may require an amendment to this Agreement.

2. The State will:

   a. Within 30 days after receipt, review, and approval of invoice(s) and documentation of payment for Project costs, reimburse the Local Agency for eligible match on costs incurred in an amount not to exceed $2,402,998, the amount of the AZ SMART Funds approved and programmed for the Project.

3. The Local Agency will:

   a. Submit to ADOT for review, approval, and reimbursement, at least quarterly and no more than monthly, an invoice(s) on ADOT's Payment Report Form, Exhibit C, and documentation of payment for eligible Grant match costs incurred for the Project not to exceed $2,402,998, the amount of AZ SMART Funds approved and programmed for the Project. Any costs incurred prior to the date of obligation of the federal grant are not eligible for reimbursement from the AZ SMART Fund.

b. Enter into agreements with and make all payments directly to the required consultants and/or professional services for the Project.

c. Submit to ADOT the Closeout Letter, as shown on Exhibit D, with the final invoice request.

d. Ensure applicable State and federal design guidelines are followed for the Project.

e. Ensure that all applicable Code of Federal Regulations ("CFRs") Title 23 Part 710 and Title 49 Part 24 are followed, and will comply with the FHWA approved ADOT Right of Way Procedures Manual as required by the CFRs for obtaining right of way clearance on federal aid projects.

f. Provide quarterly reports to ADOT at AZSMART@azdot.gov regarding the status of the Project and other Project or federal grant information as requested by ADOT.

III. MISCELLANEOUS PROVISIONS

1. Effective Date. This Agreement shall become effective upon signing and dating of all Parties.

2. Amendments. Any change or modification to this Agreement will only occur with the mutual written consent of both Parties.

3. Duration. The terms, conditions and provisions of this Agreement shall remain in full force and effect until completion of the Study and all related deposits and/or reimbursements are made.

4. Cancellation. This Agreement may be canceled at any time by either Party prior to the exchange of any AZ SMART Funds and after 30 days' prior written notice to the other Party. It is understood and agreed that, in the event the Local Agency terminates this Agreement, the Local Agency shall be responsible for all costs paid by the State up to the time of termination. It is further understood and agreed that in the event the Local Agency terminates this Agreement, the State shall have no further obligations to reimburse AZ SMART Funds to the Local Agency.

5. Indemnification. The Local Agency shall indemnify, defend, and hold harmless the State, any of its departments, agencies, boards, commissions, officers or employees (collectively referred to in this paragraph as the "State") from any and all claims, demands, suits, actions, proceedings, loss, cost and damages of every kind and description, including reasonable attorneys' fees and/or litigation expenses (collectively referred to in this paragraph as the "Claims"), which may be brought or made against or incurred by the State on account of loss of or damage to any property or for injuries to or death of any person, to the extent caused by, arising out of, or contributed to, by reasons of any alleged act, omission, professional error, fault, mistake, or negligence of the Local Agency, its employees, officers, directors, agents, representatives, or contractors, their employees, agents, or representatives in connection with or incident to the performance of this Agreement. The Local Agency's obligations under this paragraph shall not extend to any Claims to the extent caused by the negligence of the State, except the obligation does apply to any negligence of the Local Agency which may be legally imputed to the State by virtue of the State's ownership or

possession of land. The Local Agency's obligations under this paragraph shall survive the termination of this Agreement.

6. Liability. ADOT assumes no liability or financial responsibility for AZ SMART Fund Projects or the information submitted by the Local Agency. The Local Agency is solely responsible for complying with all applicable laws, rules and regulations, for any additional funding required to complete the Project(s) and for any claims due to delays, change orders or any other circumstances.

7. Federal Funding Accountability and Transparency Act. The Parties warrant compliance with the Federal Funding Accountability and Transparency Act of 2006 and associated 2008 Amendments (the "Act"). Additionally, in a timely manner, the Local Agency will provide information that is requested by the State to enable the State to comply with the requirements of the Act, as may be applicable.

8. Single Audit. The Local Agency acknowledges compliance with federal laws and regulations and may be subject to the CODE OF FEDERAL REGULATIONS, TITLE 2, PART 200 (also known as The Uniform Grant Guidance). Entities that expend $750,000.00 or more (on or after 12/26/14) of federal assistance (federal funds, federal grants, or federal awards) are required to comply by having an independent audit in accordance with §200.331 Subpart F. Either an electronic or hardcopy of the Single Audit is to be sent to Arizona Department of Transportation Financial Management Services within the required deadline of nine months of the sub recipient fiscal year end.

   ADOT – FMS
   Attn: Cost Accounting Administrator
   206 S 17th Ave. Mail Drop 204B
   Phoenix, AZ 85007
   SingleAudit@azdot.gov

9. Governing Law. This Agreement shall be governed by and construed in accordance with Arizona laws.

10. Conflicts of Interest. This Agreement may be canceled in accordance with A.R.S. § 38-511.

11. Records. The Applicant is required to retain all books, accounts, reports, files and other records relating to this Agreement for a period of five years after the date of the final payment of AZ SMART Funds from ADOT. Such records shall be produced by the Local Agency, electronically or at the State office as set forth in this Agreement, at the request of ADOT or the State Auditor General.

12. Audit. All books, accounts, reports, files and other records relating to this Agreement shall be subject to inspection and audit. The State may refer Projects to the State Auditor General or ADOT's Internal Audit unit in cases of suspected misuse of AZ SMART Funding.

13. Title VI. The Local Agency acknowledges and will comply with Title VI of the Civil Rights Act Of 1964.

14. Non-Discrimination. This Agreement is subject to all applicable provisions of the Americans with Disabilities Act (Public Law 101-336, 42 U.S.C. 12101-12213) and all applicable federal regulations under the Act, including 28 CFR Parts 35 and 36. The Parties to this Agreement

shall comply with Executive Order Number 2009-09, as amended by Executive Order 2023-01, issued by the Governor of the State of Arizona and incorporated in this Agreement by reference regarding "Non-Discrimination."

15. Non-Availability of Funds. Every obligation of the State under this Agreement is conditioned upon the availability of funds appropriated or allocated for the fulfillment of such obligations. If funds are not allocated and available for the continuance of this Agreement, this Agreement may be terminated by the State at the end of the period for which the funds are available. No liability shall accrue to the State in the event this provision is exercised, and the State shall not be obligated or liable for any future payments as a result of termination under this paragraph.

16. Arbitration. In the event of any controversy, which may arise out of this Agreement, the Parties agree to abide by arbitration as is set forth for public works contracts if required by A.R.S. § 12-1518.

17. E-Verify. The Parties shall comply with the applicable requirements of A.R.S. § 41-4401.

18. Contractor Certifications. The Local Agency shall certify that all contractors comply with the applicable requirements of A.R.S. §§ 35-393.01 and 35-394.

19. Other Applicable Laws. The Parties shall comply with all applicable laws, rules, regulations and ordinances, as may be amended.

20. Notices. All notices or demands upon any Party to this Agreement shall be in writing and shall be delivered electronically, in person, or sent by mail, addressed as follows:

For Agreement Administration:

Arizona Department of Transportation
Joint Project Agreement Group
205 S. 17th Avenue, Mail Drop 637E
Phoenix, AZ 85007
JPABranch@azdot.gov

City of Flagstaff
Attn: Stacey Brechler-Knaggs
211 West Aspen Avenue
Flagstaff, AZ 86001
Phone: 928.213.2227
sknsggs@flagstaffaz.gov

For Project Administration:

Arizona Department of Transportation
Multimodal Planning Division
Attn: AZ SMART Fund Program
1611 W Jackson St, MD 310B
Phoenix, AZ 85007
602-712-7112
azsmart@azdot.gov

City of Flagstaff
Attn: Stacey Brechler-Knaggs
211 West Aspen Avenue
Flagstaff, AZ 86001
Phone: 928.213.2227
sknaggs@flagstaffaz.gov

For Financial Administration:

Arizona Department of Transportation
Multimodal Planning Division
Attn: AZ SMART Fund Program
1611 W Jackson St, MD 310B
Phoenix, AZ 85007
602-712-7112
azsmart@azdot.gov

City of Flagstaff
Attn: Stacey Brechler-Knaggs
211 West Aspen Avenue
Flagstaff, AZ 86001
Phone: 928.213.2227
sknaggs@flagstaffaz.gov

21. Revisions to Contacts. Any revisions to the names and addresses above may be updated administratively by either Party with written notice to the other Party.

22. Legal Counsel Approval. In accordance with A.R.S. § 11-952 (D), the written determination of each Party's legal counsel providing that the Parties are authorized under the laws of this State to enter into this Agreement and that the Agreement is in proper form is set forth below.

23. Electronic Signatures. This Agreement may be signed in an electronic format including DocuSign.

Remainder of this page is intentionally left blank.

(Signatures begin on the next page)

IN WITNESS WHEREOF, the Parties have executed this Agreement to be effective upon the full completion of signing and dating by all Parties to this Agreement.

CITY OF FLAGSTAFF

By _____ Date_____
BECKY DAGGETT
Mayor

ATTEST:

By _____ Date_____
STACY SALTZBURG
City Clerk

I have reviewed the above referenced Intergovernmental Agreement between the State of Arizona, acting by and through its Department of Transportation, and the City of Flagstaff, an agreement among public agencies which, has been reviewed pursuant to A.R.S. §§ 11-951 through 11-954 and A.R.S. §§ 28-339 and 48-572and declare this Agreement to be in proper form and within the powers and authority granted to the County under the laws of the State of Arizona.

No opinion is expressed as to the authority of the State to enter into this Agreement. Approved as to Form:

By _____ Date_____
City Attorney

ARIZONA DEPARTMENT OF TRANSPORTATION

By _____ Date_____
AUDRA MERRICK
Multimodal Planning Division

This Agreement between public agencies, the State of Arizona and the City of Flagstaff, has been reviewed pursuant to A.R.S. §§ 11-951 through 11-954 and A.R.S. §§ 28-339 and 28-401, by the undersigned Assistant Attorney General who has determined that it is in the proper form and is within the powers and authority granted to the State of Arizona. No opinion is expressed as to the authority of the remaining Parties, other than the State or its agencies, to enter into said Agreement.

By _____ Date_____
Assistant Attorney General

EXHIBIT A

Cost Estimate

T0629 03D/01C

The Project costs are estimated as follows:

Scoping/Design:	
SS4A Grant	$ 1,392,040
AZ SMART Funds	348,010
Subtotal – Scoping/Design	**$ 1,740,050**
Construction:	
SS4A Grant	$ 8,219,951
AZ SMART Funds	2,054,988
Subtotal – Construction	**$ 10,274,939**
Estimated TOTAL Project Cost	**$ 12,014,989**
Total AZ SMART Funds*	**$ 2,402,998**
Total Federal Funds	**$ 9,611,991**

* AZ SMART match funds are reimbursable, as a result ADOT will not invoice the Local Agency for the AZ SMART funds.

1. Federal Award No.
693JJ32440443

2. Effective Date
See No. 16 Below

3. Assistance Listings No.
20.939

4. Award To
City of Flagstaff
211 West Aspen Avenue
Flagstaff, Arizona 86001-5359

Unique Entity Id.: XMMUMPKTLVQ3
TIN No.: 86-6000244

5. Sponsoring Office
U.S. Department of Transportation
Federal Highway Administration
Office of Safety
1200 New Jersey Avenue, SE
HSSA-1, Mail Drop E71-117
Washington, DC 20590

6. Period of Performance
Effective Date of Award – 5 years from the Effective Date of Award

7. Total Amount

Federal Share:	$9,611,991
Recipient Share:	$2,402,998
Other Federal Funds:	$0
Other Funds:	$0
Total:	$12,014,989

8. Type of Agreement
Grant

9. Authority
Section 24112 of the Infrastructure Investment and Jobs Act (Pub. L. 117–58, November 15, 2021; also referred to as the "Bipartisan Infrastructure Law" or "BIL")

10. Procurement Request No.
HSA240281PR

11. Federal Funds Obligated
Base Phase: Pre-NEPA: $160,000

12. Submit Payment Requests To
See Article 5.

14. Accounting and Appropriations Data
15X0174E50.0000.055SR40500.5592000000.41010.61006600

13. Description of the Project

The Butler Avenue Complete Streets Conversion is a holistic Safe Systems Approach project emphasizing Safer Roads, Safer People and Safer Speeds. For Safer Roads, it will convert 0.9 miles of arterial road in the urban center of Flagstaff to a Complete Street.

RECIPIENT

15. Signature of Person Authorized to Sign

for

Joanne K. Keene signed on 9/11/2024 4:01:30 PM
Signature Date

Name: Greg Clifton
Title: City Manager

FEDERAL HIGHWAY ADMINISTRATION

16. Signature of Agreement Officer

HECTOR RAMON SANTAMARIA
Digitally signed by HECTOR RAMON SANTAMARIA
Date: 2024.09.17 10:51:27 -04'00'

Signature Date

Name: Hector Santamaria
Title: Agreement Officer

US Department of Transportation
Federal Highway Administration
Grant Agreement SS4A
City of Flagstaff

Attest:

Stacy Saltzburg

City Clerk

Stacy Saltzburg signed on 9/12/2024 7:46:34 AM

Approved as to Form:

Christina Kinnear

City Attorney's Office

Christina Kinnear signed on 9/5/2024 11:50:32 AM

U.S. DEPARTMENT OF TRANSPORTATION

GRANT AGREEMENT UNDER THE
FISCAL YEAR 2023 SAFE STREETS AND ROADS FOR ALL GRANT PROGRAM

This agreement is between the United States Department of Transportation's (the "**USDOT**") Federal Highway Administration (the "**FHWA**") and the City of Flagstaff (the "**Recipient**").

This agreement reflects the selection of the Recipient to receive a Safe Streets and Roads for All ("**SS4A**") Grant for the Butler Avenue Complete Streets Conversion.

The parties therefore agree to the following:

ARTICLE 1
GENERAL TERMS AND CONDITIONS

1.1 General Terms and Conditions.

(a) In this agreement, "**General Terms and Conditions**" means the content of the document titled "General Terms and Conditions Under the Fiscal Year 2023 Safe Streets and Roads for All ("SS4A") Grant Program,", which is available at https://www.transportation.gov/grants/ss4a/grant-agreements under "Fiscal Year 2023." Articles 7–30 are in the General Terms and Conditions. The General Terms and Conditions are part of this agreement.

(b) The Recipient acknowledges that it has knowledge of the General Terms and Conditions. Recipient also states that it is required to comply with all applicable Federal laws and regulations including, but not limited to, the Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards (2 CFR part 200); National Environmental Policy Act (NEPA) (42 U.S.C. § 4321 et seq.); and Build America, Buy America Act (BIL, div. G §§ 70901-27).

(c) The Recipient acknowledges that the General Terms and Conditions impose obligations on the Recipient and that the Recipient's non-compliance with the General Terms and Conditions may result in remedial action, termination of the SS4A Grant, disallowing costs incurred for the Project, requiring the Recipient to refund to the FHWA the SS4A Grant, and reporting the non-compliance in the Federal-government-wide integrity and performance system.

ARTICLE 2
APPLICATION, PROJECT, AND AWARD

2.1 Application.

Application Title: Butler Avenue Complete Streets Conversion

Application Date: 7/7/2023

2.2 Award Amount.

SS4A Grant Amount: $9,611,991

2.3 Federal Obligation Information.

Federal Obligation Type: Multiple

Obligation Condition Table		
Phase the Project	**Allocation of the SS4A Grant**	**Obligation Condition**
Base Phase: Pre-NEPA	$160,000	

Obligation Condition Table		
Phase the Project	**Allocation of the SS4A Grant**	**Obligation Condition**
Phase 1: Final Design, Right-of-Way, and Utility Relocation	$1,859,517	The Recipient shall not expend any funds (Federal or non-Federal) for, seek reimbursement of eligible costs, or otherwise begin any part of the final design and construction of an Implementation Project unless and until: (1) The requirements of the National Environmental Policy Act (42 U.S.C. § 4321 et seq.) ("NEPA"), Section 106 of the National Historic Preservation Act (16 U.S.C. § 470f) ("NHPA"), and any other applicable environmental laws and regulations have been met; and (2) FHWA, or a State with applicable NEPA Assignment authority, has approved the NEPA document for the Project and provided the Recipient with a written notice that the environmental review process is complete; and (3) FHWA has obligated additional funds for this phase and notified the Recipient in writing that the Recipient may proceed to the next activity after NEPA approval, and the Recipient has acknowledged receipt in writing of FHWA's notification. Recipient shall not proceed with any such advance activities until (2) and (3) as described in this section are met. Costs that are incurred before (2) and (3) as described in this section are met are not allowable costs under this agreement. Extent of activities that are permissible before NEPA is complete are those activities constituting "preliminary design" as specified in FHWA Order 6640.1A.

Obligation Condition Table		
Phase the Project	**Allocation of the SS4A Grant**	**Obligation Condition**
Phase 2: Construction	$7,592,474	The Recipient shall not expend any funds (Federal or non-Federal) for, seek reimbursement of eligible costs, or otherwise begin any part of the construction or final design and construction of an Implementation Project unless and until: (1) The requirements of the National Environmental Policy Act (42 U.S.C. § 4321 et seq.) ("NEPA"), Section 106 of the National Historic Preservation Act (16 U.S.C. § 470f) ("NHPA"), and any other applicable environmental laws and regulations have been met; and (2) FHWA, or a State with applicable NEPA Assignment authority, has approved the NEPA document for the Project and provided the Recipient with a written notice that the environmental review process is complete; and (3) FHWA has obligated additional funds for this phase and notified the Recipient in writing that the Recipient may proceed to the next activity after NEPA approval, and the Recipient has acknowledged receipt in writing of FHWA's notification. Recipient shall not proceed with any such activities until (2) and (3) as described in this section are met. Costs that are incurred before (2) and (3) as described in this section are met are not allowable costs under this agreement. Extent of activities that are permissible before NEPA is complete are those activities constituting "preliminary design" as specified in FHWA Order 6640.1A.

2.4 Budget Period.

Base Phase Budget Period: See Item 6 of Page 1 for Effective Start Date - 2/28/2025

Option Phase 1 Budget Period: Reserved

Option Phase 2 Budget Period: Reserved

2.5 Grant Designation.

Designation: Implementation

ARTICLE 3
SUMMARY PROJECT INFORMATION

3.1 Summary of Project's Statement of Work.

See application final narrative, Exhibit A.

The project will be completed in three phases as follows:

Base Phase: Pre-NEPA (additional concept planning to complete NEPA), NEPA complete and approved.

Phase 1: Conducting Planning, Design, and Development Activities, including NEPA: Infrastructure geometric design, topographic survey, environmental services and drainage report, post-design review, contingency.

Phase 2: Carrying Out Projects and Strategies: Protected intersections (3), enhanced crossings, (2), separated bicycle facility, mobilization, traffic control, inspections and testing administration, contingency.

3.2 Project's Estimated Schedule.

Implementation Schedule (Construction)

Milestone	Schedule Date
Planned NEPA Completion Date:	02/28/2025
Planned Construction Start Date	09/30/2025
Planned Construction Substantial Completion and Open to Public Use Date:	09/30/2027
Planned SS4A Final Report Date:	12/31/2027

3.3 Project's Estimated Costs.

(a) Eligible Project Costs

Eligible Project Costs	
SS4A Grant Amount:	$9,611,991
Other Federal Funds:	$0
State Funds:	$2,402,998*
Local Funds:	$0
In-Kind Match:	$0
Other Funds:	$0

Total Eligible Project Cost:	$12,014,989

**AZ SMART Funds. These funds are state funds and not sourced from federal funds.*

(b) Cost Classification Table – Planning and Demonstration Grants with demonstration activities and Implementation Grants Only

Cost Classification	Total Costs	Non-SS4A Previously Incurred Costs	Eligible Costs
Administrative and legal expenses	$1,647,128		$1,647,128
Architectural and engineering fees	$1,740,049		$1,740,049
Project inspection fees	$784,347		$784,347
Construction	$6,672,799		$6,672,799
Contingency	$1,170,666		$1,170,666
Project Total	**$12,014,989**		**$12,014,989**

(c) Indirect Costs

Indirect costs are allowable under this Agreement in accordance with 2 CFR part 200 and the Recipient's approved Budget Application. In the event the Recipient's indirect cost rate changes, the Recipient will notify FHWA of the planned adjustment and provide supporting documentation for such adjustment. This Indirect Cost provision does not operate to waive the limitations on Federal funding provided in this document. The Recipient's indirect costs are allowable only insofar as they do not cause the Recipient to exceed the total obligated funding.

ARTICLE 4

RECIPIENT INFORMATION

4.1 Recipient Contact(s).

Stacey Brechler-Knaggs
Grants, Contracts & Emergency Management Director
City of Flagstaff
211 West Aspen Avenue
928-213-2227
sknaggs@flagstaffaz.gov

4.2 Recipient Key Personnel.

Name	Title or Position
Paul Mood	City Engineer
Martin Ince	Transportation Planner Senior Lead
Trevor Henry	Capital Improvements Engineer
Chris Phair	Transportation Planner
Jeff Bauman	Transportation Director/Traffic Engineer

4.3 USDOT Project Contact(s).

Safe Streets and Roads for All Program Manager
Federal Highway Administration
Office of Safety
HSSA-1, Mail Stop: E71-117
1200 New Jersey Avenue, S.E.
Washington, DC 20590
202-366-2822
SS4A.FHWA@dot.gov

and

Agreement Officer (AO)
Federal Highway Administration
Office of Acquisition and Grants Management
HCFA-33, Mail Stop E62-310
1200 New Jersey Avenue, S.E.
Washington, DC 20590
202-493-2402
HCFASS4A@dot.gov

and

Division Administrator – Arizona
Agreement Officer's Representative (AOR)
4000 N Central Avenue
Phoenix, Arizona 85012
(602) 379 - 3646
Arizona.FHWA@dot.gov

and

Patricia Beals
Arizona Division Office Lead Point of Contact
Transportation Specialist
4000 N Central Avenue
Phoenix, Arizona 85012
(360) 216-6643

Patricia.Beals@dot.gov

ARTICLE 5
USDOT ADMINISTRATIVE INFORMATION

5.1 Office for Subaward and Contract Authorization.

USDOT Office for Subaward and Contract Authorization: FHWA Office of Acquisition and Grants Management

SUBAWARDS AND CONTRACTS APPROVAL

Note: See 2 CFR § 200.331, Subrecipient and contractor determinations, for definitions of subrecipient (who is awarded a subaward) versus contractor (who is awarded a contract).

Note: Recipients with a procurement system deemed approved and accepted by the Government or by the Agreement Officer (the "**AO**") are exempt from the requirements of this clause. See 2 CFR 200.317 through 200.327. Note: This clause is only applicable to grants that do not include construction.

In accordance with 2 CFR 200.308(c)(6), unless described in the application and funded in the approved award, the Recipient must obtain prior written approval from the AO for the subaward, transfer, or contracting out of any work under this award above the Simplified Acquisition Threshold. This provision does not apply to the acquisition of supplies, material, equipment, or general support services. Approval will be issued through written notification from the AO or a formal amendment to the Agreement.

The following subawards and contracts are currently approved under the Agreement by the AO. This list does not include supplies, material, equipment, or general support services which are exempt from the pre-approval requirements of this clause.

5.2 Reimbursement Requests

(a) The Recipient may request reimbursement of costs incurred within the budget period of this agreement if those costs do not exceed the amount of funds obligated and are allowable under the applicable cost provisions of 2 C.F.R. Part 200, Subpart E. The Recipient shall not request reimbursement more frequently than monthly.

(b) The Recipient shall use the DELPHI iSupplier System to submit requests for reimbursement to the payment office. When requesting reimbursement of costs incurred or credit for cost share incurred, the Recipient shall electronically submit supporting cost detail with the SF-270 (Request for Advance or Reimbursement) or SF-271 (Outlay Report and Request for Reimbursement for Construction Programs) to clearly document all costs incurred.

(c) The Recipient's supporting cost detail shall include a detailed breakout of all costs incurred, including direct labor, indirect costs, other direct costs, travel, etc., and the Recipient shall identify the Federal share and the Recipient's share of costs. If the Recipient does not provide sufficient detail in a request for reimbursement, the Agreement Officer's Representative (the "**AOR**") may withhold processing that request until the Recipient provides sufficient detail.

(d) The USDOT shall not reimburse costs unless the AOR reviews and approves the costs to ensure that progress on this agreement is sufficient to substantiate payment.

(e) In the rare instance the Recipient is unable to receive electronic funds transfers (EFT), payment by EFT would impose a hardship on the Recipient because of their inability to manage an account at a financial institution, and/or the Recipient is unable to use the DELPHI iSupplier System to submit their requests for disbursement, the FHWA may waive the requirement that the Recipient use the DELPHI iSupplier System. The Recipient shall contact the Division Office Lead Point of Contact for instructions on and requirements related to pursuing a waiver.

(f) The requirements set forth in these terms and conditions supersede previous financial invoicing requirements for Recipients.

ARTICLE 6
SPECIAL GRANT TERMS

6.1 SS4A funds must be expended within five years after the grant agreement is executed and DOT obligates the funds, which is the budget period end date in section 10.3 of the Terms and Conditions and section 2.4 in this agreement.

6.2. The Recipient demonstrates compliance with civil rights obligations and nondiscrimination laws, including Titles VI of the Civil Rights Act of 1964, the Americans with Disabilities Act (ADA), and Section 504 of the Rehabilitation Act, and accompanying regulations. Recipients of Federal transportation funding will also be required to comply fully with regulations and guidance for the ADA, Title VI of the Civil Rights Act of 1964, Section 504 of the Rehabilitation Act of 1973, and all other civil rights requirements.

6.3 SS4A Funds will be allocated to the Recipient and made available to the Recipient in accordance with FHWA procedures.

6.4 The Recipient of an Implementation Grant agrees to update its Action Plan within two years of the date of this agreement to: align with all Comprehensive Safety Action Plan components in Table 1 of the SS4A FY 2023 NOFO corresponding with any "no" responses in the Self-Certification Eligibility Worksheet; ensure that the Action Plan's safety focus includes all road users, including pedestrians, bicyclists, and motor vehicle safety; and ensure that the Action Plan was last updated not more than three years prior.

6.5 The Recipient acknowledges that it is required to conduct certain environmental analyses and to prepare and submit to FHWA, or State with applicable NEPA Assignment authority, documents required under NEPA, and other applicable environmental statutes and regulations before the Government will obligate funds for Option Phase 1 under this agreement and provide the Recipient with a written notice to proceed with Option Phase 1.

6.5 The Government's execution of this agreement does not in any way constitute pre-approval or waiver of any of the regulations imposed upon Recipient under the applicable Federal rules, regulations and laws regarding SS4A projects undertaken in accordance with the terms and conditions of this agreement. The Recipient shall comply with all applicable Federal requirements before incurring any costs under this agreement.

6.7 There are no other special grant requirements.

ATTACHMENT A
PERFORMANCE MEASUREMENT INFORMATION

Study Area: Butler Avenue between Milton Avenue and Sawmill Road
Baseline Measurement Date: 9/30/2025
Baseline Report Date: 11/30/2025

Table 1: Performance Measure Table

Measure	Category and Description	Measurement Frequency and Reporting Deadline
Safety Performance	Fatalities: Total annual fatalities in the project location(s)	Annually and within 120 days after the end of the period of performance
Safety Performance	Serious Injuries: Total annual serious injuries in the project location(s) [if available]	Annually and within 120 days after the end of the period of performance
Safety Performance	Crashes by Road User Category: Total annual crashes in the project location(s) broken out by types of roadway users involved (e.g., pedestrians, bicyclists, motorcyclist, passenger vehicle occupant, commercial vehicle occupant)	Annually and within 120 days after the end of the period of performance
Equity	Percent of Funds to Underserved Communities: Funding amount (of total project amount) benefitting underserved communities, as defined by USDOT	Within 120 days after the end of the period of performance
Costs	Project Costs: Quantification of the cost of each eligible project carried out using the grant	Within 120 days after the end of the period of performance

Measure	Category and Description	Measurement Frequency and Reporting Deadline
Outcomes and Benefits	Quantitative Project Benefits: Quantification of evidence-based projects or strategies implemented (e.g., miles of sidewalks installed, number of pedestrian crossings upgraded, etc.)	Within 120 days after the end of the period of performance
Outcomes and Benefits	Qualitative Project Benefits: Qualitative description of evidence-based projects or strategies implemented (e.g., narrative descriptions, testimonials, high-quality before and after photos, etc.)	Within 120 days after the end of the period of performance
Outcomes and Benefits	Project Location(s): GIS/geo coordinate information identifying specific project location(s)	Within 120 days after the end of the period of performance
Lessons Learned and Recommendations	Lessons Learned and Recommendations: Description of lessons learned and any recommendations relating to future projects or strategies to prevent death and serious injury on roads and streets.	Within 120 days after the end of the period of performance

ATTACHMENT B
CHANGES FROM APPLICATION

Describe all material differences between the scope, schedule, and budget described in the application and the scope, schedule, and budget described in Article 3. The purpose of Attachment B is to clearly and accurately document any differences in scope, schedule, and budget to establish the parties' knowledge and acceptance of those differences. See Article 11 for the Statement of Work, Schedule, and Budget Changes. If there are no changes, please insert "N/A" in Section 3.3 of the table.

Scope: N/A

Schedule: N/A

Budget: N/A

The table below provides a summary comparison of the project budget.

	Application		**Section 3.3**	
Fund Source	$	%	$	%
Previously Incurred Costs (Non-Eligible Project Costs)				
Federal Funds			N/A	
Non-Federal Funds			N/A	
Total Previously Incurred Costs			N/A	
Future Eligible Project Costs				
SS4AFunds				
Other Federal Funds			N/A	
Non-Federal Funds				
Total Future Eligible Project Costs				
Total Project Costs				

ATTACHMENT C
RACIAL EQUITY AND BARRIERS TO OPPORTUNITY

1. Efforts to Improve Racial Equity and Reduce Barriers to Opportunity.

The Recipient states that rows marked with "X" in the following table align with the application:

	A racial equity impact analysis has been completed for the Project. *(Identify a report on that analysis or, if no report was produced, describe the analysis and its results in the supporting narrative below.)*
	The Recipient or a project partner has adopted an equity and inclusion program/plan or has otherwise instituted equity-focused policies related to project procurement, material sourcing, construction, inspection, hiring, or other activities designed to ensure racial equity in the overall delivery and implementation of the Project. *(Identify the relevant programs, plans, or policies in the supporting narrative below.)*
X	The Project includes physical-barrier-mitigating land bridges, caps, lids, linear parks, and multimodal mobility investments that either redress past barriers to opportunity or that proactively create new connections and opportunities for underserved communities that are underserved by transportation. *(Identify the relevant investments in the supporting narrative below.)*
X	The Project includes new or improved walking, biking, and rolling access for individuals with disabilities, especially access that reverses the disproportional impacts of crashes on people of color and mitigates neighborhood bifurcation. *(Identify the new or improved access in the supporting narrative below.)*
	The Project includes new or improved freight access to underserved communities to increase access to goods and job opportunities for those underserved communities. *(Identify the new or improved access in the supporting narrative below.)*
	The Recipient has taken other actions related to the Project to improve racial equity and reduce barriers to opportunity, as described in the supporting narrative below.
	The Recipient has not yet taken actions related to the Project to improve racial equity and reduce barriers to opportunity but intends to take relevant actions described in the supporting narrative below.
	The Recipient has not taken actions related to the Project to improve racial equity and reduce barriers to opportunity and will not take those actions under this award.

2. Supporting Narrative.

Butler Avenue, the site of the project, extends across Flagstaff, east to west through the historic Southside neighborhood. When Butler Avenue was widened in the 1980s, it divided the neighborhood into two halves, north and south, with an arterial roadway with speeds ranging between 35 and 40 mph. This project helps to rectify that historic social injustice by creating three protected intersections, an enhanced pedestrian and bicycle crossings, and a new enhanced beacon crossing at O'Leary Street to enable safe passage north to south and help to reconnect the neighborhood and restore its cohesion." Additionally, "The project seeks to improve ADA conditions with new curb cuts and improved sidewalk conditions." These new curb cuts will "have dual crossings that align with crosswalks rather than apex crossings that misalign the ramp with the safe path of

travel." "The intersection improvements and crossings proposed in this project help to reconnect this divided community and the grade separated bike lanes make for safer, more affordable travel options for this highly multimodal community.

ATTACHMENT D
CLIMATE CHANGE AND ENVIRONMENTAL JUSTICE IMPACTS

1. Consideration of Climate Change and Environmental Justice Impacts.

The Recipient states that rows marked with "X" in the following table align with the application:

X	The Project directly supports a Local/Regional/State Climate Action Plan that results in lower greenhouse gas emissions. *(Identify the plan in the supporting narrative below.)*
	The Project directly supports a Local/Regional/State Equitable Development Plan that results in lower greenhouse gas emissions. *(Identify the plan in the supporting narrative below.)*
	The Project directly supports a Local/Regional/State Energy Baseline Study that results in lower greenhouse gas emissions. *(Identify the plan in the supporting narrative below.)*
X	The Recipient or a project partner used environmental justice tools, such as the EJScreen, to minimize adverse impacts of the Project on environmental justice communities. *(Identify the tool(s) in the supporting narrative below.)*
X	The Project supports a modal shift in freight or passenger movement to reduce emissions or reduce induced travel demand. *(Describe that shift in the supporting narrative below.)*
X	The Project utilizes demand management strategies to reduce congestion, induced travel demand, and greenhouse gas emissions. *(Describe those strategies in the supporting narrative below.)*
	The Project incorporates electrification infrastructure, zero-emission vehicle infrastructure, or both. *(Describe the incorporated infrastructure in the supporting narrative below.)*
	The Project supports the installation of electric vehicle charging stations. *(Describe that support in the supporting narrative below.)*
	The Project promotes energy efficiency. *(Describe how in the supporting narrative below.)*
	The Project serves the renewable energy supply chain. *(Describe how in the supporting narrative below.)*
	The Project improves disaster preparedness and resiliency *(Describe how in the supporting narrative below.)*
	The Project avoids adverse environmental impacts to air or water quality, wetlands, and endangered species, such as through reduction in Clean Air Act criteria pollutants and greenhouse gases, improved stormwater management, or improved habitat connectivity. *(Describe how in the supporting narrative below.)*
	The Project repairs existing dilapidated or idle infrastructure that is currently causing environmental harm. *(Describe that infrastructure in the supporting narrative below.)*
	The Project supports or incorporates the construction of energy- and location-efficient buildings. *(Describe how in the supporting narrative below.)*

	The Project includes recycling of materials, use of materials known to reduce or reverse carbon emissions, or both. *(Describe the materials in the supporting narrative below.)*
X	The Recipient has taken other actions to consider climate change and environmental justice impacts of the Project, as described in the supporting narrative below.
	The Recipient has not yet taken actions to consider climate change and environmental justice impacts of the Project but will take relevant actions described in the supporting narrative below.
	The Recipient has not taken actions to consider climate change and environmental justice impacts of the Project and will not take those actions under this award.

2. Supporting Narrative.

This project aligns with goals outlined in the City's Active Transportation Master Plan (ATMP), a qualified safety plan; the Southside Community Specific Plan, and the Carbon Neutrality Plan, 2 as well as MetroPlan's Regional Strategic Transportation Safety Plan and Regional Transportation Plan, all which were developed with extensive public outreach and community input." "According to the City's Carbon Neutrality Plan, 30% of emissions in the city come from transportation and vehicle miles traveled must be held at 2019 levels to reach this goal. The City realizes there must be a focus on creating a safe, connected and comfortable bike, pedestrian and transit network to achieve this goal." To reach these goals, "the project promotes climate action and sustainability through the creation of comfortable cycling infrastructure that will attract interested but concerned riders." "The protected intersections reduce conflict points by eliminating merging and weaving points. They will provide better sight distance between drivers and vulnerable users; promote yielding to vulnerable users and include a leading pedestrian interval; decrease the crossing distance for vulnerable users and decrease the speed of right turning vehicles with tighter curb radii." "These improvements will attract people who are "interested but concerned" cyclists estimated at 51-56% of population and supported by a MetroPlan statistically valid survey indicating approximately 62% of residents foresee using multimodal travel more often in the future.

ATTACHMENT E
LABOR AND WORKFORCE

1. Efforts to Support Good-Paying Jobs and Strong Labor Standards

The Recipient states that rows marked with "X" in the following table align with the application:

	The Recipient demonstrate, to the full extent possible consistent with the law, an effort to create good-paying jobs with the free and fair choice to join a union and incorporation of high labor standards. *(Identify the relevant agreements and describe the scope of activities they cover in the supporting narrative below.)*
	The Recipient or a project partner has adopted the use of local and economic hiring preferences in the overall delivery and implementation of the Project. *(Describe the relevant provisions in the supporting narrative below.)*
	The Recipient or a project partner has adopted the use of registered apprenticeships in the overall delivery and implementation of the Project. *(Describe the use of registered apprenticeship in the supporting narrative below.)*
	The Recipient or a project partner will provide training and placement programs for underrepresented workers in the overall delivery and implementation of the Project. *(Describe the training programs in the supporting narrative below.)*
	The Recipient or a project partner will support free and fair choice to join a union in the overall delivery and implementation of the Project by investing in workforce development services offered by labor-management training partnerships or setting expectations for contractors to develop labor-management training programs. *(Describe the workforce development services offered by labor-management training partnerships in the supporting narrative below.)*
	The Recipient or a project partner will provide supportive services and cash assistance to address systemic barriers to employment to be able to participate and thrive in training and employment, including childcare, emergency cash assistance for items such as tools, work clothing, application fees and other costs of apprenticeship or required pre-employment training, transportation and travel to training and work sites, and services aimed at helping to retain underrepresented groups like mentoring, support groups, and peer networking. *(Describe the supportive services and/or cash assistance provided to trainees and employees in the supporting narrative below.)*
	The Recipient or a project partner has documented agreements or ordinances in place to hire from certain workforce programs that serve underrepresented groups. *(Identify the relevant agreements and describe the scope of activities they cover in the supporting narrative below.)*

	The Recipient or a project partner participates in a State/Regional/Local comprehensive plan to promote equal opportunity, including removing barriers to hire and preventing harassment on work sites, and that plan demonstrates action to create an inclusive environment with a commitment to equal opportunity, including: a. affirmative efforts to remove barriers to equal employment opportunity above and beyond complying with Federal law; b. proactive partnerships with the U.S. Department of Labor's Office of Federal Contract Compliance Programs to promote compliance with EO 11246 Equal Employment Opportunity requirements and meet the requirements as outlined in the Notice of Funding Opportunity to make good faith efforts to meet the goals of 6.9 percent of construction project hours being performed by women and goals that vary based on geography for construction work hours and for work being performed by people of color; c. no discriminatory use of criminal background screens and affirmative steps to recruit and include those with former justice involvement, in accordance with the Fair Chance Act and equal opportunity requirements; d. efforts to prevent harassment based on race, color, religion, sex, sexual orientation, gender identity, and national origin; e. training on anti-harassment and third-party reporting procedures covering employees and contractors; and f. maintaining robust anti-retaliation measures covering employees and contractors. *(Describe the equal opportunity plan in the supporting narrative below.)*
	The Recipient has taken other actions related to the Project to create good-paying jobs with the free and fair choice to join a union and incorporate strong labor standards. *(Describe those actions in the supporting narrative below.)*
X	The Recipient has not yet taken actions related to the Project to create good-paying jobs with the free and fair choice to join a union and incorporate strong labor standards but, before beginning construction of the project, will take relevant actions described in the supporting narrative below.
	The Recipient has not taken actions related to the Project to improving good-paying jobs and strong labor standards and will not take those actions under this award.

2. Supporting Narrative.

The scale of this project is highly likely to draw several local contractors who can perform work of this scale and have experience delivering federal projects. The voters have approved an increase to the minimum wage well above the national average, currently at $17.40 per hour that ensures competitive wages will be paid due to a very competitive job market. The City's procurement process will include language that encourages Disadvantaged Business Enterprises (DBE) to bid and procurement provisions will include required DBE language and labor requirements of the grant. According to the Climate and Economic Justice Screening tool, the tract is in the 96th percentile for housing costs, and the 96th percentile for poverty making these important, well-paid positions. The City will employ a Transportation Technician, an NAU student, who will learn design, procurement and project management processes throughout the construction. Speed evaluation will include mentorship of new Transportation Engineers. We will comply with all federal terms and conditions.

ATTACHMENT F
CRITICAL INFRASTRUCTURE SECURITY AND RESILIENCE

1. Efforts to strengthen the Security and Resilience of Critical Infrastructure against both Physical and Cyber Threats.

The Recipient states that rows marked with "X" in the following table are accurate:

	The Recipient demonstrates, prior to the signing of this agreement, effort to consider and address physical and cyber security risks relevant to the transportation mode and type and scale of the activities.
	The Recipient appropriately considered and addressed physical and cyber security and resilience in the planning, design and oversight of the project, as determined by the Department and the Department of Homeland Security.
X	For projects in floodplains: The Recipient appropriately considered whether the project was upgraded consistent with the Federal Flood Risk Management Standard, to the extent consistent with current law, in Executive Order 14030, Climate-Related Financial Risk (86 FR 27967), and Executive Order 13690, Establishing a Federal Flood Risk Management Standard and a Process for Further Solicit and Considering Stakeholder Input (80 FR 6425).

2. Supporting Narrative.

Section6(f): The Arizona State Parks Department's Land and Water Conservation Fund (LWCF) Act interactive map was accessed to identify whether parks or recreation project site have received LWCF funds. While the City of Flagstaff obtained a LWCF grant in 1991 for the FUTS, this project will not impact FUTS trails. • Section 404: No Section 404 permit is required for this project. • Floodway: While the project crosses over floodway, it does so on an existing structure and will not make changes to that structure. Therefore, there is no impact on Floodway or work affecting the base flood plain elevations. • Noise: This project does not involve any Type 1 project activities related to noise. • Air quality: The project is located in an attainment area for all seven criteria pollutants for which the U.S.EPA has established National Ambient Air Quality Standards. • There are no Coast Guard bridges, wild and scenic rivers, nor costal management zones.

EXHIBIT C

ARIZONA DEPARTMENT OF TRANSPORTATION
PROGRESS PAYMENT REPORT

Report No.			**IGA**	**24-0010895-I**
ADOT PO #			**PROGRESS**	
Item No.			**FINAL**	
Federal-aid No.				
ADOT Project No.	T0629 01D 01C			
Name of Project	Butler Avenue; Milton Road (Route 66) — Sawmill Road			
Name of Vendor	City of Flagstaff (IV0000002739)			
REMIT PAYMENT TO:	City of Flagstaff, ATTN: Stacey Brechler-Knaggs, 211 West Aspen Avenue, Flagstaff, AZ 86001			
Date Started :	Estimated Completion Date:		% Billed	% Complete

SUMMARY OF WORK FOR WHICH PAYMENT IS REQUESTED

Items	DESCRIPTION Hours	**CONTRACT AMOUNT**	Previous Accumulative Amount	Current Month	Accumulative Amount
	PER IGA 24-0010895-I				
	See Attached				$0.00
					$0.00
					$0.00
					$0.00
					$0.00
					$0.00

Submitted By: _____ Date:	Total to Date	$0.00
Approved By: _____ Date:	Total Previous Report	$0.00
ADOT Project Manager	Current Report	**$0.00**

IGA 24-0010895-I
Exhibit D

AZ SMART Fund Project - SAMPLE CLOSEOUT LETTER TO ADOT

Place on Sponsoring Agency's Letterhead

***Note: All items in red should be removed and replaced with the required information prior to submission to the ADOT Multimodal Planning Division. Please email**

(Insert Date)

ADOT Multimodal Planning Division
AZ SMART Fund Program
1611 W Jackson
Phoenix, AZ 85007

Re: AZ SMART Project Closeout

ADOT Project Number: T0629 01D 01C
Project Name: Butler Avenue Complete Streets Conversion Project
Federal Discretionary Grant received or to be pursued:
COG/MPO:
COG/MPO TIP ID Number:

To Whom It May Concern:

The **(Insert sponsoring agency's name)** received the final deliverables on **(Insert date)** for the above referenced AZ SMART project.

The undersigned certifies that:

1. The work in the subject contract has been inspected for deficiencies;
2. The required project review was conducted by representatives of **(Insert sponsoring agency's name), (Insert COG/MPO)** and ADOT on **(Insert date)** (if applicable);
3. The contractor has fulfilled all contractual obligations; and
4. The contractor was paid in full by **(Insert sponsoring agency's name)** on **(Insert date)**.

Attached is the following required documentation:
Note:** All Final Acceptance letters to the AZ SMART Fund Program will be returned ***without action unless all items listed below are submitted with this letter.

- ☐ An invoice for the final eligible costs on the project;
- ☐ Documentation reflecting payment in full by **(Insert sponsoring agency's name)** to the contractor; and
- ☐ The project final acceptance letter from **(Insert sponsoring agency's name)** to the contractor.

Please consider this project as accepted and complete. Please contact us if you have any questions regarding this request or require additional information. Thank you.

Sincerely,

Project Manager Name
Title
Agency
Address
City, AZ, Zip code
Phone Number
Email address

CITY OF FLAGSTAFF

STAFF SUMMARY REPORT

To: The Honorable Mayor and Council

From: Edward Schenk, Water Services Manager - Stormwater

Date: 02/26/2025

Meeting Date: 03/04/2025

TITLE:

Consideration and Adoption of Resolution No. 2025-10 and Ordinance No. 2025-04: An ordinance to revise the Stormwater Management Design Manual to comply with current standards, definitions, and engineering design by adopting the 2025 Stormwater Management Design Manual.

STAFF RECOMMENDED ACTION:

At the March 4, 2025 Meeting:

1. Read Resolution No. 2025-10 by title only
2. City Clerk reads Resolution No. 2025-10 by title only (if approved above)
3. Read Ordinance No. 2025-04 by title only for the first time
4. City Clerk reads Ordinance No. 2025-04 by title only (if approved above)

At the March 18, 2025 Meeting

5. Adopt Resolution No. 2025-10
6. Read Ordinance No. 2025-04 by title only for the final time
7. City Clerk reads Ordinance No. 2025-04 by title only (if approved above)
8. Adopt Ordinance No. 2025-04

Executive Summary:

The 2025 Stormwater Management Design Manual has been developed to assist in the design and evaluation of public and private stormwater management facilities within the boundaries of the City of Flagstaff. Stormwater management policies, design procedures, and design criteria are presented within the manual for conducting hydrologic and hydraulic studies, designs, and evaluations.

The overall goals for the development of this manual are to:

- Ensure compliance with applicable floodplain and stormwater management regulations, policies, and design criteria
- Minimize public expenditures for drainage projects
- Minimize the review time of drainage report and/or grading and drainage plan submittals
- Provide consistent policies and criteria that will result in uniform practices and drainage infrastructure within the City of Flagstaff
- Improve the water quality of stormwater runoff within the City of Flagstaff

The current Stormwater Management Design Manual was adopted in 2009 and contains standards that need to be updated, engineering design, and policy. This update was contracted by the Stormwater Section to Woodson/Ardurra and is largely based on current drainage plans by ADOT, Maricopa County, and Coconino County. Engineering peer-review was provided in the spring of 2024 with comment resolution in summer of 2024. A public comment period was initiated after the September 19, 2024 Water Commission presentation of this draft revision. Public comments are also addressed in this revision.

Financial Impact:

Project Name: COF Stormwater Management Drainage Design Manual revision

Cost: $88,500
Account Number Budgeted: 206-08-331-1251-0-4206
Funding Source: Stormwater Utility

Policy Impact:
This revision will bring the City on-par with most municipalities in the region. The current manual is 16 years old and is in need of update.

Previous Council Decision or Community Discussion:
High performance governance: Serve the public by providing high quality internal and external customer service (SP)1.2/ 3.2/ (RP)ED.1
Safe & Healthy Community: Foster a safe, secure, and healthy community (SP)3.4/ 4.1/(RP)PF.1/ PF.3
Sustainable, Innovative Infrastructure: Deliver outstanding services to residents through a healthy, well-maintained infrastructure system (SP)3.2/ (RP)PF.2/ E.1-2/ WR.1-6/ LU.7-8/ CD.1/
T.4-6/ REC.1
Environmental Stewardship: Implement sustainable building practices and alternative energy and transportation options (RP)E&C.6/ E.1-2/ WR.3/ PF.2/ REC.1/ LU.5/ LU.10/ LU.13-14/ LU.18/ T.3-7/E&C.2

Carbon Neutrality Plan
Community resilience, CR-1 and CR-2

Regional Plan
Goal E&C.3. Strengthen community and natural environment resiliency through climate adaptation efforts.
Goal WR.5. Manage watersheds and stormwater to address flooding concerns, water quality, environmental protections, and rainwater harvesting.
Goal ED.1. Create a healthy environment for business by ensuring transparent, expeditious, and predictable government processes.

Options and Alternatives to Recommended Action:
Recommended action:

Adopt Resolution 2025-10 and Ordinance 2025-04 with the revisions in the 2025 Stormwater Management Design Manual.
Alternative 1: Deny adoption of the resolution and ordinance with the revisions in 2025 Stormwater Management Design Manual and retain the 2009 manual.
Alternative 2: Provide further revisions to the updated 2025 Stormwater Management Design Manual, which will delay adoption and may add cost to the project.

Background and History:
The original Stormwater Management Design Manual was adopted in 2001 and revised in 2009. The manual is intended as a guide for stormwater best practices for new development. The draft revised version was created by Woodson/Ardurra over the last year based on current design manuals from Maricopa County, Coconino County, and ADOT.

Connection to PBB Priorities and Objectives:
Priority Based Budget Key Community Priorities and Objectives
Safe & Healthy Community: Ensure the built environment is safe through the use of consistent standards, rules & regulations, & land use practices

Connection to Regional Plan:
Regional Plan
Goal WR.5: Manage watersheds and stormwater to address flooding concerns, water quality, environmental protections, and rainwater harvesting.
Goal T.21: Improve transportation safety and efficiency for all modes.

Connection to Carbon Neutrality Plan:

This project has no nexus with the CNP.

Connection to 10-Year Housing Plan:
This project has no significant nexus with the 10-year housing plan.

Connection to Division Specific Plan:
This supports both the 2025 Water Services Division Plan and the 2028 Stormwater Section Plan.

Attachments: Res. 2025-10
Ord. 2025-04
Stormwater Management Design Manual
Current manual
Presentation

RESOLUTION NO. 2025-10

A RESOLUTION OF THE FLAGSTAFF CITY COUNCIL DESIGNATING THE "2025 STORMWATER MANAGEMENT DESIGN MANUAL" A PUBLIC RECORD

RECITALS:

WHEREAS, the City is an Arizona municipal corporation and has all necessary powers, express and implied, under state law as well as City Charter and City Code to design and operate infrastructure for the management of stormwater; and

WHEREAS, pursuant to A.R.S. § 9-240(5) a municipality may provide infrastructure for stormwater management; and

WHEREAS, the Flagstaff City Code Title 12 authorizes the City establish regulations with respect to the flood plain including the management of stormwater design and operations; and

WHEREAS, the City Council of the City of Flagstaff previously passed Ordinance 2001-05 adopting the a Stormwater Management Design Manual, which was later amended in 2009; and

WHEREAS, the City Council of the City of Flagstaff now desires to amend and update the Stormwater Management Design Manual by adopting the "2025 Stormwater Management Design Manual."

ENACTMENTS:

NOW, THEREFORE, BE IT RESOLVED BY THE COUNCIL OF THE CITY OF FLAGSTAFF AS FOLLOWS:

SECTION 1. In General.

That certain document known as the "2025 Stormwater Management Design Manual" attached hereto as Exhibit A is hereby declared to be a public record, and one (1) paper copy and one (1) electronic copy shall remain on file with the City Clerk in compliance with A.R.S. § 44-7041.

SECTION 2. Effective Date.

This resolution shall be immediately effective upon adoption.

PASSED AND ADOPTED by the City Council of the City of Flagstaff this 18th day of March, 2025.

_____

MAYOR

ATTEST:

_____
CITY CLERK

APPROVED AS TO FORM:

_____
CITY ATTORNEY

Exhibits:
A. 2025 Stormwater Management Design Manual

ORDINANCE NO. 2025-04

AN ORDINANCE OF THE CITY COUNCIL OF THE CITY OF FLAGSTAFF, AMENDING THE FLAGSTAFF CITY CODE, TITLE 12, FLOODPLAINS, BY ADOPTING BY REFERENCE THAT CERTAIN DOCUMENT ENTITLED "2025 STORMWATER MANAGEMENT DESIGN MANUAL"; PROVIDING FOR REPEAL OF CONFLICTING ORDINANCES, SEVERABILITY, AUTHORITY FOR CLERICAL CORRECTIONS, AND ESTABLISHING AN EFFECTIVE DATE

RECITALS:

WHEREAS, the City of Flagstaff wishes to amend provisions in Title 12, Floodplains, in the Flagstaff City Code, more specifically to the Stormwater Management Design Manual; and

WHEREAS, the City is an Arizona municipal corporation and has all necessary powers, express and implied, under state law as well as City Charter and City Code to design and operate infrastructure for the management of stormwater; and

WHEREAS, pursuant to A.R.S. § 9-240(5) a municipality may provide infrastructure for stormwater management; and

WHEREAS, the Flagstaff City Code Title 12 authorizes the City establish regulations with respect to the flood plain including the management of stormwater design and operations; and

WHEREAS, the City Council of the City of Flagstaff previously passed Ordinance 2001-05 adopting the a Stormwater Management Design Manual, which was later amended in 2009; and

WHEREAS, Woodson/Ardurra was retained by the City as a consultant to provide suggested updates and revisions to the Stormwater Management Design Manual; and

WHEREAS, that certain document declared as a public record by Resolution 2025-10 known as the "2025 Stormwater Management Design Manual" incorporates Woodson/Ardurra's suggested updates and revisions, as well as current drainage plans by ADOT, Maricopa County, and Coconino County; and

WHEREAS, an engineering peer-review was provided in the spring of 2024 with comment resolution in summer of 2024 on the 2025 Stormwater Management Design Manual; and

WHEREAS, a public comment period was initiated after the September 19, 2024 Water Commission presentation of the updates and revisions in the 2025 Stormwater Management Design Manual; and

WHEREAS, public comments are also addressed in the 2025 Stormwater Management Design Manual;

WHEREAS, the City Council of the City of Flagstaff now desires to amend and update the Stormwater Management Design Manual by adopting the "2025 Stormwater Management Design Manual."

ENACTMENTS:

NOW, THEREFORE, BE IT ORDAINED BY THE COUNCIL OF THE CITY OF FLAGSTAFF AS FOLLOWS:

SECTION 1. The foregoing recitals are incorporated as if fully set forth herein.

SECTION 2. That certain document known as *"2025 Stormwater Management Design Manual"*, one (1) paper copy and (1) electronic copy of which are on file in the office of the City Clerk of the City of Flagstaff, Arizona, and which document is declared a public record by Resolution No. 2025-10 of the City of Flagstaff, Arizona, is hereby referred to, adopted and made a part hereof as if fully set out in this ordinance and its provisions are hereby declared to amend the Flagstaff City Code, replacing and superseding the existing relevant provisions of the City Code, as set forth therein.

SECTION 3. The amendment is consistent with and conforms to the goals of the Regional Plan (General Plan).

SECTION 4. The amendment will not be detrimental to the public interest, health, safety, convenience, or welfare of the City, and will add to the public good as described in the General Plan.

SECTION 5. The amendment is internally consistent with other applicable provisions of this Zoning Code.

SECTION 6. Repeal of Conflicting Ordinances

All ordinances and parts of ordinances in conflict with the provisions of the code adopted herein are hereby repealed.

SECTION 7. Severability

If any section, subsection, sentence, clause, phrase or portion of this ordinance or any part of the code adopted herein by reference is for any reason held to be invalid or unconstitutional by the decision of any court of competent jurisdiction, such decision shall not affect the validity of the remaining portions thereof.

SECTION 8. Clerical Corrections

The City Clerk is hereby authorized to correct clerical and grammatical errors, if any, related to this ordinance, and to make formatting changes appropriate for purposes of clarity, form, or consistency with the Flagstaff City Code.

SECTION 9. Effective Date

This Ordinance shall be effective thirty (30) days following adoption by the City Council.

PASSED AND ADOPTED by the City Council of the City of Flagstaff this 18th day of March, 2025.

MAYOR

ATTEST:

CITY CLERK

APPROVED AS TO FORM:

CITY ATTORNEY






CITY OF FLAGSTAFF

2025 STORMWATER MANAGEMENT DESIGN MANUAL

211 W ASPEN AVE, FLAGSTAFF, ARIZONA 86001

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DEFINITIONS

The following terms are defined below for the purpose of this Manual.

ADMINISTRATIVE FLOODPLAIN – a 100-year inundation limit floodplain that is not recognized by FEMA but is regulated as such by the City of Flagstaff

ADVERSE IMPACT - no adverse impact means that the actions of any community or property owner should not adversely impact the property and rights of those downstream with respect to drainage modifications.

AGGRADATION – a progressive buildup or raising of a channel or stream bed due to sediment deposition.

ARTERIAL STREET – a Type I or Type II Street as defined in the City of Flagstaff Engineering Design and Construction Standards & Specifications.

ATTENUATION – a reduction in downstream peak flood discharges induced by storage provided within stormwater detention facilities, channels, and overbank areas.

BASE FLOOD – the flood event having a one (1) percent chance of being equaled or exceeded in any given year. Also referred to as the 100-year flood event.

CITY – a political subdivision known as the City of Flagstaff incorporated under the Arizona Revised Statutes.

CITY CHARTER – the governing document adopted by the qualified voters of the City of Flagstaff providing authority to City Council together with the Arizona Constitution and the Arizona Revised Statutes.

CITY CODE – the ordinances, laws and regulations established by City Council under the authority of the City Charter, Arizona Revised Statutes and the Arizona Constitution.

CITY COUNCIL – the governing body of the City of Flagstaff comprised of seven officials elected by the qualified voters of Flagstaff as authorized under the Arizona Constitution, Arizona Revised Statutes, and the City Charter.

CHANNEL – a natural or man-made conveyance for water in which the water surface is exposed to the atmosphere and the gravity force component in the direction of motion is the driving force.

COMBINATION INLET – a pavement drainage structure typically comprised of a curb-opening and a grate inlet.

COLLECTOR STREET – a Type III Street as defined in the City of Flagstaff Engineering Design and Construction Standards & Specifications.

CRITICAL DEPTH – is that depth of flow at which the specific energy of a given flow rate is at a minimum. It is also where the Froude number is equal to one.

CROWN – synonymous with "soffit". Not to be confused with a street crown.

CURB – a concrete barrier found at the edge of the street pavement, usually six inches in height.

CURB-OPENING INLET – a pavement drainage inlet consisting of an opening in the vertical curb of a roadway section.

CULVERT – a relatively short, closed conduit typically designed to convey stormwater through structures such as roadways; typically designed hydraulically to take advantage of submergence to increase hydraulic capacity.

DEGRADATION – a progressive lowering of a channel bed due to scour.

DESIGN CRITERIA – are the standards by which a policy is carried out or placed into effect.

DETENTION FACILITY – a permanent flood control system or stormwater management facility whose primary purpose is to temporarily store stormwater and release the stored stormwater runoff at controlled rates. Also used as a means of attenuating the effects of increased runoff caused by development by temporarily storing runoff and metering the discharge at pre-development rates, thereby lengthening the duration of flow (not a volume reduction).

DEVELOPMENT – any land change, including but not limited to subdivisions, buildings, other structures, mining, dredging, clearing, grubbing, stripping, grading, roads, paving, excavation, drilling, transporting and filling of land.

DROP INLET – a drainage inlet with a horizontal or nearly horizontal opening.

DROP STRUCTURE – a hydraulic structure used in an open channel or conduit for grade control or energy dissipation purposes.

EMBANKMENT – a man-made earth fill structure constructed for the purpose of roadway elevation, detention and/or impoundment of water.

ENERGY DISSIPATOR – any device designed to protect downstream areas from erosion by reducing the velocity of flow to acceptable limits.

ENERGY GRADE LINE (EGL) – a line which represents the static head plus the pressure head plus the velocity head at any point along a storm drain or channel.

ENGINEER – a registered professional engineer in the State of Arizona who demonstrates proficiency in the specific area of design.

EROSION – the process of removal and transport of soil particles or land surface by the action of wind, water, ice, gravity or any combination thereof.

EROSION AND SEDIMENT CONTROL – the control of solid material, both mineral and organic, during a land disturbing activity or development to prevent its transport out of the disturbed area or development.

EXTENDED DETENTION – A basin designed for retention and detention. The retention portion of the basin is below the basin outlet that holds water and allows infiltration or has an underdrain system that filters water.

FCDMC – an abbreviation for the Flood Control District of Maricopa County.

FEMA – an abbreviation for the Federal Emergency Management Agency.

FHWA – an abbreviation for the Federal Highway Administration.

FILTER FABRIC – a layer of synthetic material that is placed between fine-grained (natural) material and riprap to prevent the erosion.

FLARED WINGWALLS – the part of a culvert headwall which serves as a retaining wall for the roadway embankment or channel banks. The walls form an angle to the centerline of the culvert.

FLOODPLAIN – is those areas adjoining the channel of a watercourse including areas where drainage is or may be restricted by man-made structures which have been or may be covered partially or wholly by floodwater from the base flood.

FLOODWAY – is the channel of a river or other watercourse and the adjacent land areas that must be reserved to discharge the base flood without cumulatively increasing the water surface elevation more than a designated height.

FLOODWAY FRINGE – is that portion of the Special Flood Hazard Area (floodplain) located outside of the Regulatory Floodway.

FLUME – an open or closed channel used to convey water, typically down an embankment.

FREEBOARD – the additional vertical distance between the calculated maximum water surface level in a culvert, reservoir, tank, detention basin, channel, canal, or wash and the top of the confining structure.

FROUDE NUMBER – a dimensionless number that represents the ratio of inertial forces to gravitational forces. High Froude numbers are indicative of high velocity and high potential for scour.

GRADE CONTROL STRUCTURE – a hydraulic structure constructed across an open channel or stream from bank to bank to control bed slope and prevent channel degradation and head cutting.

GRADING AND DRAINAGE PLAN – the set of drawings and other documents that comprise all the information and specifications for the drainage system, structures, concepts and techniques that will be used to control stormwater runoff, erosion, and sediment transport.

GRATE INLET – a drainage structure consisting of an opening in the gutter, covered by one or more metal grates, set flush with the pavement or gutter or located at the roadside in a low point, swale or channel.

GUTTER – that portion of the roadway section adjacent to the curb which is utilized to convey stormwater runoff. It may include a portion or a complete traveled lane, shoulder or parking lane, and a limited width adjacent to the curb may be of different materials and have a different cross slope.

HEADCUTTING – is an abrupt vertical drop in an earthen channel bottom or embankment caused by erosive flows. This type of erosion typically moves upstream due to changes in discharge and sediment load characteristics.

HEADWALL – the structural appurtenance usually applied to the end of a culvert to control an adjacent roadway embankment and protect the culvert end.

HEADWATER – is that depth of water impounded upstream of a culvert due to the influence of the culvert constriction, friction, and configuration.

HYDRAULIC GRADE LINE (HGL) – a line which represents the static head plus the pressure head of flowing water and is equal to the total energy grade line minus the velocity head at any point along a storm drain. Typically referred to as the locus of elevations to which the water would rise in successive piezometer tubes if the tubes were installed along a pipe run.

HYDRAULIC JUMP – an abrupt rise in the water surface caused by abrupt transitions from a supercritical flow regime to a subcritical flow regime in the flow direction.

IMPERVIOUS – the condition of being impenetrable to water; incapable of infiltration. Surface examples include hardscape (parking lots, sidewalks, rooftops, pavement, cinders, gravel, aggregate base).

INVERT – the floor, inside, bottom, or the lowest portion of a conduit or channel.

LAND DISTURBING ACTIVITY – any use of the land that results in a change in the natural cover or topography that may cause erosion and contribute to sediment and alter the quality and/or quantity of storm water runoff emanating from that land.

LOCAL SCOUR – erosion which occurs as the result of high velocity flow at a culvert, storm drain outlet, pier, or abutment which extends only a limited distance downstream.

LOW CHORD – the elevation of the lowest portion of a bridge deck structure used to determine the open area below the bridge available for freeboard and flow conveyance.

MANNING'S "n" – a coefficient of roughness, typically used in a formula for estimating the capacity of an open channel or conduit to convey water.

MILD SLOPE – a slope where the critical depth is less than the normal depth; a slope that produces subcritical flow during uniform flow.

MULTI-PURPOSE Basin – a detention facility which provides other benefits in addition to flood control, such as recreation, parking, visual buffers, and stormwater water treatment.

NORMAL (UNIFORM) FLOW – open channel flow which occurs when the discharge, velocity, depth, slope, and channel cross-section are uniform throughout the reach. The water surface profile and channel bottom are parallel.

NPDES – acronym for the National Pollutant Discharge Elimination System program and permitting

process administered by the Environmental Protection Agency for the purpose of improving the quality of the nation's waters by mitigating non-point source pollution in urban stormwater runoff.

OBSTRUCTION – is any physical alteration in, along, across or projecting into any channel, watercourse, or floodway which may impede or divert floodwaters, or may itself be carried xvi downstream to cause damage to life or property. Examples include but are not limited to: any dam, wall, embankment, bridge, conduit, culvert, building, structure, levee, dike, abutment, projection, excavation, fill, stockpile, fence, wire, rock, gravel, refuse, vehicle, equipment, or vegetation.

POLICY – is a set of goals that establish a definite course or method of action and that are established to guide and determine present and future decisions. Policy is implemented through design criteria established as standards for making decisions.

PRESSURE FLOW – the flow of water within a closed conduit without a free surface open to atmospheric pressure, and the HGL is above the pipe soffit.

RESERVOIR ROUTING – flood routing of inflow and outflow hydrographs through a reservoir or detention basin.

RETENTION BASIN – is a stormwater storage facility which reduces runoff and is drained by subsurface infiltration or reuse instead of a positive outlet.

RIPRAP – rock or stones placed in a loose assemblage along the banks/bed of a channel or outlet of a conduit to inhibit erosion and scour.

RIVERINE – means relating to, formed by, or resembling a river (including tributaries), stream, wash, or brook.

RUNOFF CONTROL VOLUME– The initial volume of stormwater runoff that contains a disproportionately large load of pollutants during short storms or the early part of larger storms due to the accumulation of pollutants between storms

RURAL FLOODPLAIN–Natural undisturbed open spaces that are unsuitable for development purposes due to periodic flood inundation and the need to preserve the stream corridor for beneficial uses such as the preservation of important ecological resources. Rural floodplains are delineated in Section 10-90.40.030, Rural Floodplain Map, and defined as areas of delineated 100-year floodplain that cannot be disturbed or developed except for roadway and utility crossings. Rural floodplains cannot be altered through a floodplain map amendment or revision and must remain undisturbed (i.e., 100 percent protection).

SEDIMENT TRAP – an area within a stormwater detention facility or construction site which is designed to trap incoming sediments for the purpose of facilitating maintenance.

SEDIMENTATION – the process involving the deposition of soil particles which have been carried by flood waters or stormwater runoff.

SEEPAGE – the movement of water through pores and voids of pervious material such as soil, gravel, filter fabric, etc.

SETBACK – the minimum horizontal distance between a structure and a channel, stream, wash, riverine, natural watercourse, or detention basin as measured from the top edge of the highest bank.

SHALL – means a required element.

SHEET FLOW – shallow, diffuse runoff typically characterized by an approximately equal depth of runoff across a broad width of flow without concentrating in gullies and streams (often referred to as overland flow).

SHOULD – a recommended element; not a requirement.

SLOTTED DRAIN INLET – a pavement drainage inlet composed of a continuous slot built into the soffit of a pipe which serves to intercept, collect, and transport the flow.

SOFFIT – is the inside top of a culvert or storm drain conduit. Also referred to as the "crown".

SOIL STABILIZATION – the installation of vegetative, synthetic, or structural measures to protect soil from erosive forces of raindrop impact and flowing water.

SPREAD – the width of flow measured laterally from the roadway to the face of curb at the water surface level.

STEEP SLOPE – a slope where the critical depth is greater than the normal depth; a slope that produces supercritical flow during uniform flow.

STORM DRAIN – a combination of underground conduits (laterals, trunks, pipes) and surface inlet structures utilized for the purpose of removing stormwater runoff from the ground surface or street pavement and conveying it to a downstream discharge point.

STORM DURATION – the period or length of a storm event.

STORMWATER MANAGEMENT – the collection, conveyance, storage, treatment and disposal of stormwater runoff in a manner to minimize channel erosion, flood damage, and/or degradation of water quality and in a manner to enhance and ensure public health, safety, and general welfare, which shall include a system of vegetative or structural measures, or both, that control the increased volume and rate of runoff caused by manmade changes to the land.

STORMWATER SECTION DIRECTOR – is the duly designated head of the City of Flagstaff Stormwater Management Section, or his/her duly authorized representative or agent.

STORMWATER RUNOFF – is the direct response of a watershed or drainage area to precipitation from a storm event and/or snow melt and includes surface and subsurface runoff or drainage that enters a watercourse, street, storm drain or other concentrated flow during and following precipitation.

SUBCRITICAL FLOW – flow regime which occurs when the Froude number is less than one (1), flow

depths are greater than critical depth, small water surface disturbances travel both up and downstream, and the control of the flow depth is always located downstream.

SUMP – a low point typically found within a street profile where stormwater runoff collects.

SUPERCRITICAL FLOW – flow regime which occurs when the Froude number is greater than one (1), depths are less than critical depth, small water surface disturbances are always swept downstream, and the location of the flow control is always upstream.

TAILWATER – the water surface elevation or depth of flow in a channel, watercourse, or other receiving water body directly downstream of a culvert or storm drain outlet.

TIME OF CONCENTRATION (TC) – is the time required for stormwater runoff to flow from the hydraulically most remote point of a watershed or drainage area to the point of interest or watershed outlet. The most remote point is the point from which the time of runoff is the greatest. Thus, the TC is the maximum time for water to travel through the watershed, which is not always the maximum distance from the outlet to any point in the watershed.

URBAN FLOODPLAIN – All watercourses and associated floodplains not defined as rural floodplains are urban floodplains. Urban floodplains are typically located in urbanized areas and have typically been altered from their natural state by channelization. Urban floodplains may be altered to address conveyance and erosion concerns.

WASH – is a natural watercourse which is typically undisturbed by development.

WATERCOURSE – is a naturally occurring river, riverine, stream, creek, wash, lake or other body of water or channel consisting of banks and bed through which continuous or periodic flows occur. This may include any depression serving as a conveyor of stormwater.

WATERSHED – the catchment area for rainfall which is delineated as the drainage area producing stormwater runoff to a given point. It is assumed that the base flow in a stream also originates from the same area.

WEIR – is a depression or notch in the side or top of an outlet structure or a depression of specific shape in the embankment of a stormwater detention facility. Weirs are classified in accordance with the specific shape of the notch such as rectangular, V-notch, trapezoidal, parabolic, or proportional.

1.0 GENERAL CONDITIONS AND REQUIREMENTS

1.1 PURPOSE AND INTENT

This 2025 Stormwater Management Design Manual has been developed to assist in the design and evaluation of public and private stormwater management facilities within the boundaries of the City of Flagstaff. Stormwater management policies, design procedures, and design criteria are presented herein for conducting hydrologic and hydraulic studies, designs, and evaluations. Although the intent of this section is to establish uniform design practices, it neither replaces the need for engineering judgment nor precludes the use of information not presented. Other accepted engineering procedures may be used to conduct hydrologic and hydraulic studies if prior approval from the City Stormwater Section Director is obtained.

The overall goals for the development of this manual are to:

- Ensure compliance with applicable floodplain and stormwater management regulations, policies, and design criteria
- Minimize public expenditures for drainage projects
- Minimize the review time of drainage report and/or grading and drainage plan submittals
- Provide consistent policies and criteria that will result in uniform practices and drainage infrastructure within the City of Flagstaff
- Improve the water quality of stormwater runoff within the City of Flagstaff

Compliance with the requirements in this Manual does not relieve the owner, developer, engineer, or contractor from obtaining and following the permit requirements of other applicable agencies.

1.2 LEGAL AUTHORITY

The City of Flagstaff has adopted this Manual for the design and construction of all public and private stormwater management facilities as part of the Engineering Design and Construction Standards & Specifications under Title 13 Chapter 8 *Stormwater Management*. The City has also adopted a flood damage prevention ordinance under Title 12 *Floodplains* thereby adopting the role as the Floodplain Administrator for all regulatory floodways and floodplains within the City of Flagstaff.

The City of Flagstaff shall not knowingly issue any permit(s) – for construction or improvements on any property – which will allow a negatively impacting alteration of the flow rate, velocity, volume or location and manner (substantially the same) of waters entering or exiting adjoining properties. Projects that require a Floodplain Use Permit shall be designed and constructed in accordance with the City floodplain regulations and the National Flood Insurance Program (NFIP).

Property owners or their authorized representatives applying for City issued permits must obtain a written approval from the City Stormwater Section Director or his/her designee before issuance of permits. If the permit approval requires engineering analysis, then the engineer's report and construction plans must conform to the principles and practices set forth in this Manual and City Code Title 13 Engineering Design Standards and Specifications for New Infrastructure.

1.3 APPLICABILITY

The policies, design criteria, and procedures presented in this Manual are applicable to the design and analysis of drainage facilities of both public improvement and private development projects within the City of Flagstaff that either drain to city-owned infrastructure or the floodplain within city limits. It is the intent of this manual to allow flexibility in methods and standards used in specific instances. Refer to Section 1.5.

The hydrologic and hydraulic design criteria presented in this Manual are based on generally accepted engineering procedures and criteria, but the direct applicability of these criteria to an individual project must be verified by an Arizona Registered Professional Civil Engineer.

1.4 REFERENCES

The latest version of the Flood Control District of Maricopa County (FCDMC) Drainage Design Manual – Hydraulics has been adopted for hydraulic computations. Hydraulic information has been provided in the City Manual as well. The City SMDM governs and then reference should be made to the FCDMC Manual for items not found. At the time of this Manual, the current version of the FCDMC manual is the 2018 edition. Where certain exclusions, modification, or supplements to the sections of the adopted manuals are required, they are stated within the specific section of this Manual. If a subsequent update to the FCDMC hydraulics manual conflicts with this Manual, the Engineer shall seek clarification from the City Stormwater Section Director.

The City of Flagstaff uses the following mapping data requirements. The project horizontal coordinates and vertical datum shall be in accordance with City of Flagstaff City Code Division 13-03-001 Applied Standards for Surveying.

Horizontal Datum : NAD 83, Arizona State Plane Coordinates, Central Zone
Vertical Datum : NAVD88

1.5 DEVIATION FROM ADOPTED STANDARDS

The City Stormwater Section Director or his/her designee may approve deviations from the standards set forth in this Manual if proper justification is provided. It is the intent of this Manual to allow flexibility in the approach to meeting the intent and requirements herein. Smaller non-commercial projects that have negligible downstream impacts may be granted

a waiver from these standards. Approval of any deviations shall be solely at the discretion of the City. All known deviations must be approved by the City Stormwater Section Director before approval of the Engineering Plans for construction.

1.6 DISCLAIMER

The City of Flagstaff reviews and approves flood hazard delineation studies, drainage reports, and construction plans for projects within city limits to ensure conformance with this Manual, the City's flood damage prevention ordinance, the City's subdivision requirements, and the planning and zoning ordinance as appropriate under the separate authorities. Notwithstanding, the City assumes no liability for insufficient design or improper construction of improvements.

City review and approval does not absolve the owner, developer, design engineer, or contractor of liability for inadequate design or improper construction. The design engineer has the responsibility to design drainage facilities that meet the standards of practice for the industry and promote public safety. Compliance with the regulatory elements in addition to meeting the drainage policy and minimum design standards does not guarantee that properties will be free from flooding or flood damage.

The City and its designated officials or employees assume no liability for errors and omissions for the information, data, or conclusions prepared by the design engineer and other environmental professionals and make no warranty expressed or implied in their review and approval of drainage and floodplain projects or studies including stormwater quality submittals, or the use of technical data and procedures provided in this Manual.

2.0 DRAINAGE REPORTS

2.1 GENERAL INFORMATION

Drainage reports and/or engineered grading and drainage plans are required to:

- Analyze the impact that the proposed development or project will have on stormwater discharge flow.
- Provide adequate data to ensure that the development is designed to be protected from flooding and conforms to applicable floodplain and stormwater management regulations.
- Provide data for the design of public and private drainage facilities.
- Provide Low Impact Development (LID) plan and provide a method to retain or treat the Runoff Capture Volume (ROCV).
- A General Plan Amendment or Zoning Amendment project must also analyze impact that the proposed development or project will have on the stormwater discharge runoff volume.

Drainage reports shall be of sufficient detail to demonstrate that the development or project will not create drainage or flooding problems and that any on-site drainage facilities are properly sized to detain and/or convey the design storm flows.

The purpose of this Section is to present criteria for submittals of drainage reports, floodplain studies, grading and drainage plans, and public drainage improvement plans to the City of Flagstaff for review and approval.

2.2 APPLICABILITY REQUIREMENTS

Drainage reports will be required for the following land development activities:

- Residential, commercial, and industrial subdivisions.
- Any multi-family residential or commercial development, parking lot, or park.
- Application for rezoning in conjunction with a qualifying development project.
- Public improvements involving new streets, culverts, storm drains, open channels, and private/public detention facilities, or other drainage infrastructure.
- Application for Conditional Letter of Map Revision (CLOMR) or Letter of Map Revision (LOMR) to the Federal Emergency Management Agency (FEMA).
- Any other improvements which, in the opinion of the City Stormwater Section Director, require a report.

A drainage report may also be required for application for a building permit, floodplain use permit, or grading permit if site conditions warrant or if, in the opinion from the City Stormwater Section Director or his/her designee, drainage issues affect the development of the site.

Drainage reports submitted to the City for review and approval shall be prepared and sealed by an Arizona Registered Professional Civil Engineer who demonstrates proficiency in the specific area of design. Drainage reports shall conform to the requirements set forth in this Manual.

The City of Flagstaff recommends discussing all proposed drainage submittals with the City Stormwater Division staff before preparing a submittal.

2.2.1 Subdivision Applications

Subdivision drainage studies shall analyze all drainage basins within a tributary area at the point that they enter the subdivision or confluence within the subdivision. The size limitation for the various types of delineations may be adjusted depending on the conditions of the specific subdivision with the approval of the City Stormwater Section Director. If channelization of an existing drainageway is proposed, both a pre-development and post-development analysis will be necessary to illustrate the effects of the proposed improvements.

2.2.2 Stormwater Impact Analysis

A Stormwater Impact Analysis (Drainage Impact Analysis, DIA) shall be required for a general plan amendment, a request for a zoning change or for a development that discharges to an area with a known drainage deficiency as determined by the City Stormwater Section Director. When required, the following shall be provided in a report for review and approval:

1. Calculations for pre- and post-development runoff volumes.
2. Downstream impacts as the result of increased volumes shall be assessed as scoped by the City's Stormwater Management Section and may include:
    a. Hydrologic calculations to determine discharge rates (control required) and the volume of runoff at various downstream points pre- and post-development.
    b. Corresponding hydraulic calculations to determine any increase in water surface elevations.
    c. If deemed to be a concern by the City Stormwater Section Director, a geomorphic analysis may be required to determine channel stability and sediment transport concerns as the result of increased flow duration created by increased volumes and increased flow rates of runoff created by development.
    d. Other hydrologic and hydraulic calculations necessary to determine and resolve impacts.
3. Water surface increases may be allowed if they are less than one-tenth (1/10) of one (1) foot (0.1 feet) and there are no structures with known or calculated flooding

problems or other major concerns. Water surface increases for Lake Continental, aka Big Fill Lake, (impoundment located on the Rio de Flag upstream of Route 66/I-40) are prohibited.

A Drainage Report per Section 2.3, required for rezoning applications submitted in conjunction with a development project, needs to address the manner in which stormwater is to be managed in conjunction with development of the project. Off-site drainage and flood prone areas should be identified, and drainage improvements should be shown in general on the development plan. The information needs to be adequate to demonstrate that the site can be developed in compliance with City floodplain regulations and stormwater management requirements set forth in this Manual.

2.3 DRAINAGE REPORT REQUIREMENTS

The following table is a summary of the drainage reporting requirements for various submittals within the City of Flagstaff.

TABLE 2-1: REPORTING REQUIREMENTS FOR CITY OF FLAGSTAFF SUBMITTALS

CITY OF FLAGSTAFF SUBMITTAL	REQUIRED DRAINAGE REPORTING
Concept Plat	Drainage Statement
Preliminary Plat	Preliminary Drainage Report
Final Plat	Final Drainage Report
Concept Plan	Drainage Statement
Site Plan	Preliminary Drainage Report
Construction Plans	Final Drainage Report
Rezoning Application/General Plan Amendment	Stormwater (Drainage) Impact Analysis

2.3.1 Drainage Statement

A Drainage Statement may be adequate for smaller projects that do not significantly impact drainage characteristics resulting from the proposed development of a site. Drainage Statements shall at a minimum identify drainage patterns and conveyances. A Drainage Statement may include a hydrologic analysis to quantify the pre- and post-development flow rates leaving the site. For projects not impacted by significant offsite flows or as approved by the City Stormwater Section Director, a Drainage Statement demonstrating that no offsite flows affect the site may be submitted in a memorandum.

2.3.2 Preliminary Drainage Report

The Preliminary Drainage Report (PDR) will review, at a conceptual level, the feasibility and design characteristics of the proposed development or project. The intent of the PDR is to provide an overview of the drainage analysis and proposed drainage improvements for the

project. The City will not review overly technical details and calculations of the intended design, but rather ensure general conformance with City adopted standards. However, designers may need to perform calculations internally to ensure adequate space has been provided for stormwater facilities. The PDR shall be on 8.5" x 11" paper (except drainage maps) and shall be submitted electronically. The City may request hard copies of drainage reports and maps. The report shall be in accordance with the following outline and contain at a minimum the applicable information listed below.

2.3.2.1 Report Contents – Preliminary Drainage Report

General Location and Description

A. Location

- Owner/Developer Name.
- Assessor's Parcel Number(s).
- City, County, State Highway, and local streets within ¼ mile of the subdivision or the area to be served by the drainage improvements.
- Major drainageways and facilities.
- Names of any surrounding major developments.
- General project description.

B. Description of Property

- Area in acres.
- Ground cover (type of ground cover and vegetation)
- Major drainageways and floodplains
- Existing drainage or irrigation facilities (e.g., ditches and canals)
- Existing and proposed land use
- Description and location of existing or proposed on-site wastewater treatment and disposal system (if applicable)

Drainage Basins and Sub-Basins

A. Major Basin Description

- Reference to all drainageway planning studies such as flood hazard delineation reports, drainageway planning reports, and flood insurance rate map (FIRMs).
- Identification of all nearby drainage conveyances that will be influenced by the project.
- Soils Classification Map from USDA Web Soil Survey showing hydrologic soil groups.

B. Sub-Basin descriptions shall include all of the above and the following:

- Discussion of historic drainage patterns of the property in question.
- Discussion of off-site drainage patterns and impact on development under

existing and fully developed basin conditions.

- Discussion of proposed methods for managing stormwater quality during the construction phase.
- Identification of all proposed detention facilities.

Drainage Facility Design

A. General Concept

- Discussion of existing drainage patterns
- Discussion of off-site runoff considerations
- Discussion of anticipated and proposed drainage patterns and improvements
- Discussion of the content of tables, charts, figures, maps or drawings presented in the report

B. Discussion of hydrologic, hydraulic, and other analysis methodologies used in the report (calculations do not need to be provided)

- Selection of pre- and post-development curve numbers or runoff coefficients
- Approximation of time of concentration

C. Specific Details

- Discussion of drainage problems encountered and solutions at specific design points
- Discussion of detention storage and general outlet design
- Discussion of low impact development strategies

References

- Reference all criteria, master plans, and technical information used to support the report.

2.3.2.2 Drawing Contents – Preliminary Drainage Report

All report maps and exhibits shall be a maximum of 36” x 48" in size. Electronic versions at 11” x 17” (sheet size) or 24” x 36” (sheet size) are preferred.

General Location Map

A map shall be provided in sufficient detail to identify drainage patterns entering and leaving the development and general drainage patterns. The map should be at a suitable scale to show the path of all drainage from the upper end of any off-site basins to the defined major drainageways. The map shall identify any major facilities on or affecting the property (e.g., development, irrigation ditches, existing detention facilities, culverts, storm drains, etc.) along the flow path to the nearest drainageway. Basins and divides are to be identified and topographic contours are to be included.

Floodplain Information

The location of the parcel shall be plotted on the appropriate FEMA FIRM or Floodway Map, if available, and a copy provided in the report.

Drainage Plan

Map(s) of the proposed development at a suitable scale shall be included. The plan shall show the following:

1. Existing topographic contours at 2-foot maximum intervals. In steeper terrains, the contour interval should be adjusted to reduce cluttered drawings but still provide adequate contours to understand the topography. The contours shall extend a minimum of 100 feet beyond the property lines and should capture any offsite areas that drain to the site. Topographic contours should be obtained from field topographic survey, the latest City or private LiDAR, or aerial photogrammetric survey. USGS Topographic Quadrangle maps or USGS LiDAR are not acceptable unless no LiDAR or aerial survey is available. All surveys shall be on the NAVD88 vertical datum and NAD 83, Arizona State Plane Coordinates, Central Zone horizontal datum.
2. All existing onsite and offsite drainage facilities that significantly impact the site.
3. Approximate flooding limits for projects near a floodplain.
4. Conceptual major drainage facilities, including detention basins, storm drains, sewage facilities, swales, riprap, and outlet structures in the detail consistent with the proposed development plan.
5. Major drainage boundaries and sub-boundaries, both off-site and on-site. When defining basin and sub-basin boundaries, define them along basin divides that actually drain to the concentration point, not along property lines or other arbitrary lines.
6. Any off-site features influencing development.
7. Proposed flow directions at a minimum, or from proposed contours if available.
8. Legend to define map symbols.
9. City Project Number in lower right corner.
10. Tabular reference of basin, area, peak runoff rates, runoff volume (if regulated) for each storm frequency.
11. Conceptual Low Impact Development facilities for water quality and volumetric reductions. Calculations for LID Runoff Control Volume (ROCV).

2.3.3 Final Drainage Report

The purpose of the Final Drainage Report (FDR) is to identify and define detailed engineered solutions to the problems which may occur on-site and off-site as a result of

the proposed development. FDRs shall fully document all drainage analyses to support the drainage improvements. In addition, any drainage problems that exist on-site before development must be addressed. An FDR shall be included with all final construction plan and/or final plat submittals to the City. The FDR shall be on 8.5" x 11" paper (except drainage maps) and shall be submitted electronically. The City may request hard copies of the FDR including drainage maps. The report shall be prepared and sealed by an Arizona Registered Professional Civil Engineer.

The following statement is required on all grading and drainage plans:

> "Adequate drainage, erosion and sediment control measures, best management practices, and/or other stormwater management facilities shall be provided and maintained at all times during construction. Damages to adjacent property and/or the construction site caused by the contractor's or property owner's failure to provide and maintain adequate drainage and erosion/sediment control for the construction area shall be the responsibility of the contractor and/or property owner."

2.3.3.1 Final Drainage Report - Report Contents

The Final Drainage Report shall be in accordance with the following outline and contain the applicable information listed:

General Location and Description

A. Location

- Owner/ Developer Name
- Assessor's Parcel Number(s)
- Township, range, section
- Local streets within and adjacent to the subdivision with ROW width shown
- Major drainageways, facilities and easements
- Names of surrounding development, land uses, and identification of present zoning

B. Description of Property

- Area in acres
- Ground cover (type of trees, shrubs, vegetation, general soil conditions, topography, and slope)
- All drainageways and floodplains
- Project description
- Irrigation facilities
- Proposed land use

Water Quality and Low Impact Development

A. Low Impact Development

- Quantification of existing and proposed impervious area and the runoff control volume (1" runoff from impervious surfaces).
- Description of runoff control volume treatment for project
- If mechanical treatment is proposed to address water quality in place of volumetric retention, the design flow rate shall be included.
- Discussion of methods used to meet rainwater harvesting requirements (See Section 6.4)

Drainage Basins and Sub-Basins

A. Major Basin Description

- References to all drainageway planning studies, such as flood hazard delineation reports, drainageway planning reports, and flood insurance rate maps
- Major basin drainage characteristics, existing and planned land uses
- Identification of all irrigation facilities within the basin, which will influence or be influenced by the local drainage
- Soils Classification Map from USDA Web Soil Survey
- Identification of all detention facilities

B. Sub-Basin Description

- Discussion of historic drainage patterns of the property in question
- Discussion of off-site drainage flow patterns and the impact on development under existing and fully developed basin conditions, as defined by the Community Development Department

Drainage Design Criteria

A. Development Criteria and Constraints

- Discussion of previous drainage studies (i.e., project master plans or Phase 1 Drainage Reports) for the site in question that influence or are influenced by the drainage design and how the plan will affect drainage design for the site
- Discussion of existing drainage studies prepared for adjacent projects
- Discussion of the drainage impact of site constraints, such as streets, utilities, existing structures and developments

B. Hydrologic Criteria and Results

- Identify design rainfall depths and/or intensities
- Identify runoff calculation method
- Identify detention discharge/volumes and storage calculation method

- Identify design storm recurrence intervals
- Discussion and justification of other criteria or calculation methods used that are not presented in or referenced by this Manual
- Summary table of pre- and post-development watershed areas and peak discharges for the 2, 10, and 100-year return periods for the controlling storm duration
    - Attenuation of the 2-year storm will be waived by the City if the proposed site development fully retains the runoff control volume

C. Hydraulic Criteria

- Identify references/methodologies used in performing hydraulic analysis
- Discussion of other drainage facility design criteria used that are not presented within this Manual

D. Variances from this Manual

- Discussion of any deviations from the Manual including written City approval

Drainage Facility Design

A. General Concept

- Discussion of existing drainage patterns
- Discussion of off-site runoff considerations and compliance with applicable criteria
- Discussion of the content of tables, charts, figures, plates or drawings presented in the report
- Discussion of proposed drainage patterns and/or improvements
- Discussion of the stormwater runoff quality aspects of the drainage design including those activities necessary to control erosions and sedimentation during construction
- Discussion of ultimate outfall and how the project impacts existing downstream conveyance facilities

B. Drainage Design (as applicable)

Detention Systems:

- Design frequency, volume, and capacity
- Design ponding depths and water surface elevations
- Maximum ponding depths, overflow elevation, and provided freeboard
- Outlet facility calculations
- Side slopes

Storm Drain Systems:

- Storm drain profile(s) exhibits with 100 yr. HGL and 10 yr. HGL
- The design frequency, discharge, and pipe capacity
- Design Table with Pipe size, length, type, and slope(s), inlet/outlet invert elevations for all manholes and junction structures
- Inlet Design
- Outlet treatment
- Hydraulic calculations

Open Channels:

- The design frequency, design discharge, and channel capacity
- Velocities at the design discharge for all different grades
- Channel grade(s)
- Typical cross-sections(s)
- Transition details
- Hydraulic Grade Line (HGL) and available freeboard
- Channel lining(s)
- Drainage easement or right-of-way widths and setbacks
- Hydraulic calculations
- Scour and erosion protection measures

Culverts:

- Design frequency and design discharge
- Culvert slope and design velocities
- Inlet and outlet invert elevations
- Hydraulic calculations for inlet, barrel and outlet control conditions
- Design and allowable headwater and tailwater elevations
- Headwalls
- Inlet and outlet erosion and scour protection measures
- Plotted headwater elevation(s) with contours in plan view
- Culvert profile w/ controlling headwater elevation, pipe size and type, and slope

C. Specific Details

- Discussion of drainage problems encountered and solutions at specific design points
- Discussion of detention storage and outlet design
- Discussion of maintenance access and aspects of the design
- Discussion of easements and tracts for drainage purposes
- Runoff control volume calculations

D. Conclusions

- Compliance with Standards
- Discussion of compliance with City of Flagstaff drainage design criteria

E. Drainage Plan

- Discussion of influence of proposed development on existing drainage conditions
- Discussion of effectiveness of the drainage design to control damage from storm runoff

References

- Reference all criteria and technical information used.

Appendices

A. Exhibits and Maps

- General location map including parcel boundaries
- Existing off-site subbasin delineation including any major off-site drainage facilities
- Existing on-site subbasin delineation including any existing on-site drainage facilities
- Proposed on-site subbasin delineation including any proposed on-site drainage facilities
- Soil classification maps

B. Hydrologic Analysis

- Land-use assumptions regarding adjacent properties
- Initial and major storm runoff at specific design points
- Historic and fully developed (pre/post) runoff computations at specific design points
- Hydrographs at critical design points
- Time of concentration and runoff coefficients
- Unit hydrograph parameters
- Soil characteristics and maps
- Rainfall/runoff calculations and summaries
- Indirect verification
- Other as warranted

C. Hydraulic Analysis

- Culvert capacities
- Storm drain capacities

- Hydraulic grade line calculations
- Gutter capacities and roadway spread calculations
- Storm inlet capacity, including inlet control rating at connection to storm drain
- Spread calculations and requirements
- Open channel design
- Roadside ditch capacities
- Check dam and/or channel drop design
- Detention area/volume capacity and outlet design, details, and all supporting calculations. Depths of detention basins
- Downstream/outfall system capacity to the major drainageway system
- Scour and erosion protection design
- Other as warranted

D. Any other pertinent information to the project

2.3.3.2 Final Drainage Report - Drawing Contents

Provide an electronic version of the maps in pdf format. All maps shall be a maximum of 36" x 48" in size, 11" x 17" (half size) or 24" x 36" (full size) are preferred.

General Conditions Offsite Map

A map shall be provided in sufficient detail to identify drainage flows entering and leaving the development and general drainage patterns. The map should be at a suitable scale and should show the flow path of all drainages from the upper end of any off-site basin to the defined major drainageways. The map shall identify any major construction, developments, irrigation ditches, existing detention facilities, and storm drains along the entire path of drainage. Basins and drainage divides are to be identified and topographic contours are to be included. Topographic contours should be obtained from field topographic survey, the latest City LiDAR, private LiDAR or aerial photogrammetric survey. USGS Topographic Quadrangle maps , USGS LiDAR are not acceptable unless no LiDAR or aerial survey is available. All surveys shall be on the NAVD88 vertical datum.

Floodplain Information

The location of the parcel shall be plotted on the appropriate FEMA FIRM and Floodway Map, if available, and a copy provided in the report.

Drainage Plan

Map(s) of the proposed development at a suitable scale shall be included. The plan(s) shall show the following:

1. Existing and proposed contours at 2-foot maximum intervals. In steeper terrains, the contour interval should be adjusted to reduce cluttered drawings but still provide adequate contours to understand the topography. The contours shall

extend a minimum of 100 feet beyond the property lines and should capture any offsite areas that drain to the site. Topographic contours should be obtained from field topographic survey, the latest City LiDAR, private LiDAR, or aerial photogrammetric survey. USGS Topographic Quadrangle maps, USGS LiDAR are not acceptable unless no LiDAR or aerial survey is available. All surveys shall be on the NAVD88 vertical datum.

2. Property lines, tracts, and easements (note the type of easement).
3. Streets, indicating right-of-way width, extents of pavement, and curb and gutter.
4. Existing and proposed drainage facilities and structures, including irrigation ditches, roadside ditches, drainageways, gutter flow directions and culverts. All pertinent information, such as material, size, shape, slope, and location shall also be included.
5. Overall drainage area boundary and drainage sub-area boundaries, both off-site and on-site when defining basin and sub-basin boundaries, define them along basin divides that actually drain to the concentration point, not along property lines or other arbitrary lines.
6. Runoff control volume treatment details if applicable.
7. Proposed type of street flow (i.e., vertical curb or combination curb and gutter), roadside ditch, gutter slope and flow direction, and valley gutters.
8. Proposed storm drains and open drainageways, including inlets, outlets, manholes, culverts, other appurtenances, and channel protection.
9. Proposed outfall point(s) for runoff from the developed area and drainage facilities to convey flows to the final outfall point without damage to downstream properties.
10. Routing and accumulation of peak discharges at various critical points for the storm runoff events and frequencies required.
11. Volumes, release rates, and locations for detention storage facilities and information on outlet works. This shall include design drawings, consisting of plan views, cross-sections, and details of the basin, as well as the outlet/inlet works.
12. Identify all flood hazard areas (pre- and post-development, if applicable), detailed delineations (drainage basins greater than 160 acres), approximate delineations (drainage basins between 40 and 160 acres), and drainage paths (drainage basins between 10 and 40 acres).
13. Location and base flood elevations of all floodplains affecting the property (detailed delineations).

14. Delineation of ponding limits for sump catch basins and detention basins for the 100-year storm event.
15. Location and elevations of all existing and proposed utilities affected by or affecting the drainage design.
16. Identification of drainage patterns through the development.
17. Definition of flow path leaving the development through the downstream properties ending at a major drainageway (e.g., Rio de Flag, Clay Ave Wash, etc.).
18. Legend to define map symbols.
19. City Project number in lower right-hand corner.
20. Location of stormwater pollution prevention activities and identify methods of controlling erosion and sedimentation during grading and construction phase(s).

2.4 SUBMITTAL REQUIREMENTS

All drainage report and plan submittals presented to the City of Flagstaff for review shall be prepared and sealed by an Arizona Registered Professional Civil Engineer who demonstrates proficiency in the specific area of design.

The engineer shall be held solely responsible for the correctness and adequacy of all data, drawings, calculations, and reports submitted to the City for review and approval. In addition, the engineer shall comply with all local, state, and federal floodplain regulations in the design of a development.

The City of Flagstaff Stormwater Division will review drainage report and plan submittals for completeness and general compliance with all applicable local, state, and federal requirements. Approval by the City does not guarantee that the design is correct, appropriate, or that the development is in strict compliance with all applicable regulations and standards (see Section 1.6).

When design procedures, equations, and data not included in this Manual are used, the engineer must provide the City enough information on the methods and data to enable City staff to evaluate their applicability.

3.0 FLOODPLAIN REQUIREMENTS

3.1 FLOODPLAIN STUDIES AND MAP REVISIONS

Per City Ordinance 2001-06, a Floodplain Use Permit is required for most development activities within a flood hazard area. Detailed floodplain studies shall be documented through Technical Support Data Notebooks and shall be prepared in accordance with Arizona Department of Water Resources (ADWR) State Standard 1 *Instructions for Organizing and Submitting Technical Support Data Notebooks (TSDN) for Flood Studies*. TSDN's are required for the following applications to FEMA:

- Conditional Letter of Map Revision (CLOMR)
- Letter of Map Revision (LOMR)
- Physical Map Revision (PMR)

Floodplain studies may also be required by the City Stormwater Section Director for the following:

- Conditional Letter of Map Amendment (CLOMA)
- Conditional Letter of Map Revision Based on Fill (CLOMR-F)

When developments impact or encroach into a Special Flood Hazard Area (SFHA) which has been designated as Zone A (no water surface elevations or floodway data is available), the City of Flagstaff requires a detailed floodplain study to be submitted prior to issuing city permit(s).

All FEMA applications must be reviewed by the City Stormwater Section Director before submitting to FEMA. Flood studies may also be required by the City Stormwater Section Director for other development(s) that may adversely affect floodplain depths.

HEC-RAS, FLO 2D or other hydraulic models and versions as accepted by FEMA for National Flood Insurance Program usage shall be used to calculate and identify the flood hazard areas for drainage basin areas greater than 160 acres.

Floodplain Study Parameters:

- Drainage basin areas greater than 160 acres will include an HEC-RAS or other hydraulic numerical model analysis.
- Approximate Floodplain Study: Drainage basin areas between 40 and 160 acres will include at a minimum a uniform flow, normal depth analysis of flooding extents.
- Drainage Path Analysis: Drainage basin areas between 10 and 40 acres will identify and quantify flows for all drainage paths.

Floodplain studies submitted to the City for review and approval shall be prepared and sealed by an Arizona Registered Professional Civil Engineer with demonstrated proficiency in hydrologic and hydraulic modeling.

The City of Flagstaff will review all floodplain studies for technical compliance and completeness. City will provide Community Acknowledgement for relevant re-mapping actions. Review and approval by the Arizona Department of Water Resources (ADWR) may be required for certain, floodplain and floodway revisions or new hydrologic studies especially as associated with water rights or impoundments falling within the Dam jurisdiction criteria. All local and federal review fees associated with map revision requests are the responsibility of the applicant.

Specific guidelines for flood risk mapping can be found in the Code of Federal Regulations (CFR) and the FEMA Standards for Flood Risk Analysis and Mapping (FEMA Policy 204-078-1) December 2020 or latest revision and/or addendum.

Specific guidelines for Flood Insurance Studies can be found in FEMA 37 *Guidelines and Specifications for Study Contractors* (March 1993, or latest version) and *Addendum to Guidelines and Specifications for Study Contractors* (April 1993, or latest version).

Hydrologic modeling performed in FEMA studies shall be performed in accordance with Section 3 of this Manual and shall utilize a FEMA accepted hydrologic model. Hydraulic studies shall be in accordance with Section 4 of this Manual and shall utilize a FEMA accepted hydraulic model. Refer to FEMA's website or contact a FEMA representative for approved software and programs for hydrologic and hydraulic analysis.

Subdivision Requirements

Subdivisions shall meet all requirements of Title 11 of the City Code. All subdivisions proposals (including proposals for manufactured home parks) that are located in a FEMA designated Unnumbered Zone A areas must provide base flood elevation and floodway delineation data. Subdivisions that have the potential to be impacted by flood elevations as determined by the Floodplain Administrator must provide base flood elevation and floodway delineation data.

All subdivision proposals within riverine environments with a contributing watershed of 1/4 square mile or more must provide base flood elevation and floodway data in accordance with the criteria set forth on Arizona Department of Water Resources State Standards or other methods approved by the City Stormwater Section Director.

All Final Plats within FEMA or a City of Flagstaff designated 100-year floodplain must show the 100-year base flood elevations, floodplain/floodway limits, finish floor elevations a minimum of one (1) foot above the BFE, and appropriate erosion hazard setbacks.

Resource Protection Standards

The City of Flagstaff officially adopted floodplains as a natural resource as part of the Zoning Code (10-50.90) in order to preserve natural habitat and protect the environment. Per the Zoning Code, Title 12 floodplains have been divided into two categories: (1) urban floodplains and (2) rural floodplains. Urban floodplains are associated with urban areas and

have typically been altered from their natural state by channelization. Urban floodplains are permitted to be altered for development or to address conveyance and erosion concerns. Rural floodplains are natural open spaces that are flood prone and have not been disturbed from development. Rural floodplains are not permitted to be disturbed or developed except for at-grade roadway and utility crossings. A copy of the Rural Floodplain Map can be found online at the City's website.

3.2 GENERAL GUIDELINES

Refer to FEMA's website or contact a FEMA representative for process information for map revision requests and for approved software and programs analysis. Hydraulic models required for map revision requests to FEMA are typically as follows:

1. Duplicate Effective Model (natural and floodway models, when available)
    - Using the same computer program (e.g., HEC-2, HEC-RAS), run the model on your computer and check the result with the output to make sure the model was duplicated
    - Assures the baseline is correct and the revised model will tie back into the effective model upstream of the revised reach
2. Corrected Effective Model
    - Using a newer version of the same program
    - Benchmark (datum) corrections
    - More detailed cross sections that reflect conditions that existed when the original model was developed
    - Fix technical errors
    - An improved computer model or improved bridge routine
    - Add bridges, culverts, or other structures that existed but were not modeled
    - Becomes the new base model to measure impacts of development/construction
3. Existing Conditions Model
    - Update the corrected effective model to include existing conditions natural changes in the floodplain
    - Reflects fill in the floodway fringe since original model was developed, and other channel improvements
    - Other bridges and culverts
    - Used as baseline model to measure the effects solely attributed to the "project" as reflected by the post-project model

4. Post-Project Model
    - Reflects the project (built or proposed) and determines the impacts of the project

One-dimensional (1D) Modeling Guidelines

Refer to FEMA's website or contact a FEMA representative for process information for map revisions utilizing a 1D model analysis. Typical guidelines for floodplain and floodway analysis using a 1D model are as follows:

- Floodway analysis must include a Method 4 and/or 5 optimization and Method 1 floodway delineation runs.
- River stationing shall correspond to river miles above the confluence with the applicable downstream watercourse as identified in the effective Flood Insurance Study.
- When no discernable breaks in the geometry (e.g., change in bank slope) exist for determination of channel and overbank areas, channel and overbank limits should be determined based on similar "n" values.
- Cross-sections should be located at places that fully describe the geometry of the reach and shall be oriented to be perpendicular to the flow lines and/or contours.
- If the overall cross-section is skewed more than 18 degrees from the perpendicular of the flow line, either the cross-section needs to be resurveyed or reduced by an appropriate multiplier.
- Cross-sections are not permitted to cross one another.
- Obstructions or buildings within cross-sections should be physically modeled when possible or ineffective flow options utilized.
- Adjustment of the overbank "n" values may also be necessary.
- Reach lengths should be determined based on the horizontal distance between the centers of mass of the overbank cross-sectional areas.

Two-dimensional (2D) Modeling Guidelines

A majority of the hydraulic modeling used for delineating the special flood hazard areas depicted on Flood Insurance Rate Maps (FIRMs) are 1D hydraulic models. In recent years there has been an increasing number of 2D hydraulic models being prepared to support revisions to the NFIP's special flood hazard areas. Refer to FEMA's website or contact a FEMA representative for process information and guidance on floodplain and floodway map revisions utilizing a 2D model analysis.

3.3 CITY OF FLAGSTAFF ADMINISTRATIVE FLOODPLAINS

There are currently two City of Flagstaff Administrative Floodplains - Steves Wash and Spruce Wash. Each of these, not being FEMA floodplains, are regulated differently by the City. The guidelines and regulations for each of these Administrative Floodplains is provided below. Any future Administrative Floodplains will be provided with specific criteria at that time.

Spruce Wash

This floodplain is not and will not be regulated the same as a FEMA floodplain and does not require improvements meet all FEMA floodplain regulations. The purpose of this Administrative Floodplain is to provide guidance for City building permits, development review, floodplain use permits, and private landowners for their individual flood mitigations. Mandatory NFIP flood insurance is not required for properties within this Administrative Floodplain, although it is recommended.

The Administrative Floodplain for Spruce Wash is based off of a 2022 existing conditions hydrologic model that utilized the 3-inch rain event in 45 minutes which roughly mirrors a 100-year design storm. The modeled flood depth results can be provided upon request.

Steves Wash

This Administrative Floodplain is regulated by the City of Flagstaff per FEMA regulations.

A Floodplain Use Permit (FUP) will be required for ANY work within this Administrative Floodplain which will be routed internally at time of permits. Include notes on plans and/or within Special Provisions stating that work within the floodplain will follow floodplain use permit requirements. These requirements include:

- All best management practices (BMP's) for erosion control measures must be in place prior to commencing construction and maintained throughout the construction period.
- Storage or processing of materials outside of a building in the floodplain that are, in the time of flooding, buoyant, toxic, flammable, explosive, or could be injurious to human, animal, or plant life are prohibited, except for those materials required to be installed as part of any necessary erosion control. Unattended and/or overnight stockpiling (excavated material, fill, aggregate base course, gravel, etc.) in the floodplain is not allowed.
- A list of buoyant materials, excluding the aforementioned stockpiling materials, that are not toxic, flammable, explosive or injurious to human, plant or animal life may be allowed in the floodplain outside of the floodway if these areas of the floodplain are deemed ineffective flow areas by the Stormwater Section and the buoyant materials are secured by a fencing plan approved by the Stormwater Section.
- Unattended and/or overnight stockpiling is not allowed in the floodplain.

Stockpiling (not placed) excavated material, engineered fill, or aggregate base course can be allowed for the day's activities, but none can remain after the day's activities have adjourned. Some materials, excluding stockpiles, may be allowed to be stored unattended and/or overnight in the flood fringe (those areas in the floodplain but outside of the floodway) on a case-by-case basis with a securement plan approved by the City of Flagstaff Stormwater Section prior to construction. Motorized construction vehicles are allowed to park in the right-of-way overnight but must not be located in the channel.

4.0 HYDROLOGY

4.1 GENERAL INFORMATION

This Section outlines the hydrologic methods and procedures to be used within the City of Flagstaff. The information herein is intended to provide the design engineer with guidance to the methods and procedures, their data requirements, their applicability, and their limitations. These methods and procedures can be applied using commonly available computer programs. The City Stormwater Section Director has the discretion for modifications and/or the approval of additional analyses or analyses by other methods as deemed appropriate. Refer to Section 10.0 Two-Dimensional Flood Modeling for information regarding Integrated Hydrological and Hydraulic modeling - developing project hydrology with the models with the approval of the City Stormwater Section Director including the use of the Green and Ampt Loss Rate method for rainfall loses. The City of Flagstaff will provide the model input parameters to facilitate consistency within the City for the application of these methods.

4.2 QUICK REFERENCE GUIDE

The following is a quick reference guide for hydrologic analysis in the City of Flagstaff.

TABLE 4-1: HYDROLOGY REFERENCE GUIDE

TOPIC	NOTES
Rainfall depths and intensities	NOAA Atlas 14 (or latest publication) NOAA Atlas 14 data can be accessed through NOAA's Hydrometeorological Design Studies Center; the lat/long reference point shall be in center of the development site. The SCS Type II storm distribution (24-hour) shall be used for the temporal rainfall distribution unless justified by the engineer Refer to the FCDMC DDM Volume 1 Hydrology Manual for the 6-hour storm distribution.
Storm Duration	6-hour for watersheds less than 160 acres (0.25 sq mi) Use peak discharge and runoff volume from the 6-hour or the 24-hour, whichever is greater, for watersheds larger than 160 acres (0.25 sq mi).

Rational Method	Acceptable for drainage areas less than or equal to 20 acres that have uniform cover type and grade (only for applications that do not involve routing)
Time of Concentration	Tc ≥ 5 minutes; however, 10-minute minimum Tc's are suitable for analyses
Rainfall-Runoff Modeling	Unit Hydrograph method or two-dimensional model to be used for sites involving detention or channel routing.
Rainfall Losses	Curve Number; Runoff Coefficients
Unit Hydrographs	SCS Unit Hydrograph; Clark Unit Hydrograph
Channel Routing	Muskingum-Cunge, Kinematic Wave, and Modified Puls Routing are acceptable methods
Storage Routing	Level Pool Storage Routing
Transmission Losses	Transmission Losses are not permitted in the City of Flagstaff without prior approval from the City Stormwater Section Director
Regional Regression	The USGS StreamStats tool to be used for watershed delineation for use with local regression equation (Section 4.8). For verification and calibration only and should not be utilized for design purposes.

4.3 ESTIMATION OF AREA (A)

An adequate topographic map of the subject site and surrounding area is required to properly assess drainage tributary boundaries. It is highly recommended that engineers utilize City of Flagstaff LiDAR data to work with the latest city-wide topographic data. The National Map (TNM) by the U.S. Geological Survey (USGS) can be utilized to download recent digital elevation models (DEM) produced from aerial LiDAR surveys. Field visits should always be performed to verify any potential changes in ground conditions not presently captured in the latest topographic map (e.g., recent construction that changed ground conditions).

4.4 RATIONAL METHOD

The City of Flagstaff has adopted runoff coefficients that vary by surface type, soil classification, and land slope. The following tables document the historical runoff coefficients that are accepted by the City of Flagstaff.

TABLE 4-2: RUNOFF COEFFICIENTS FOR DEVELOPED AREAS

SURFACE DESCRIPTION	RUNOFF COEFFICIENT
Streets	0.95
Asphaltic Concrete	0.95
Concrete	0.95
Brick Pavers	0.90
Compacted ABC roadways/ shoulders	0.70
Driveways and sidewalks	0.95
Gravel (loose, non-compacted)	0.50
Roofs	0.95

TABLE 4-3: RUNOFF COEFFICIENTS FOR VEGETATED AREAS

SURFACE DESCRIPTION	SLOPE		
	FLAT (<2%)	AVERAGE (2-7%)	STEEP (>7%)
Lawns			
Sandy Soils	0.10	0.20	0.30
Gravelly Soils	0.15	0.25	0.35
Clay Soils	0.20	0.30	0.40
Dense Vegetation			
Sandy Soils	0.07	0.14	0.20
Gravelly Soils	0.11	0.20	0.27
Clay Soils	0.15	0.25	0.35
Woods			
Sandy Soils	0.05	0.10	0.15
Gravelly Soils	0.07	0.12	0.17
Clay Soils	0.10	0.15	0.20

The coefficients in the tables above are based on the assumption that the design storm does not occur when the surface is frozen. Additionally, these coefficients are for recurrence intervals less than 25-year storm events. Runoff coefficients shall be adjusted for the 25, 50, and 100-year storm events using the antecedent precipitation factors in the following table.

TABLE 4-4: ANTECEDENT PRECIPITATION FACTORS

STORM FREQUENCY	FACTOR
25-Year	1.10
50-Year	1.20
100-Year	1.25

The City of Flagstaff has adopted the following equation for the rational method:

$$\boldsymbol{Q = C_f CiA}$$

Where:

Q = Peak flow rate of runoff (cubic feet per second)

C_f = Antecedent precipitation factor (see Table 4-4)

C = Runoff coefficient (unitless)

i = Rainfall intensity (in/hr), to be selected based on Time of Concentration

A = Watershed area (acres) that drains to the design location

Note: The product of C_f times C in the equation above should not exceed 1.0. Additionally, C_f values should be applied to individual land cover runoff coefficients prior to obtaining a composite runoff coefficient.

In all cases where a custom runoff coefficient (C) is used, justification for this value must be presented and documented as well as a comparison made to the available runoff coefficients (C) in this Section. All custom runoff coefficients (C) must be approved by the City Stormwater Section Director.

Rational Method Assumptions

The following assumptions are inherent when using the Rational Method:

1. The peak flow occurs when the entire watershed is contributing to the flow.
2. The rainfall intensity is the same over the entire watershed.
3. The rainfall intensity is uniform over a duration that is equal to time of concentration.
4. The frequency of the computed flow is the same as that of the rainfall intensity (i.e., 25-year rainfall intensity is assumed to produce the 25-year peak flow).
5. All the land uses within a drainage area are uniformly distributed throughout the area.

Rational Method Limitations

The following limitations shall apply to the Rational Method in the City of Flagstaff:

1. The total drainage area must be less than or equal to 20 acres.
2. The time of concentration cannot be less than 5 minutes or greater than 60 minutes.
3. The land use of the contributing watershed must be fairly consistent over the entire drainage area and uniformly distributed throughout the area. That is, the contributing area should not consist of a large percentage of two or more land uses (e.g. 50% commercial and 50% undeveloped forest).
4. The contributing watershed cannot have drainage structures or facilities which would require flood routing to estimate the discharge at the point of interest.
5. If it is important to locate a specific, distinct land use within the drainage area then another hydrologic method should be used where hydrographs can be generated and routed through the drainage system.
6. The Rational Method shall not be used for applications involving reservoir or channel routing, regardless of drainage area. Routing calculations shall be performed using a unit hydrograph method (e.g., SCS Unit Hydrograph or Clark Unit Hydrograph) or using a two-dimensional flood routing software with capabilities to model infiltration and rainfall runoff. See Section 10 on 2D modeling (e.g., FLO-2D or HEC-RAS 2D).

4.5 CURVE NUMBER METHOD

The SCS Curve Number Method may be used in the City of Flagstaff. Analysis shall be performed using the methodology described in the U.S. Department of Agriculture (USDA) National Engineering Handbook (NEH) Part 630 Hydrology. Curve numbers shall be selected based on land cover conditions as seen in the field and on current aerial imagery. Curve numbers for undeveloped forests and undisturbed areas shall be selected per Arizona Department of Water Resources (ADWR) Oak Creek Flood Warning System Hydrology Report (September 1990). Table 4-5 below provides the relevant curve numbers from the Oak Creek study.

TABLE 4-5: RELEVANT CURVE NUMBERS FROM OAK CREEK STUDY

COVER TYPE	CONDITION	HYDROLOGIC SOIL GROUP	CURVE NUMBER
Bare Rock	N/A	N/A	94
Riverwash	N/A	N/A	53
Cinders/Lava	Poor (0 - 30%)	N/A	53
Spruce – Fir	Good (70 - 100%)	B	41
Mixed Conifer	Good (70 - 100%)	B	41
Mixed Conifer	Good (70 - 100%)	C	51
Mixed Conifer	Fair (30 - 70%)	A	48
Mixed Conifer	Fair (30 - 70%)	B	53
Mixed Conifer	Fair (30 - 70%)	C	65
Mixed Conifer	Fair (30 - 70%)	D	75
Mixed Conifer	Poor (0 - 30%)	A	60
Mixed Conifer	Poor (0 - 30%)	B	71
Mixed Conifer	Poor (0 - 30%)	C	80
Mixed Conifer	Poor (0 - 30%)	D	87
Ponderosa Pine	Good (70 - 100%)	B	41
Ponderosa Pine	Good (70 - 100%)	C	51
Ponderosa Pine	Fair (30 - 70%)	A	48
Ponderosa Pine	Fair (30 - 70%)	B	53
Ponderosa Pine	Fair (30 - 70%)	C	65
Ponderosa Pine	Fair (30 - 70%)	D	75
Ponderosa Pine	Poor (0 - 30%)	B	71
Ponderosa Pine	Poor (0 - 30%)	C	80
Grassland	Good (70 - 100%)	B	48
Grassland	Good (70 - 100%)	C	60
Grassland	Good (70 - 100%)	D	70
Grassland	Fair (30 - 70%)	B	61
Grassland	Fair (30 - 70%)	C	72
Grassland	Fair (30 - 70%)	D	80
Grassland	Poor (0 - 30%)	B	74
Grassland	Poor (0 - 30%)	C	82
Grassland	Poor (0 - 30%)	D	89
Meadow	Good (70 - 100%)	B	70

Curve numbers for other land covers shall be selected from NEH Part 630 Chapter 9 Hydrologic Soil-Cover Complexes. Hydrologic Soil Groups (HSG) shall be determined using the USDA Web Soil Survey (WSS). If a HSG is not available for all or a portion of a subbasin, HSG C or D shall be used with justification.

The variability in curve number results from a multitude of variables including rainfall intensity, rainfall duration, total rainfall, soil moisture conditions, cover density, stage of growth, and temperature. These causes of variability are collectively called the Antecedent Runoff Condition (ARC). ARC is divided into three separate classes: ARC I for dry conditions, ARC II for normal conditions, and ARC III for wet conditions. Normal design applications warrant the use of ARC II. In some rare cases, the use of ARC III may be warranted; such cases shall be left to the discretion of the City Stormwater Section Director. No designs shall use ARC I in the City of Flagstaff.

The unit hydrograph shall be used for hydrologic analysis as described in NEH Part 630 Chapter 16 Hydrographs. The standard peak rate factor (PRF) shall be used unless authorized by the City Stormwater Section Director. Alternatively, hydrologic analysis may also be performed using a two-dimensional flood routing software (e.g., FLO-2D or HEC-RAS 2D) with curve number as the preferred method of losses. See Section 10 on 2D modeling (e.g., FLO-2D or HEC-RAS 2D). There may be instances where a custom curve-number is appropriate to accurately model a watershed. Any use of custom curve numbers will require approval from the City Stormwater Section Director.

4.6 TIME OF CONCENTRATION (TC)

The time of concentration (Tc) is the time necessary for the runoff to travel from the hydraulically most remote point of the drainage basin to the point of interest; the Tc is not necessarily determined by the longest travel path. At no point shall any basin or subbasin be analyzed using a Tc less than 5 minutes. However, for most applications, a minimum Tc of 10 minutes is generally considered adequate.

Tc calculations shall be performed in accordance with the selected hydrology method. For the Rational Method, Tc shall be calculated using Equation 2.2 in the ADOT Hydrology Manual (2014 edition). For the Curve Number Method, the Tc shall be calculated using the velocity method outlined in U.S. Department of Agriculture (USDA) National Engineering Handbook Part 630 Hydrology Chapter 15 Time of Concentration. When calculating travel time due to sheet flow, the sheet flow length shall not exceed 100 feet. Engineering judgement shall be utilized to determine reasonable lengths, shorter lengths are acceptable.

4.7 TRANSMISSION LOSSES

In general, transmission losses are not allowed in the City of Flagstaff. In the case that

transmission losses may significantly impact the project site, advanced approval of the City Stormwater Section Director must be obtained before the use of transmission losses. All uses of transmission losses may require soil testing and model calibration. A full justification and documentation for the use of transmission losses must be made.

When infiltration methodologies are used in a two-dimensional analysis, such as a Flo2D model, advanced approval of the City Stormwater Section Director must be obtained. This is due to certain infiltration analysis, such as Green and Ampt, resulting in transmission losses.

4.8 REGRESSION EQUATIONS

Regional regression equations are useful for verification and calibration but should not be utilized for design purposes in the City of Flagstaff. In 2022, the City obtained updated regression analyses for 46 local stream gages through a grant from the Cooperating Technical Partners (CTP) program through FEMA. The intent of the study was to obtain updated flood frequency models that are more representative of watersheds in Flagstaff than previous models produced by Paretti et al (*Methods for estimating magnitude and frequency of floods in Arizona, developed with unregulated and rural peak-flow data through water year 2010)*. The updated regression analysis utilized historical stream gage data originally used by Paretti et al but also included additional gage data up to 2021.

The USGS StreamStats website (https://streamstats.usgs.gov/ss) is a useful tool and should be utilized for delineating watershed boundaries and overall square mileage. However, peak flow estimates should be calculated using the regression equation below with the local parameters defined in Table 4-6.

$$Q = a(DRNAREA)^b$$

Where:

Q = peak flow (cfs)
DRNAREA = Watershed area (sq mi)

TABLE 4-6: REGRESSION PARAMETERS

ANNUAL EXCEEDANCE PROBABILITY (AEP)	a	b
50% (2-Year)	17.0	0.624
20% (5-Year)	55.0	0.564
10% (10-Year)	100	0.530
4% (25-Year)	191	0.497
2% (50-Year)	282	0.476
1% (100-Year)	407	0.458
0.5% (200-Year)	562	0.442
0.2% (500-Year)	832	0.423

The development of the regression equation above was performed using USGS data which is primarily taken from rural sites. For urban watersheds (e.g., the Rio de Flag), the use of the regression equation should not be used to estimate peak flows for annual exceedance probabilities greater than 10% (less than a 10-year storm).

4.9 DEPTH AREA REDUCTION FACTOR (DARF)

Rainfall values that are obtained from NOAA Atlas 14 are taken at a specific point. However, the rainfall depths are not really averaged rainfall over the watershed in question. To obtain a uniform flow depth over an entire watershed requires a two-step process.

First, an average point rainfall depth for the entire watershed must be estimated. This can be done by examination of the isopluvial map and visual estimation of the average value. Alternatively, the precipitation frequency estimates from NOAA Atlas 14 may be downloaded in a GIS format, where spatial analytics can be used to compute an average rainfall depth for the watershed.

Second, a reduction factor is used to convert the point rainfall to an equivalent uniform depth of rainfall over the entire watershed. The reduction factor varies depending on the storm duration and watershed size. For larger watersheds, the reduction factor results in lower uniform rainfall depths to reflect greater non-homogeneity. Two depth-area relations appropriate for use in Arizona are presented in NOAA Technical Memorandum NWS HYDRO-40. Depth-Area Reduction Factors (DARF) should be referenced from Arizona Department of Water Resources (ADWR) State Standard 10-07 *State Standard for Hydrologic Modeling Guidelines*. DARF values for watersheds in the City of Flagstaff should be selected based on the Eastern Zone.

Engineering judgement must be applied when considering the use of a depth area reduction factor. In many cases, no reduction may be the best solution, especially for small watersheds or areas with complex distributary flow.

4.10 INDIRECT METHODS FOR DISCHARGE VERIFICATION

Discharge verification should be performed for all hydrologic analyses. For analyses performed in the City of Flagstaff, the discharge verification process outlined in the Yavapai County Drainage Design Manual – Hydrology, Section 7.11 *Indirect Methods for Discharge Verification* should be followed with the exception of utilizing the regression equation provided in Section 4.8 of this Manual.

This process utilizes three indirect procedures for verification, and in general, all three procedures should be followed. They include the following:

- A graph of numerous peak discharges versus drainage area curves (Figure 7.12 from Yavapai County Drainage Design Manual)
- A graph of estimated 100-year discharges and maximum recorded discharges versus drainage area for gaged watersheds in Arizona (Figure 7.13 from Yavapai

County Drainage Design Manual)

- Regression equation developed for the City of Flagstaff in Section 4.8 of this Manual

These indirect procedures should be followed and documented as part of the drainage report. For projects that receive offsite flows from FEMA-mapped watercourses, offsite flow rates should be referenced from the Flood Insurance Study. If the point of interest of the watercourse lies between two cross sections, a weighted average should be taken to estimate the flow rate.

4.11 HIGH ELEVATION WATERSHEDS

Large watercourses such as the Rio de Flag or other flood control projects that have significant drainage basin areas that are high enough in elevation to receive significant snowpack may be required by the City to provide drainage analysis that considers rain on snow or rain on frozen ground. When such cases are warranted, the design engineer shall document and justify the procedures utilized in the Drainage Report. Engineering analysis used to model snowmelt shall require approval from the City Stormwater Section Director.

5.0 HYDRAULICS

5.1 GENERAL INFORMATION

The City of Flagstaff has adopted the Maricopa County Flood Control District's *Drainage Design Manual for Maricopa County – Hydraulics* (FCDMC Hydraulics Manual) for the use of all hydraulic analyses in the City of Flagstaff. The City Stormwater Section Director has the discretion for modifications and/or the approval of additional analyses as deemed appropriate.

The FCDMC Hydraulics Manual is adopted in whole with the exceptions defined in the following sections. At the time of the publishing of this Manual the current FCDMC Hydraulics Manual was the Fourth Edition dated December 14, 2018.

5.2 QUICK REFERENCE GUIDE

The following is a quick reference guide for hydraulic analysis in the City of Flagstaff.

TABLE 5-1: HYDRAULIC REFERENCE GUIDE

TOPIC	NOTES
Uniform Flow	Manning's Equation (Normal Depth)
Gradually Varied Flow	HEC-RAS 5.0 or later is the preferred methodology
Two-Dimensional Analysis	FLO-2D or HEC-RAS-2D 5.0 or later A meeting with the City Stormwater Section Director or his/her designee is required prior to using any two-dimensional analysis to discuss and agree upon standard approaches and techniques
Floodplain Encroachment	See Section 3.2
Culvert Analysis	FHWA Inlet Control Nomographs (inlet controls) HEC-RAS 6.0 or later (preferred) Other Software (HY8, CulvertMaster, other approved)
Bridge Analysis	HEC-RAS 5.0 or later is the preferred methodology
Scour Analysis	FCDMC Hydraulics Manual Chapter 11.8, ADWR Method
Storm Drain Design	FCDMC Hydraulics Manual Chapter 4
Inlet Analysis	FCDMC Hydraulics Manual Chapter 3

5.3 MODIFICATIONS AND DEVIATIONS

5.3.1 Review and Approval

Review and approval will be required by the City of Flagstaff in all instances where the FCDMC Hydraulics Manual requires review and approval.

5.3.2 Requirements for Drainage Reports

The requirements and methodologies for the documentation of hydrologic and hydraulic analyses in the City of Flagstaff are described in Section 2 – Drainage Reports.

5.3.3 Street Drainage

5.3.3.1 City Street Drainage Policies

1. Street drainage and roadways shall be designed to maintain the natural drainage patterns existing before development, whenever possible.
2. For local curbed street sections, runoff from the 10-year design storm must be contained between the curbs of the street and the 100-year flow within the right-of-way.
3. For collector and arterial curbed street sections, at least one twelve (12) foot travel lane in each direction must remain free from flooding for the 10-year design storm and the 100-year flow must be contained within the right-of-way.
4. If either of the above two criteria are exceeded, storm drain facilities will be required. In all instances, the 10-year design storm must be contained within the combined street gutter and storm drain system.
5. The street section shall be designed to convey local runoff only and shall not be used as major stormwater carriers for contributing watersheds.
6. Drainage facilities shall be installed to convey runoff under streets or street grades shall be set so diversion of runoff or ponding will not occur on adjacent properties.
7. Typical section street cross slopes shall not be decreased or increased, and curb heights shall not be increased to create more carrying capacity for runoff. Curb overtopping is not permitted for the 10-year design storm.
8. Public streets with inverted crowns are prohibited.
9. Existing alleys shall not be used to convey runoff unless the entire alley is designed and constructed to convey runoff to the nearest downstream street.
10. Drainage facilities shall be placed to intercept runoff from sources outside the street section to avoid concentrated flows onto and over sidewalks or curb and gutter.

11. Street drainage shall be confined to the public right-of-way. Runoff which leaves the right-of-way shall do so in a controlled manner and shall be conveyed in an appropriate tract or drainage easement.

12. Drainage improvements shall be included for projects that add curb and gutter to existing roads to maintain allowable spread limits based on the road classification.

5.3.3.2 Street Drainage Hydrology Method

The Rational Method is the preferred hydrology method to analyze street drainage (i.e., roadway spread and inlet spacing) due to the ease of calculating peak runoff rates for small drainage areas. When the Rational method is used, runoff coefficients shall be selected based on the values presented in this Manual. Alternatively, street drainage may be modeled using rainfall-runoff methods (i.e., unit hydrographs). Rainfall-runoff methods are best suited for larger subbasins that may also include areas outside of the right-of-way that drain to street inlets. Mixed methodologies are not acceptable.

5.3.3.3 Longitudinal and Transverse Slope

The minimum longitudinal slope for all public streets shall be no less than 0.5 percent for both curbed and uncurbed street sections. Minimum grades can be maintained in flat terrain by use of a rolling or “sawtooth” profile, or by warping the cross slope to achieve rolling gutter profiles.

When local streets intersect arterial or collector streets, the grade of the arterial/collector street shall be continued uninterrupted, whenever possible. When collector and arterial streets intersect, the grade of the arterial street shall be maintained as much as possible.

Pavement cross-slope for new streets shall be a typical 2.0 percent on street sections with a central crown. Sheet flow across a street shall be kept to an absolute minimum. Median areas shall not be drained across travel lanes, except with raised, narrow medians. Shoulders must be sloped to drain away from the pavement per the City's Engineering Standard Details.

For drainage purposes, valley gutters are not permitted to cross arterial or collector street. Valley gutters may be used on local streets at intersections, when a storm drain is not required, and when approved by the Stormwater Section Director. In cases where a valley gutter is not permitted or is inadequate, the water must be removed from the street to storm drains or other approved method(s).

To provide adequate drainage in sump vertical curves, a slope of 0.4 percent should be maintained within fifty (50) feet of each side of the low point of the curve, with a minimum slope of 0.3 percent. To accomplish this, the length of the curve divided by the algebraic difference in grades should be equal to or less than 167.

Pipe under-drains may be required where the possibility of ground water or surface water seepage to the subbase soil exists.

5.3.3.4 Curb and Gutter Terminations

Adequate erosion protection and conveyance measures are required where the curb and gutter section terminates to prevent undermining of the pavement/taper edge, prevent head cutting of roadway fill slopes, and prevent the gutter flow from entering private property. The gutter flow from the street section must be conveyed into a receiving channel, roadside swale, or other approved means. Concrete spillways or riprap protection shall be provided when velocities may cause head cutting at the curb termination or erode the receiving channel/swale.

5.3.3.5 Catch Basin Selection

Catch basin inlets for use within right-of-way, an easement, or public property shall be per MAG Standard Details. Slotted drain inlets are only permitted for special circumstances, as approved by the City Stormwater Section Director, where standard drainage inlets will not suffice. Slotted drain inlets on a longitudinal grade function best when designed and constructed in conjunction with a curb opening inlet and when debris is not a factor. Slotted inlets for public storm drains are not permitted in sump locations due to high clogging potential and sediment deposition problems in the pipe section.

Transverse slotted drains function best for shallow low velocity sheet flow (e.g., in parking lots) but are not recommended for more concentrated flow due to the small opening width and low splash over velocity threshold.

Slotted drain inlets, when used, shall be set in concrete for vehicular loading and to maintain constant grade. They should be accessible at both ends of the pipe for maintenance/cleaning. This may be accomplished by extending the pipe ends beyond the area requiring the opening length.

Grate inlets may be utilized where clogging due to debris will not be a problem. Grate inlets generally lose capacity with increases in the longitudinal street grade, but to a lesser degree than do curb-opening inlets. Increasing the length of grate inlets does little to increase capacity, however, increasing the grate width greatly increases the capacity. Where street grades exceed three (3) percent, grate or combination inlets should be used instead of simple curb-opening inlets.

Where debris is anticipated to be a potential problem, consideration shall be given to debris handling efficiency ratings of the grate. Efficiency ratings and formulas for computing efficiencies for grates can be found in Federal Highway Administration (FHWA) HEC-22 *Urban Drainage Design Manual* or inlet charts prepared by grate manufacturers.

Grate inlets subject to vehicular traffic must have adequate load bearing capacity. All grated inlets must be bicycle safe. Where possible, curb opening inlets should be used if the street has a bike lane.

Curb opening inlets are most effective on flatter slopes, in sump locations, with flows

carrying significant amounts of debris, and where the flow depth at the curb is sufficient for the inlet to perform efficiently. The interception capacity of curb-opening inlets decreases as the longitudinal gutter grade increases.

Curb-opening inlets are recommended in curbed sump locations and on grades less than three (3.0) percent. In addition, curb-opening inlets less than five (5.0) feet in length should not be used on continuous grades due to inefficient interception. Curb-opening inlets on grade should also not be placed on the inside of a horizontal curve due to inefficient interception.

The curb opening shall not exceed a nominal six (6) inches in height, unless approval from the Stormwater Section Director is obtained and the opening is equipped with cross bars for safety reasons.

5.3.3.6 Manning's Roughness Values

A Manning's roughness (n) value of 0.016 shall be used for roadway spread calculations for all paved streets.

5.3.3.7 Inlet Clogging

For hydraulic calculations, the inlet reduction factors outlined in Table 5-2 shall be used for hydraulic calculations to reduce the dimensions of a selected inlet from the MAG Standard Details to accommodate clogging from debris, pine needles, snow/ice, etc.

TABLE 5-2: INLET CLOGGING FACTORS

INLET TYPE	DESIGN CONDITION	CLOGGING FACTOR (%)
Grate	Sump	50
Grate	Continuous Grade	50
Curb Opening	Sump	20
Curb Opening	Continuous Grade	20
Combination, sweeper	Sump	35
Combination, sweeper	Continuous Grade	50 – grate 20 – curb opening
Combination, equal length	Sump	50
Combination, equal length	Continuous Grade	50
Slotted Drain	Continuous Grade	20

5.3.3.8 Inlet Locations

One-hundred percent interception of the 10-year design storm is required for all inlets in sumps or other locations as required by the Stormwater Section Director to prevent hazardous ponding conditions.

Flanking inlets may be required by the City Stormwater Section Director on new arterial street sump vertical curve locations to prevent hazardous ponding in the event the primary sump inlet is completely clogged.

Inlets shall be located such that concentrated flow or heavy sheet flow will not cross traffic lanes, whenever possible. Where pavement surfaces are warped (e.g., at cross streets or ramps) runoff shall be intercepted just before the change in cross slope, whenever possible. Inlets should be placed on arterial and collector streets upstream of locations where the pavement cross slope begins to superelevate to avoid concentrated flows crossing the roadway and reduce traffic hazards associated with icing.

Street runoff is not permitted to cross arterial streets at intersections, therefore inlets are required upgrade of pedestrian crossings and intersections, whenever possible. Consideration should also be given to avoid locating inlets within existing or proposed driveways locations, whenever possible. When an on-grade inlet is located near a driveway, the inlet shall be located upstream of the driveway, whenever possible.

Inlets shall be selected, sized, and located to prevent silt and debris, carried in suspension, from being deposited on the traveled way where the longitudinal gradient is decreased.

5.3.3.9 Roadside Ditches

Roadside ditches or channels shall be designed at a minimum for the 25-year design storm. Additionally, the 100-year storm should be checked to verify that the flow is completely contained within the right-of-way. The 25-year discharge shall be contained within the roadside channels with the allowable water depth elevation below the roadway subgrade to avoid unnecessary saturation of the subgrade and/or aggregate base course shoulder. The minimum depth of a roadside channel shall be 1.5’ and shall be designed per the typical sections in the City's Engineering Design Standards.

The underlying soil conditions, depth of flows, flow velocities, and maintenance shall be considered in the roadside channel design. Long reaches of riprap lined roadside channels should be avoided, if possible, due to long-term maintenance problems.

5.3.4 Storm Drains

5.3.4.1 City Storm Drain Policies

1. All offsite runoff from any source(s) must be considered in the design of a storm drain system if such runoff could affect the street that the storm drain is serving.
2. Refer to Section 5.3.4.3 for additional storm drain requirements.
3. Storm drain systems serving collector and arterial streets must keep one 12-foot lane of traffic open in each direction for the 10-year design storm and the 100-year storm within the right-of-way. Storm drain systems for local streets must keep the 10-year design flow between the curbs.
4. The minimum design frequency for all public storm drain facilities shall be the 10-year design storm. The 100-year design storm must also be analyzed to ensure that the 100-year storm is maintained within the right-of-way.
5. For storm drain design, the 10-year hydraulic grade line (HGL) shall be designed to be at least 12 inches below finish grade. A waiver may be approved for pressurized storm drains if pressure manhole covers are included, and there are no catch basins that will allow surcharging onto the street section.
6. The minimum easement width for public storm drains 36 inches in diameter or less shall be 20 feet. For multiple pipe installations or pipe diameter greater than 36 inches, the easement width shall be the conduit width(s) plus 8 feet on each side of the conduit measured from its edge.
7. The minimum acceptable diameter for any public storm drain is 18 inches. Mainline storm drains shall be at least 24 inches in diameter.
8. New storm drains and manholes shall not run longitudinally under existing or future curb and gutter or sidewalk, whenever possible. Storm drains shall be located under the pavement and shall maintain four (4) feet of clearance from the outside of pipe to the lip of gutter.
9. When connecting into an existing storm drain system, the existing storm drain systems shall be analyzed to determine available capacity.
10. Software for computing hydraulic and energy grade lines including but not limited to StormCAD, SWMM, and SewerGEMS may be used.
11. Minimum cover over pipes must be provided to maintain the structural integrity of the pipe under anticipated loading conditions. Pipe manufacturers provide minimum cover. The minimum allowable cover for culverts 18 to 36 inches in diameter shall be 1 foot from top of pipe to top of subgrade or top of finish grade if no subgrade is present. For culverts greater than 36 inches in diameter, minimum cover should be 30% of the culvert diameter, if possible. The top of any culvert should never extend above

the roadway subgrade into the roadway street section.

Maintenance Considerations

It is essential that maintenance be considered during both the design and construction of storm drain systems. Common maintenance problems associated with storm drains include debris, sedimentation, scour, piping, roadway/embankment settlement, and structural damage to the conduit. The likelihood of scour and abrasion inside the conduit should also be considered during design. Access for inspection and maintenance of storm drains as well as drainage inlets must also be considered.

Clearing accumulated debris and sediment from storm drain and inlets is a routine maintenance requirement for any facility owner, however this problem is often overlooked during construction and adequate sediment/erosion control precautions should be undertaken.

Piping, roadway/embankment settlement, and structural damage problems, when they occur, are usually attributed to poor construction practices, and can be avoided through proper design, installation specifications, and inspections.

5.3.4.2 Manholes and Junction Structures

Location and Spacing

Manhole location and spacing criteria has been developed primarily for storm drain maintenance requirements. At a minimum, manholes are required for the following locations:

1. At junctions where two or more storm drains converge (not including laterals from adjacent catch basins)
2. At vertical deflections
3. Changes in pipe size
4. At horizontal alignment changes as outlined below:

PIPE DIAMETER (INCHES)	DEFLECTION
18–42	>22 ½ degrees
42 and up	> 45 degrees

5. Manholes may also be required by the City Stormwater Section Director at other locations to facilitate maintenance

Manholes at vertical deflections shall be at or as close as practical to the point of deflection, with allowance for manufactured bends. If the manhole is not at the point of deflection, it shall be located immediately upstream of the deflection.

In addition to the above criteria, manholes will be required at intermediate points along long runs of storm drain in accordance with the criteria outlined in Table 5-3.

TABLE 5-3: MANHOLE SPACING CRITERIA

PIPE DIAMETER (IN)	MAXIMUM DISTANCE (FT)
18-24	300
27-36	400
42 and up	500

If possible, manholes shall not be located in traffic lanes. However, if it is not possible to avoid locating a manhole in a traffic lane, every effort shall be made to avoid locating it within a street intersection and/or the vehicle wheel path.

Manhole Configurations

Storm drain manholes shall be constructed in accordance with current adopted MAG Standard Details. For storm drains 36 inches in diameter and larger, a vertical riser or prefabricated "tee" to the storm drain may be used with prior approval from the City Stormwater Section Director and special design considerations.

A pressure manhole shaft and pressure frame and cover are required whenever the design hydraulic grade line elevation at the manhole is within 12 inches of the adjacent ground elevation. Such conditions will require approval from the City Stormwater Section Director.

To differentiate storm drain manholes from sewer or communication conduits, the manhole cover shall have the words "STORM DRAIN" cast into the top surface of the cover in accordance with MAG Standard Detail 424 lettering requirements.

Manhole depths shall be determined by the storm drain profile and surface topography. Common depths range from 5-13 feet. Manholes which are shallower or deeper may require special design considerations. Deep manholes (greater than 12 feet) shall be 60-inches in diameter and must be designed to withstand soil pressures. If a manhole will extend below the water table, it must also be designed to withstand hydrostatic pressure and/or seepage. Manhole shafts shall be 60 inches in diameter for storm drains 36 inches in diameter or greater.

Manhole Shaping

A minimum drop of 0.10 foot is required through all storm drain manholes. A drop of 0.3 feet is preferred for a manhole with two contributing laterals, if possible. Where a storm drain changes direction through a manhole without increasing in size, a drop of 0.4 feet is preferred, if possible.

5.3.4.3 Storm Drain Design

Design Velocity and Slope

The minimum allowable storm drain slope for any storm drain shall be 0.5% or the slope

which will produce a velocity of 3 feet per second for the pipe flowing full, whichever is greater. The maximum allowable velocity shall be 20 feet per second, or as provided by the manufacturer, whichever is less. Slopes less than 0.5 % require special approval by the City Stormwater Section Director.

Desirable minimum velocity is 5 feet per second; however, all storm drains shall be designed such that the minimum self-cleaning velocity will be 3 feet per second flowing full. The minimum slopes necessary to ensure a velocity of 3 ft/sec in storm drains can be calculated by the equation below:

$$s = \frac{(nV)^2}{2.208R^{4/3}}$$

where:

s = the slope of the hydraulic grade line, ft/ft
n = Manning's roughness coefficient
V = the mean velocity (3 ft/sec)
R = the hydraulic radius, ft.

The following relative flow conditions for different depths in a circular pipe should also be noted:

1. Peak flow occurs at 93 percent of the height of the pipe. This means that if a pipe is designed for full flow, the design will be slightly conservative.
2. The velocity in a pipe flowing half-full is the same as the velocity for full flow.
3. Flow velocities for surcharged storm drains with hydraulic grade line elevations above the top of pipe (pressure flow) are greater than velocities at full flow.
4. As the depth of flow drops below half-full, the flow velocity drops off rapidly.

Hydraulic Grade Line

Storm drains shall be designed to limit the hydraulic grade lane (HGL) to be at least 12 inches below finish grade.

Alignment

Storm drains shall be straight, with uniform slopes between manholes. Curved storm drains may be permitted when long radius curves are necessary to conform to street layout, however, storm drains smaller than 4 feet in diameter should not be designed with curves.

Long radius bends are available from many suppliers and are preferred as a means of changing direction in storm drains 4 foot in diameter or larger, unless a manhole is required. The radius of curvature specified should coincide with standard curves available in the type of material utilized. The minimum radius shall not be less than 100 feet.

Storm Drain Conduit Size

The minimum pipe diameter for public storm drains shall be 18 inches in diameter for

laterals and 24 inches in diameter for mainlines. The use of elliptical or arched pipe for storm drains is not recommended and must be approved by the City Stormwater Section Director before use. Storm drain sizes shall increase in the downstream direction. Decreasing the pipe size in the downstream direction is not permitted even for flow on a steeper slope or for pressure profiles.

Separation Requirements

Installation and backfill requirements for public storm drains shall be in accordance with City of Flagstaff Engineering Design Standards.

Vertical and horizontal separation requirements for storm drain conduit to waterlines shall be the same as for sewer pipes per the City of Flagstaff Engineering Design Standards.

The minimum clearance between storm drains and all other dry underground utilities shall be the same as sewer pipes per the City of Flagstaff Engineering Design Standards. Utility crossings shall be at angles greater than 45 degrees, whenever possible.

Crossings of open channels may require extra depth, concrete encasement, channel stabilization, or other protective measures where scour is anticipated.

Lateral Connections

It is preferred for catch basin laterals to connect to the main storm drain at manholes, if possible, due to maintenance concerns. However, if a catch basin lateral is not able to connect at a manhole, the lateral shall be connected either using MAG Standard Detail 524 or using a pre-fabricated tee. If two catch basin laterals are proposed to tie into the storm drain at the same location, a manhole shall be used.

Storm Drain Outfalls

All storm drain systems will have an outfall where the flow is discharged into either a natural watercourse, artificial channel, another storm drain system, or other drainage facility. Several aspects of storm drain outlet design must be given consideration, including but not limited to the invert of the storm drain outlet, tailwater elevation(s), type of receiving watercourse, orientation of the outlet, and local scour.

If the outfall is a wash or stream, it may be necessary to consider the coincidental probability of two hydrologic events occurring at the same time. There may be instances where excessive tailwater causes flow to back up in the storm drain system and possibly cause surcharging out inlets and manholes. The invert of the storm drain outlet shall be a minimum of 1 foot above the channel invert at the same point, whenever possible.

The tailwater depth at the storm drain outlet must be considered carefully for purposes of evaluating the hydraulic grade line.

Storm drains that discharge into open channels shall be provided with an appropriate headwall/wingwall. Projecting outlets are not permitted. The orientation of a storm drain

outlet into a wash or channel should be positioned so the discharge is pointed in the downstream direction. This will reduce turbulence and the potential for local scour. If the outlet is perpendicular to the direction of flow in the receiving channel, erosion of the opposite channel bank must be considered. If an erosion potential exists, a channel bank lining of riprap or other appropriate material will be required. An energy dissipater may be required if outlet velocities warrant.

5.3.4.4 Storm Drain Conduit Material Selection

Factors such as life expectancy, durability, physical strength, depth of cover, joint tightness, hydraulic performance, ease of handling, installation costs, and maintenance should all be considered in the selection of storm drain materials to maximize performance and cost effectiveness.

Permissible pipe materials for public storm drain systems are:

1. Corrugated Metal Pipe (CMP) – 14 Ga., Annular, Aluminized Steel Type 2 per MAG Section 760.
2. Corrugated Metal Pipe (CMP) – 14 Ga., Helical Corrugated, Aluminized Steel Type 2 per MAG Section 760.
3. Reinforced Concrete Pipe (RCP) per MAG Section 735.
4. Spiral Rib Metal Pipe (SRP) per MAG Section 760.
5. High Density Polyethylene Pipe (HDPE) per MAG Section 738.
6. Reinforced Concrete Box (RCB) per FCDMC DDM Subsection 5.3.2.

All storm drain conduits shall be of sufficient structural strength to withstand AASHTO HS-20-44 loading at a minimum. Minimum depth requirements shall be per the manufacturers recommendations to meet this loading. Special designs may be required depending on loading requirements and depths of backfill.

Material selection shall consider the soil chemistry. Geotechnical investigation is required to determine soil chemistry parameters. Alternate materials, coatings or polywrap shall be required when corrosive soils are identified. A site shall be considered corrosive if one or more of the following existing in the site soil samples: “Chloride concentration is 500 ppm or greater, sulfate concentration is 1500 ppm or greater, or the pH is 5.5 or less”. (Caltrans Corrosion Guidelines 2021)

Corrugated Metal Pipe (CMP)

CMP shall be per MAG Standard Specification 760. All metal pipes shall be a minimum of 14-gauge, Aluminized Steel Type 2 pipe. Thicker gauge pipe may be warranted with increases in fill height per manufacturers recommendations.

Standard CMP joints shall be either rivet lap joint construction (annular corrugations),

continuous lock, or welded seam (helical corrugations) and wrapped with non-woven geotextile filter fabric or "O" ring gaskets.

Reinforced Concrete Pipe (RCP)

Non-reinforced concrete pipe is not permitted for public storm drain systems. All RCP shall be a minimum of Class III under public roadways and shall be manufactured in accordance with the following standards:

- MAG Section 735 – Reinforced Concrete Pipe
- ASTM C76 – Reinforced Concrete Culvert, Storm Drain and Sewer Pipe
- ASTM C443 – Reinforced Low-Head Concrete Pressure Pipe
- ASTM C443 – Joints for Circular Concrete Sewer and Culvert Pipe, Using Rubber Gaskets
- ASTM C665 – Reinforced Concrete D-Load Culvert, Storm Drain and Sewer Pipe

Material standards for concrete aggregate, steel reinforcing, Portland cement, and gaskets are also referenced in the above specifications. RCP should be designed for each individual project. Indirect design is typically used and is presented in the Concrete Pipe Handbook (SAMM or 3EB) prepared by the American Concrete Pipe Association.

The maximum allowable velocity for standard RCP shall be 20 ft/sec. Velocities greater than 20 ft/sec may require increases in the compressive strength of the concrete, increases in specific hardness of the concrete aggregate, increased the cover over the reinforcing steel, or providing plastic lining.

Joints for RCP shall be bell and spigot ends with O-ring rubber gaskets conforming to ASTM C443 to provide a watertight joint.

Spiral Rib Steel Pipe (SRP)

The minimum pipe thickness shall be 14 gauge for pipe diameters of 18-60 inches and 12 gauge for pipe diameters of 60-72 inches. SRP with diameters greater than 72 inches will require structural design to determine adequate gauge thickness.

Materials for SRP shall meet the following standards:

- AASHTO M274 – Steel Sheet, Aluminum Coated (Type 2) for Corrugated Steel Pipe
- ASTM A819 – Steel Sheet, Aluminum Coated (Type 2) for Storm Sewer and Drainage Pipe

Pipe shall be manufactured in accordance with the following standards:

- AASHTO M36 - Corrugated Steel Pipe, Metallic-Coated, for Sewers and Drains
- ASTM A760 – Corrugated Steel Pipe, Metallic-Coated, for Sewers and Drains
- MAG Section 760 – Coating Corrugated Metal Pipe and Arches

SRP shall be designed in accordance with the following standards:

- AASHTO Standard Specification for Highway Bridges, Section 12 - Soil-Corrugated Metal Structure Interaction Systems
- ASTM A796 – Structural Design of Corrugated Steel Pipe, Pipe Arches, and Arches for Storm and Sanitary Sewers and Other Buried Structures

Joints for SRP shall be coupling bands conforming to AASHTO M36 with O-ring gaskets to produce a watertight joint. Coupling bands shall be a minimum of 10½ inches wide and shall be made from aluminized steel of the same thickness as the pipe. Hardware for coupling bands shall conform to AASHTO M36 and rubber gaskets shall meet the requirements of AASHTO M198.

High Density Polyethylene Pipe (HDPE)

HDPE is only allowed for pipe diameters from 18 to 36 inches unless approval is obtained from the City Stormwater Section Director. HDPE shall not be used for storm drains or culverts in fire-prone areas. HDPE pipe shall meet the following standards:

- MAG Sections 601 and 738
- ASTM F-894 – Standard Specification for Polyethylene (PE) Large Diameter Profile Wall Sewer and Drainpipe

HDPE pipe shall be designed so that deflections are limited to 5 percent. Deflections should be determined using the Modified Iowa Deflection Formula.

Joints for HDPE shall be bell and spigot type joints and elastomeric gaskets to provide a watertight joint. Split couplings shall not be used. Joints shall meet AASHTO M294 standards. Mandrill testing may be required at the discretion of the City Stormwater Section Director.

Reinforced Concrete Box (RCB)

Refer to FCDMC DDM Subsection 5.3.2 for design and construction of RCB.

5.3.4.5 Controlling Water Surface Elevation

For most applications, the controlling water surface elevation or tailwater will either be above the crown of the outlet or between the crown and critical depth at the outlet. The tailwater may also occur between critical depth and the invert of the outlet and be a free outfall. The controlling tailwater for purposes of computing the hydraulic grade line shall be determined by one of the following criteria:

1. If the receiving body of water is a detention basin or lake, the tailwater shall either be the normal high-water elevation in the lake or the high-water elevation in the detention basin for the same design storm as that of the storm drain.
2. If the outfall is a wash, stream, or other open channel, the controlling tailwater shall be the water surface elevation in the channel for the same design storm as

that of the storm drain or (dc + D)/2, whichever is greater (where: dc = critical depth and D = pipe diameter).

3. If the outfall is another storm drain, the controlling elevation shall be the highest hydraulic grade line elevation of the receiving storm drain immediately upstream or downstream of the junction for the same design storm.
4. For low tailwater conditions (TW depth ≤ D/3), the controlling tailwater shall be $(d_c + D)/2$ plus the invert of the outlet.

5.3.5 Culverts and Bridges

Culverts and bridges are structures that convey stormwater under roads. Their purpose is to prevent water from pre-defined frequency storms from overtopping a road and creating unsafe traffic conditions. Culverts may also serve as the primary outlet for detention facilities. Culverts are typically aligned with natural washes, watercourses, or open channels which serve as the primary outfall for local and regional drainageways. The design of culverts is influenced by purpose, hydraulic efficiency, site topography, effects on adjacent property, and cost. Culverts should be designed utilizing the procedures outlined in FHWA Hydraulic Design Series No. 5 (HDS-5) *Hydraulic Design of Highway Culverts* (April 2012, or latest edition).

5.3.5.1 Culvert and Bridge Policies

1. All culverts shall be hydraulically designed to determine whether inlet and outlet control conditions govern for the design storm discharges.
2. Culverts shall be used where:
    a. Bridges are not hydraulically required
    b. Debris and ice are tolerable
    c. Culverts are feasible and more economical than a bridge structure
3. Bridges shall be used where:
    a. Culverts are not feasible
    b. Bridges are more economical than culverts
    c. Land requirements cannot be satisfied by culverts
    d. Culverts would cause environmental harm
    e. Culverts would cause encroachments in the floodway
    f. Ice and large debris are expected

    Any use of bridge structures shall require special design and review considerations as approved by the City Stormwater Section Director.
4. Culverts shall be located and designed to prevent minimum hazard to traffic, persons, and property. Projecting ends shall not be permitted for culverts intended to become public improvements.

5. All public culverts shall include outlet headwalls.
6. All public culverts 36 inches in diameter and above shall include inlet headwalls.
7. Culvert headwall heights shall be limited to the dimensions shown within MAG or ADOT standard details and shall not exceed 8 inches above the embankment.
8. Roadway culverts shall be designed to accommodate debris or proper provisions shall be made for debris maintenance. Where practicable, some means shall be provided for personnel and equipment access to facilitate maintenance.
9. Material selection shall include consideration of service life, hydraulic efficiency, and maintenance and shall not be made using first cost as the sole criteria. Permissible materials are listed in Section 5.3.4.4.
10. Low water or at-grade, dip crossings of FEMA designated/mapped washes or other riverine are not permitted for public or private roadways which serve as the primary or emergency access to a development, except when approved by the City Stormwater Section Director per Section 5.3.6.
11. Culvert or bridge crossings of FEMA designated/mapped washes shall be analyzed with HEC-RAS version 6.0 or later. It must be demonstrated and certified by the design engineer that there will be no significant increases on the base flood elevations(s) and/or limits upstream or downstream of the crossing.
12. Erosion control measures may be required in all construction plans, as determined by the Stormwater Section Director. These measures shall include, but not be limited to silt boxes, straw silt barriers, filter cloth, temporary silt fences, and check dams to minimize pollution of streams and damage to wetland areas.

Maintenance Considerations

It is essential that maintenance be considered during both the design and construction of culverts. Common maintenance problems associated with culverts include debris, sedimentation, scour, piping, roadway or embankment settlement, and structural damage to the conduit. The likelihood of scour and abrasion inside the conduit should also be considered during design. Access for inspection and maintenance of culverts must also be considered.

Clearing accumulated debris and sediment from culverts is a routine maintenance requirement for any facility owner, however this problem is often overlooked during construction and adequate sediment/erosion control precautions should be undertaken.

Piping, roadway or embankment settlement, and structural damage problems, when they occur, are usually attributed to poor construction practices and can be avoided through proper design, installation specifications and inspections.

5.3.5.2 Culvert Design Criteria

Performance curves shall be developed for all public culverts for evaluating hydraulic capacity versus various headwater depths, outlet velocities, and scour depths.

The culvert length and slope shall be chosen to approximate existing topography, and to the degree practicable, the culvert shall be aligned with the channel bottom and the skew angle of the watercourse.

Multiple barrel culvert crossings should fit onto the natural channel cross-section with minimal widening of the channel so as to avoid conveyance loss and sediment deposition. Multiple barrel culverts shall be avoided where the approach velocity is high, particularly supercritical, to avoid adverse hydraulic jump effects.

Design Storm and Sizing

The minimum diameter for public roadway culverts shall be 18 inches. 12-inch diameter pipes are permissible for private residential driveway crossings when adequate cover cannot be maintained, if hydraulically adequate. Roadway culverts shall be designed to convey the frequency storm indicated in Table 5-4 without roadway overtopping.

TABLE 5-4: CULVERT DESIGN

STREET CLASSIFICATION	CONVEYANCE REQUIREMENTS
Local	1. Must convey the 25-year storm without roadway overtopping. 2. Roadway overtopping is allowed on storm frequency flows greater than 25-year event if the overtopping depth for the 100-year event does not exceed 12-inches. *
Collector / Arterials	1. Must convey the 50-year storm without roadway overtopping. 2. Roadway overtopping is allowed on storm frequency flows greater than 50-year event if the overtopping depth for the 100-year event does not exceed 12-inches. *
FEMA Mapped Watercourses	3. For the 100-year storm, culverts cannot cause a rise in the published Floodway Elevations, or if no mapped floodway, max of 1.0' rise in published base flood elevations.

* Where flow does not cross the road, but turns and drains down the roadway, the maximum depth of flow within the roadway travel lanes shall be 8-inches.

The weir flow depth for the 100-year design storm shall be limited to 8 inches or less for roadways serving as secondary access to a development or subdivision.

Public roadway culvert or bridge crossings of riverine areas with a contributing watershed greater than 1/4 square miles should be designed to convey the 100-year peak discharge with no roadway overtopping.

Bridge crossings for all other types of roadway classifications and crossings shall be designed for the 50-year storm event at a minimum.

Private streets or accesses crossing public drainage ways or FEMA designated floodplains shall be designed to convey the channel design discharge or the 100-year discharge whichever is greater.

Public facilities such as underpasses, depressed roadways, etc. where no overflow relief is available shall be designed for the 50-year event.

At-grade, dip crossings which serve as the primary access to a development are not permitted. Secondary access crossings of broad shallow washes, where installation of a culvert or bridge is impractical, may be dipped to allow the entire flow to cross the roadway. The pavement section must have a one-way cross slope in the direction of flow without raised curbs or medians. Cut-off walls and aprons will be required on both the upstream and downstream edges on the pavement to prevent head cutting and erosion.

All development of land – construction of residential, commercial, industrial structures, future development, or uses of any kind conducted on land areas – located within the floodplain shall be accomplished in complete conformance with the provisions of the City of Flagstaff Title 12 Floodplain Regulations and any other applicable regulations.

Driveway culverts within street rights-of-way that convey flows in roadside ditches shall convey the same storm event flows as the roadway classification. Driveway culverts for driveways outside of street rights-of-way shall convey at a minimum the 10-year storm without overtopping.

Circular cross-sections are preferred, however, the use of arch or elliptical pipes is permitted only if dictated by hydraulic limitations, site characteristics, limited cover, structural criteria, or environmental concerns. Any use of arch or elliptical pipes will require approval from the City Stormwater Section Director.

Selection of minimum pipe size should also account for potential blockage from debris and sediment deposition (this does not apply to detention facility outlet structures). Clogging factors shown in Table 5-6 are to be applied to the design cross section area of the culvert opening.

TABLE 5-5: CULVERT CLOGGING FACTORS

CULVERT SIZE	CLOGGING FACTOR
Equivalent diameter < 48 inches	Reduce available opening area by 50%
Equivalent diameter ≥ 48 inches	Reduce available opening area by 20%

Skewed Culverts

Culverts should be designed to closely conform to the natural stream in alignment, slope, and width, whenever possible. As a result, culverts are often skewed with respect to the roadway centerline. The culvert skew angle shall not exceed forty-five (45) degrees as measured from a line perpendicular to the roadway centerline. Culverts are considered at a skew when the angle is fifteen (15) degrees or more.

Headwalls and flared wingwalls are required on all skewed culverts. Wingwall selection shall be dependent on site-specific conditions. Alterations of the normal inlet configuration are generally required due to culvert skew. Inlets are often skewed with respect to the centerline of the culvert so that the headwalls are parallel to the roadway centerline to avoid warping of the roadway embankment fill.

Allowable Headwater

The allowable headwater (HW) is the depth of water that can be ponded at the upstream end of a culvert and shall be limited to one or more of the following parameters:

1. No damage or inundation to upstream property
2. No greater than the low point in the road grade
3. No greater than the elevation where flow would be diverted around the culvert
4. For culverts with cross-sectional area equal to or less than 30 sq. ft. (6 ft dia equivalent) $HW/D \leq 1.5$
5. For culverts with cross-sectional area greater than 30 sq. ft. $HW/D \leq 1.2$

Tailwater Relationship

A submerged outlet occurs where the tailwater elevation is higher than the crown of the culvert. For design purposes, downstream conditions which result in high tailwater should be avoided if possible.

A free outlet has a tailwater equal to or lower than critical depth. For culverts having free outlets, lowering the tailwater has no effect on the discharge or the backwater profile upstream of the tailwater.

The tailwater depth should be computed as the highest value of the following criteria:

1. The normal depth in the downstream channel for subcritical flow regimes;
2. The critical depth and equivalent hydraulic grade line if the outlet is operating with a free outfall;
3. The high water elevation that has the same design frequency if outlet is a detention basin, channel, or other body of water; or
4. The quantity (dc + D)/2; where dc = critical depth (ft.), and D = pipe diameter (ft.)

If culverts are placed in close proximity to each other, the headwater of the downstream culvert may influence the tailwater depth of the upstream culvert. It may be necessary to use the headwater elevation of a nearby downstream culvert if it is greater than the tailwater depth of the upstream culvert or normal depth in the channel.

Inlet Treatment

Culvert inlets shall match the geometry of the roadway embankment whenever possible. To reduce headwater elevations, improve inlet capacity, and prevent damage to roadway embankments and culvert ends, the use of concrete headwalls and wingwalls, side or slope tapered inlets, and beveled edges may be required.

Commercial end sections are permitted on culverts less than 36 inches in diameter if the design headwater is acceptable and other embankment protection measures are used. Concrete headwalls are required on all public culverts 36 inches in diameter and above.

Aprons may be required if high headwater depths are encountered or the approach velocity in the channel will cause scour. Aprons shall extend at least one pipe diameter beyond the pipe invert and shall not protrude above the normal channel or streambed elevation.

Concrete headwalls and aprons shall be constructed in accordance with MAG Standard Details and/or Arizona Department of Transportation, Highways Division, Structures Section Standard Drawings.

Metal pipe culverts with a span or diameter greater than 48 inches shall have a cutoff wall where the outlet velocity and downstream bed material may result in local scour.

Inlet riprap protection for commercial end sections shall extend around and over the top of the inlet a minimum of 2 feet. Roadways designed for overtopping will require additional slope protection for the upstream and downstream spillway sections.

Drop inlets should typically be used when the upstream channel sides and bottom are bank protected and significant sediment loads are not anticipated; to avoid sediment deposition and plugging of grated inlets. It should be noted that HDS-5 inlet control nomographs do not apply to drop inlets since the additional losses caused by the plunging flow are not

accounted for. In this case, the analysis for a storm drain inlet should be used.

Outlet Protection

The design of culvert outlets shall be based on structural considerations to protect the culvert outlet and embankment from local scour, bank sloughing, and general channel degradation, rather than hydraulic efficiency. Headwalls are required on all public culvert outlets.

The maximum velocity at the culvert outlet shall be consistent with the velocity in the natural channel. Appropriate protection shall be considered when outlet velocities are above 4.0 ft/sec. Recommended outlet treatments are shown in Table 5-4.

TABLE 5-6: CULVERT OUTLET PROTECTION MEASURES

OUTLET VELOCITY	OUTLET PROTECTION
< 4 ft/sec	No protection required
4 - 10 ft/sec	Hand-placed riprap apron
10 - 15 ft/sec	Wire-tied riprap apron*
> 15 ft/sec	Energy dissipator

* It is recommended to use a concrete energy dissipator or increase the culvert size if velocities are greater than 10 ft/sec

Culvert outlet protection including riprap aprons and energy dissipators shall be designed in accordance with the FCDMC Hydraulics Manual (2018, or latest edition) or FHWA HEC-14.

Safety Considerations

During design and construction, culvert entrances may require safety precautions to protect life, health, traffic, and adjacent property. This may include the use of fencing, handrails, guard rails, warning signs, and safety/trash racks to limit or deter access by the public.

Traffic should be protected from culvert ends as follows:

1. Small culverts (24” diameter or less) can use commercial end sections or sloped concrete wingwalls.
2. Culverts greater than 24” diameter shall receive one of the following treatments:
    a. Ends are extended to the appropriate “clear zone” distance per AASHTO Roadside Design Guide.
    b. Ends include grates if the consequences of clogging and potential flood hazards are less than the hazard of vehicles impacting an unprotected end.
    c. Ends are shielded with a guardrail if the culvert cannot be extended, has a channel which cannot be safely traversed by a vehicle, has significant

flooding hazard with a grate, or has headwalls which protrude 6” or higher above the driving surface within the “clear zone”.

5.3.5.3 Velocity

The minimum velocity through a culvert shall be 3 feet per second when the culvert is flowing partially full. The maximum velocity shall be limited to 20 feet per second. However, it is highly recommended that the maximum velocity does not exceed 15 feet per second. Outlet protection shall be designed accordingly.

5.3.5.4 Materials

The material selected for culverts should be based on service life, durability, structural strength, hydraulic efficiency, bedding conditions, abrasion and corrosion resistance, and joint tightness. Acceptable materials for culverts intended to be public are:

- Corrugated Metal Pipe (CMP) per MAG Section 760
- Helical Corrugated or Spiral Rib Metal Pipe per MAG Section 760
- Reinforced Concrete Box Culvert (RCBC) per FCDMC DDM Subsection 5.3.2
- Rubber Gasket Reinforced Concrete Pipe (RGRCP) per MAG Section 735

All metal pipe culverts shall be a minimum of 14-gauge, Aluminized Steel Type 2 pipe, if supported by favorable soil chemistry. Thicker gauge pipe may be warranted with increases in fill height per manufacturer’s recommendations.

Joints on metal pipe culverts, if required, shall be either rivet lap joint construction (annular corrugations) or continuous lock or welded seam (helical corrugations) and wrapped with non-woven geotextile filter fabric or "O" ring gaskets.

5.3.5.5 Minimum Cover

Both minimum and maximum cover limits must be considered in the design of roadway culverts. Minimum cover limits are established to ensure the culvert's structural stability under live and impact loads. Dead loads become the controlling factor with increases in fill height. Procedures for analyzing loads on buried conduit are outlined in the *Handbook of Steel Drainage and Highway Construction Products* and the *Concrete Pipe Design Manual,* latest editions respectively.

The minimum allowable cover for culverts shall be 1.5 feet from top of pipe to top of finish grade. Additionally, the top of any culvert should never extend above the roadway subgrade into the roadway street section. If minimum cover cannot be maintained due to site constraints, culverts shall be concrete encased per MAG Standard Detail 507.

5.3.5.6 Bridges

Bridges are typically neither practical nor warranted for most roadway crossings in the City of Flagstaff. However, when bridges are necessary, the design engineer shall include justification and engineering analysis to prove that culvert crossings are unfeasible. All

proposed bridges shall require approval from the City Stormwater Section Director.

General Bridge Policies

1. The final design selection shall consider the maximum backwater allowed by the NFIP/FEMA or local floodplain regulations unless exceeding the limit can be justified by special hydraulic conditions. Backwater shall not significantly increase flood damage to upstream property.
2. The final design shall not significantly alter the flow distribution in the floodplain and whenever possible, bridge structures should be designed so that there is little or no disturbance to the flow. Velocities through the structure shall not damage either the roadway facility or increase damages to adjacent property.
3. The "crest vertical curve profile" should be considered as the preferred roadway crossing profile when allowing for embankment overtopping at a lower discharge.
4. Degradation or aggradation of the watercourse as well as contraction and local scour shall be estimated, and appropriate positioning of the foundation, below the total scour depth if practicable, shall be included as part of the final design.
5. Bridges should be designed to minimize disruption of ecosystems and values unique to the floodplain and wash being crossed.

Risk Evaluation

The selection of hydraulic design criteria for determining the watercourse opening, road grade, scour potential, riprap, and other features shall consider the potential impacts to:

1. Interruptions to traffic,
2. Adjacent property,
3. The environment, and
4. The infrastructure of the roadway

The consideration of the potential impacts constitutes an assessment of risk for the specific site. The least total expected cost (LTEC) alternative should be developed in accordance with FHWA, HEC-17(3) where a need for this type of analysis is indicated by the risk assessment. This analysis provides a comparison between other alternatives developed in response to considerations such as environmental, regulatory, and political.

Design Floods

The design flood(s) for evaluation of backwater, clearance, flow distribution, and overtopping shall be established predicated on risk-based assessment of local site conditions. They shall reflect consideration of traffic service, environmental impact, property damage, hazard to human life, and floodplain management requirements.

Backwater and Increases over Existing Conditions

Designs shall conform to all applicable federal, state, and local floodplain regulations. The bridge structure shall not cause any significant increase in the existing water surface elevation.

Scour

Design for bridge foundation scour shall be for the design flood which generates the maximum scour depth. Scour calculations shall be done in accordance with FCDMC Section 11.8. The design should use a geotechnical design factor of safety of 2.5. The resulting design should then be checked using the 500-year design discharge and a factor of safety of at least 1.0.

Bridge piers, if necessary, must be oriented parallel to the direction of flow. Pier spacing and abutments should be designed to minimize flow disruption and potential scour.

Clearance

Where possible, a minimum freeboard of two (2) feet shall be provided between the approach design discharge water surface elevation and the low chord of the bridge. Structural design and clearance of the bridge structure shall also take into account passage of debris and ice impacting the bridge. When this two (2) foot clearance cannot be maintained, clearance shall be established by the engineer based on the type of watercourse and the level of protection desired, as approved by the Stormwater Section Director.

Flow Distribution

The conveyance of the proposed crossing location shall be calculated to determine the flow distribution and to establish the location of bridge openings. The proposed structure shall not cause any significant change in the existing flow distribution. Relief openings the approach roadway embankment shall be investigated if there is more than a ten (10) percent redistribution of flow.

Deck Drainage

Improperly drained bridge decks can cause problems such as corrosion, icing, and hydroplaning. Whenever possible, bridge decks should be watertight and all deck drainage should be carried to the ends of the bridge. Drains at the ends should have adequate capacity to carry all bridge drainage. Gutter flow from roadways must be intercepted before it reaches the bridge. Zero gradients and sump vertical curves should be avoided on bridges.

Where it is necessary to intercept deck drainage at intermediate points along the bridge, the design of such interceptors shall conform to the criteria outlined in Section 4.3.3 *Street*

Drainage.

5.3.6 Low Water Crossings

Low water crossings or vented fords are allowable for areas of shallow or distributed flow, where the City Stormwater Section Director or his/her designee agrees that a culvert or bridge crossing is impracticable, if the following design criteria is met:

1. The low water crossing does not cross a FEMA-mapped watercourse.
2. The maximum water depth crossing the roadway travel lanes for the 100-year peak discharge does not exceed 12-inches.
3. The velocity does not exceed 8 feet per second (ft/s).
4. Low water crossing surfaces are to be constructed per MAG Standard Detail 552 (Concrete Surface) or comparable all-weather surface as approved by the City Stormwater Section Director.
5. The crossing accesses a single-family home development.

If low water roadway crossings of washes are approved for a development, signage, barricades or other flood warning device may be required at the discretion of the City Stormwater Section Director for public safety and welfare.

5.3.7 Open Channels

5.3.7.1 Open Channel Policies

1. All open channel designs and/or related activities shall meet the minimum requirements and/or design criteria for the City of Flagstaff, Federal Emergency Management Agency, U.S. Army Corps of Engineers 404 permitting, and the Arizona Department of Environmental Quality, as applicable.
2. Washes designated as Rural Floodplains per the City of Flagstaff Zoning Code must be left undisturbed and in their natural state. Alteration through channelization and FEMA map revisions and/or other development within a designated Rural Floodplains is prohibited except for roadway and utility crossings and at-grade driveway crossings.
3. Safety of the public shall be considered in the selection of location and cross-sectional geometry of artificial channels.
4. The design of artificial channels shall consider the frequency and type of maintenance expected and make allowance for access of maintenance equipment. Soil cement linings are not permitted for open channels intended to become public and are discouraged for all channels due to maintenance problems.
5. All artificial open channel drainage systems shall be designed for the 25-year design

storm at a minimum and checked with the 100-year design storm to determine available freeboard, minimum finished floor for structure elevations adjacent to the channel, and the potential for flood damages.

6. Channels shall be designed to follow natural drainage alignments whenever possible. Environmental impacts of modifications to natural channels, including disturbance of wildlife habitat, wetlands, and stream bank stability shall be assessed and meet any applicable regulations.

7. The City Stormwater Section Director may require the design engineer to analyze the downstream impacts for channels that alter the time of concentration and/or the flow attenuation of existing conditions drainageways.

8. All channels which are to be maintained by the City of Flagstaff must be dedicated to the City either in fee title or granted as drainage easement and must be formally accepted for maintenance by the City.

9. Unless proper authorization from the City of Flagstaff and the adjacent property owner(s) is obtained, open channels must enter and exit a site where the channel historically flowed.

10. The lining proposed for public channels must be approved by the City Stormwater Section Director.

5.3.7.2 Artificial Channels

Artificial open channels have a wide variety of applications ranging from landscaping swales to large flood control facilities. The selection of the open channel type is influenced by numerous factors such as hydraulics, structural features, environmental concerns, sociologic impact, risks and liability, maintenance, and economics. Examples of various types of open channels are depicted in FCDMC Hydraulics Manual Figure 6.6.

5.3.7.3 Natural Channels

Natural washes, not designated by the City or FEMA as regulatory floodplains, which cross private property are encouraged be left in their natural state, if possible, upon development. Planning and other design measures must be used to protect development adjacent to natural washes from the flooding and erosion typically associated with increased development. As additional runoff from development is added to a natural channel, these channels can experience erosion and may require on-site detention, grade control, and/or localized bank protection.

If relocation of a natural stream channel is unavoidable, the cross-section shape, meander pattern, roughness, sediment transport capacity, and slope should conform to the existing conditions insofar as practicable. Some means of energy dissipation may be necessary when existing conditions cannot be duplicated.

U.S. Army Corps of Engineers Section 404 and Section 401 of the Clean Water Act permitting processes may apply for impacts on Waters of the U.S. such as stream channelization, relocation, bank stabilization, or roadways crossings. Approval by the City does not supersede or waive compliance with other applicable Federal and State laws.

Natural channels should be analyzed using field observation, surveyed cross-sections, and Normal Depth/Uniform Flow (Manning's Equation) or step-backwater methods (e.g., HEC-RAS), as applicable.

5.3.7.4 Cross-Sectional Geometry

Trapezoidal or compound cross-sections are required for public open channels unless prior approval of an alternate design is obtained from the City Stormwater Section Director. Channel side slopes shall be stable throughout the entire length and will be dependent upon the channel bank or lining material. Slope stability analysis may be required in some instances. Side slopes shall be no steeper than 3H:1V for natural vegetal or earth linings and 2H:1V for dumped riprap lining. Side slopes for rigid lined channels may be steeper depending on the structural stability of the lining.

The depth of public open channels shall be determined by computation of the uniform flow depth for the design discharge plus a minimum of one foot of freeboard (see FCDMC Hydraulics Manual Section 6.5.4 for additional required freeboard). The maximum depth for artificial public channels in residential areas should not exceed 3 feet, not including freeboard, for safety considerations unless approved by the City Stormwater Section Director.

Sediment transport requirements must be considered for conditions of flow below the design frequency, especially for multi-use corridors, if applicable. Low and high flow sections shall be considered in the design of channels with large cross sections and/or a design discharge greater than 50 cubic feet per second.

5.3.7.5 Channel Slope and Velocity

The slope of a proposed channel is typically dependent upon the natural topography. However, variations can be accomplished by altering the channel alignment through a development, by adjusting the elevation of inflow and outflow points, or utilizing grade control. The selected channel configuration, alignment, and slope should result in a stable channel. The minimum allowable channel slope for public channels shall be 0.5 percent. The maximum allowable velocity for any open channel shall be 18 feet per second unless adequately stabilized and only if approved by the City Stormwater Section Director.

Abrupt changes in channel slope shall be avoided except when necessary to create a desired hydraulic jump or grade control. When abrupt changes in slope are unavoidable, the slope changes should not cause the channel top width to vary by more than 15 percent.

The design engineer shall consider the velocity and flow regime in the design and selection

of materials for the channel.

5.3.7.6 Grade Control

Most channels constructed with earthen bottoms are constructed on slopes that are greater than their equilibrium slopes. It is recommended to incorporate the use of grade control to limit channel slopes/velocities and preclude the need for channel linings at grade control structures. The use of alternate channel treatments other than riprap should first be considered.

All grade control structures should consist of a control section, an adjacent protection section, and an energy dissipation section. Use of natural rock grade control structures is encouraged.

Concrete cut-off walls or sills, if required, shall be a minimum of eight (8) inches thick Class A concrete, two (2) feet deep below the channel bottom, and extend across the entire channel.

The general procedure for grade control structure design is:

1. Determine the total fall through the reach.
2. For the selected channel, determine the equilibrium slope.
3. Determine the amount of fall to be controlled by the grade control or drop structures from the tailwater of the upstream structure to the head on the next structure downstream.
4. Select the size, location, and type of structures to be used.

Design guidance on grade control structures can be found in the National Engineering Handbook, Part 634 *Hydraulic Engineering* Section 11 *Drop Spillways* and Section 14 *Chute Spillways*, or the Urban Drainage and Flood Control District, Denver Colorado, Drainage Criteria Manual, Volume 2 *Grade Control Structures*.

5.3.7.7 Channel Linings

One of the most influencing factors in the design of artificial channels is the channel lining. The most prominent channel lining types include earth (natural), grass, rock, concrete, and other biotechnical or synthetic materials. These linings can be used alone or in combination to form a composite channel. Soil cement linings are not permitted for open channels intended to become public and are discouraged for all channels due to maintenance problems. Channel linings shall extend to the minimum freeboard elevation.

It is recommended to incorporate the use of grade control to limit channel slopes/velocities and preclude the need for channel linings. The use of alternate channel treatments other than riprap is strongly encouraged.

The order of preference for open channels and swales shall be:

1. The use of natural bio-filters to promote infiltration and water quality treatment.

2. The use of natural landforms. Side slopes not to exceed 2H:1V. The horizontal alignment shall meander to the greatest extent possible. Riprap lining shall be limited to sections where erosion is anticipated.
3. The use of natural material linings.
4. The use of built up man-made material linings.

Flexible Linings – Riprap Design Criteria

Due to long term maintenance considerations, fully lined riprap channels intended to become public must receive prior approval from the Stormwater Section Director and Public Works Department. The use of grade control or other channel linings must be examined first. If the channel is to be designed as a complete riprap channel (side slopes and bottom), the riprap itself will control the velocity and an iterative process between riprap size and channel velocity, due to riprap roughness, is necessary.

The channel cross section design must account for riprap thickness in channel excavation. The riprap must be "inlaid" by over excavating to the depth of the riprap layer thickness. Riprap should not be placed on top of swale or channel bottom.

Wire-tied riprap or gabion baskets may be required where higher velocities or steeper channel side slopes are proposed. Rock sizes and basket characteristics should meet the manufacturers specifications.

The edges of riprap revetments (flanks, toe, and head) require special treatment to prevent undermining. Undermining of the toe is one of the primary causes of riprap failure. Riprap revetments, linings, and energy dissipators shall be designed using the FCDMC Hydraulics Manual or FHWA HEC-14/HEC-15.

Riprap Material

The shape of the riprap shall be jagged and angular rather than elongated or smooth river rock. Cinder material (e.g., clinkers, tufa, and scoria) and demolished concrete rubble shall not be used for riprap lining. Rock material shall be hard, dense, and have sufficient durability to withstand abrasive water action and freeze/thaw cycles. Riprap shall have a minimum specific gravity of 2.5; it is recommended for selected riprap to have a specific gravity of 2.65. Riprap shall also conform to the physical property requirements outlined in MAG Section 703 *Riprap*.

The riprap blanket thickness shall be a minimum of 2 times the calculated D_{50}. A minimum riprap blanket thickness of 12 inches shall be used for channel velocities up to 7 ft/sec and 24 inches for channel velocities up to 15 ft/sec. The thickness shall be measured perpendicularly to the slope on which the riprap will be placed.

Filter Fabric Placement

Failures in filter fabrics often occur due to improper installation. Therefore, to provide

optimum performance, a properly selected fabric should be installed per the following guidelines or the manufacturer's guidelines, whichever is more restrictive:

1. Heavy riprap may stretch the fabric as it settles. A four (4) to six (6) inch gravel bedding is required to be placed beneath the riprap for gradations having a D_{50} greater than 2 feet.
2. Filter fabric shall not extend into the channel beyond the riprap layer; it should be wrapped around the bottom of the toe material and back into the riprap layer.
3. Adequate overlaps must be provided between individual fabric sheets.
4. A sufficient number of folds should be included during placement to minimize tension and stretching under settlement.
5. Securing pins with washers are required at two (2) to five (5) foot intervals along the midpoint of overlaps.
6. Proper stone placement on the filter requires beginning at the toe and proceeding upslope. Dropping stone from heights greater than two (2) feet is not permitted.

Grouted Riprap

Grouted riprap revetments, linings, and energy dissipators shall be designed using the FCDMC Hydraulics Manual. The minimum riprap blanket thickness shall be one (1) foot for channel velocities up to 7 ft/sec and two (2) feet for velocities above 7 ft/sec.

Grout Requirements

Grout for riprap installation on public structures shall be in accordance with MAG Section 220 and the following criteria:

1. Air entrainment of 5 - 7%.
2. Compressive strength of not less than 3,000 psi in 28 days.
3. Slump of 5 to 7 inches.
4. 1.5 lb/CY of fiber mesh (or equivalent) shall be used to control shrinkage/cracking.
5. Type II cement. Maximum of 25% fly ash may be substituted for Portland cement.
6. Aggregate shall be comprised of 70% natural sand (fines) and 30% 3/8-inch rock (coarse).

Grouted Riprap Placement

Placement of grouted riprap for public structures shall be in accordance with the following criteria:

1. Final placement of riprap shall be approved by Stormwater Section Director prior to placement of grout.

2. Fines and smaller gradation rock shall be removed from the rock blanket to ensure better penetration by the grout.
3. The riprap shall be clean of all dirt and deleterious materials and sprayed with clean water immediately prior to grouting.
4. A low pressure (< 10 psi) grout pump with a two (2) inch diameter nozzle shall be used.
5. Grout must be placed by injection methods using a pencil vibrator and grout penetration must extend the full thickness of the rock blanket. Pneumatically placed grout is not permitted. The grout mix and placement procedures must be controlled to achieve the specified thickness, penetration, and grade of the grout layer.
6. The finished level of the grout shall be 1/4 - 1/3 the rock size below the top of the rock. After the grout has been placed and vibrated, excess grout should be removed from the exposed rock. A broom finish should be provided for the grout.
7. The finished surface shall be sealed with a clear liquid membrane curing compound per American Society for Testing and Materials (ASTM) C-309.

Concrete Lined Channels

Low flow (trickle) channels are recommended on the bottom of all concrete lined channels. Low flow channels should be designed to convey the 2-year peak discharge at a minimum.

Minimum thickness shall be no less than eight (8) inches for supercritical channels and no less than six (6) inches for subcritical channels. The top of the channel shall be adequately keyed into the channel banks as depicted in the FCDMC Hydraulics Manual Figure 6.8 *Typical Bank-Protection Key-Ins*.

Concrete channels shall be constructed from continuously reinforced concrete. The reinforcing shall be continuous both longitudinally and laterally. Reinforcement steel shall be a minimum of grade 40 epoxy coated deformed bars per MAG Section 727 *Steel Reinforcement*. Reinforced concrete channels shall be designed by a structural engineer. Concrete lined channel construction shall be performed in accordance with MAG Section 505 *Concrete Structures*.

Earthwork for concrete lined channels shall be compacted to a minimum of ninety-five percent (95%) of maximum density, as determined by ASTM D-698 (Standard Proctor), for the following areas:

1. The twelve (12) inches of subgrade immediately beneath concrete lining (bottom and sides).
2. Top twelve (12) inches of earth surface within ten (10) feet of concrete channel lip.

3. Top twelve (12) inches of maintenance road subgrade.
4. All fill material.

A minimum of six (6) inches of aggregate base course granular bedding is required under channel bottom and side slopes.

Longitudinal underdrains may be required when temporary or permanent high-water tables are experienced. Underdrains shall be free draining, consist of six (6) inch minimum perforated pipe in gravel or coarse sand, flap valves at the outlets, and shall daylight at check drops when applicable. Weepholes should be limited when possible but are necessary on vertical wall sections to relieve hydrostatic pressure.

Side ditches along the tops of the channel should be utilized to intercept sheet flow and convey it to chutes or dip inlets.

Whenever the 100-year channel depth exceeds three (3) feet or on concrete channels with vertical walls exceeding thirty (30) inches in height, safety requirements for concrete lined channels shall consist of the following measures at a minimum:

1. A six (6) foot high chain link or comparable fence is required to prevent access. Appropriate numbers of gates and maintenance roads (12 ft. width) shall be placed and staggered where fencing is required on both sides of the channel.
2. Ladder-type steps shall be installed not more than 400 feet apart on alternating sides of the channel. The bottom rung or step shall be placed one (1) foot above the channel bottom.

5.3.7.8 Hydraulic Jumps

Hydraulic jumps should only occur in planned locations at hydraulic structures and should be checked in the following cases:

1. The slope of the channel abruptly changes from steep to mild slope;
2. At abrupt expansions or contractions in the channel section;
3. At locations where obstructions occur, such as a culvert or bridge that are along steep slopes;
4. At sharp bends;
5. At dip crossings or culverts; and
6. Where steep or supercritical channels discharge into another channel.

Recommended procedures for computing hydraulic jump can be found in FHWA HEC-14 Hydraulic Design of Energy Dissipators for Culverts and Channels (2006) and/or Chow Open Channel Hydraulics (1959).

5.3.7.9 Channel Transitions

Transition sections shall be designed to provide a gradual transition to avoid turbulence and eddies. Energy losses in transitions should be accounted for as part of the water surface profile calculations. Recommended guidance can be found in U.S. Army Corps of Engineers EM 1110-2-1601 *Hydraulic Design of Flood Control Channels*. Scour downstream of rigid to natural or steep to mild slope transition sections should be accounted for through velocity slowing and energy dissipation.

5.3.7.10 Maintenance

The minimum width of fee title dedications or drainage easements for public open channels shall be dependent upon the top width of the channel, required setbacks, and the need for maintenance access roads adjacent to the channel.

Maintenance access shall be provided along at least one side of all new open channels intended to become public. The minimum maintenance access width shall be 12 feet. Maintenance access may either be necessary adjacent to the top of the channel bank, down into the channel bottom, or a combination of both. In all cases, the right-of-way or drainage easement must be of enough width to allow maintenance vehicles or equipment to operate freely.

5.3.8 Stormwater Storage and Detention

Urbanization and other land development activities including the construction of roads result in increased impervious and disturbed surfaces. In addition, natural drainage systems are often replaced by lined channels, storm drains, and curbed streets. The result of such activities is an increase in the volume of runoff, peak discharge rates, erosion, and non-point source pollution due to the reduction of infiltration and natural vegetation.

Due to an absence of regional detention facilities and inadequate downstream capacities of existing streets, storm drain systems, or channels, local on-site or sub-regional detention facilities are necessary to attenuate the increased runoff caused by development.

5.3.8.1 Stormwater Storage and Detention Policies

1. Stormwater detention is required for all new subdivisions, commercial and industrial developments, re-development of non-conforming sites (i.e., existing developed sites that do not have detention that have been razed and vacant for greater than six months), and other developments greater than 1/4 acre in size or those that the City Stormwater Section Director deems required for protection of downstream properties. Refer to Section 6 for Low Impact Development (LID) requirements.

2. Detention for single-family residential structure or lot (i.e., not associated with a new subdivision) is not required unless specifically requested by the City Stormwater Section Director.

3. Detention requirements may be waived by the City Stormwater Section Director for the following:

    a. Residential subdivisions with lot areas >1 acre in area, if it can be shown that such a waiver will not result in any adverse downstream effects, nor create any disturbance to the existing drainage patterns both within and adjacent to the subdivision.

    b. Developments less than 1/4 acre or an increase in impervious area of ≤ 5,000 square feet. It must be demonstrated to the satisfaction of the City Stormwater Section Director that there will be no increase in the potential for damage to adjacent properties and adequate off-site or downstream drainage capacity is available.

    c. Developments with drainage basins adjacent to drainage ways with large tributary watersheds if it can be shown that the time to peak for each hydrograph is offset adequately so as not to affect the peak flowrate in the larger basin drainageway. The use of beat-the-peak analysis is not permitted to elude on-site detention requirements unless it can be proven that providing detention would result in increased flow rates downstream.

4. Detention facility storage volume shall be adequate to attenuate the post-development peak discharge rates to pre-development discharge rates for the 10 and 100-year design storms. Reservoir routing calculations must be used to demonstrate that the storage volume is adequate. The 2-year detention requirement will be waived if the runoff control volume is completely retained.

5. Detention facility outlet structure release rates shall be less than the pre-development peak runoff rates for the 10 and 100-year storm events, with emergency overflow provisions. Emergency overflow weirs or spillways shall be provided on all detention basins and designed to safely convey the 100-year peak inflow discharge. Overtopping of the entire length of the top-of-embankment is not acceptable as an emergency overflow weir. Design calculations are required to demonstrate that developed peak runoff rates from the 10 and 100-year design storms are controlled.

6. The same methodology shall be used for both pre-development and post-development analyses. Contributing drainage areas shall be analyzed separately for purposes of estimating the runoff which must be accepted and conveyed through the site. Flows from offsite drainage areas should be routed around local detention ponds and not co-mingled with flows emanating from the development. Any offsite flows that are routed through on-site improvements shall be accounted for in all

calculations and sizing.

7. The use of retention basins or infiltration systems may be permitted in the City of Flagstaff, especially in cases where the site is landlocked, due to topography, with no means of positive outflow. If a retention system is proposed, sufficient supporting data must be provided to ensure adequate storage volume and evaluate the functionality of all proposed infiltration retention systems, including but not limited to a soils report addressing soil classification, soil erodibility, soil permeability, slope stability, ground water elevations, and percolation test results. Maximum storage time for ponded water in retention basin facilities is 36 hours.
8. The City has established a maximum ponding depth of (0.3) three-tenths of (1) one foot without an engineered infiltration system. Geotechnical investigations that test in situ infiltration may be approved to show higher ponding depths will infiltrate within 36 hours. In all cases, infiltration testing shall be done at the basin floor elevation and shall be performed to mimic soil saturated conditions. Such approvals are at the discretion of the City Stormwater Section Director.
9. The use of pavement parking lot storage as the primary detention facility is not permitted unless other sites or detention alternatives are not available. Any use of parking lot storage for detention shall require approval from the City Stormwater Section Director.
10. Roof-top detention storage is not permitted for meeting the City of Flagstaff detention requirements.
11. Individual on-lot storage systems within single family residential developments is not permitted for meeting the City of Flagstaff detention requirements.
12. The minimum lowest floor elevation of any structure adjacent to a detention facility shall be 1 foot above the 100-year water surface elevation in the facility or at the emergency overflow water surface level, whichever is higher.
13. Developments which are phased shall prepare a master stormwater detention plan for the entire development. The master stormwater detention plan must either be implemented with the first phase, if possible, or detention must stand alone for each phase. Interim temporary detention facilities may be required for phasing.
14. Road culverts shall not be utilized as outlet structures for detention basins.
15. The point or points at which a pre-development watercourse enters and leaves a site shall remain substantially the same after the property has been altered for the development. Drainage in general, including sheet flow, shall enter and depart the site in substantially the same manner as it did in the pre-developed condition. Developers must coordinate with downstream properties if the drainage exiting their property is to be changed (e.g., pre-development flow was sheet flow and the post-

development discharge is a detention outlet pipe or point discharge). The City Stormwater Section Director may require the developer to obtain a drainage easement or written permission from adjacent property owners.

16. Discharges from detention facilities shall be designed to enter established downstream drainage systems (e.g., drainage channels, natural watercourses, public streets, or storm drain systems) whenever possible. If flows are to be concentrated or ponded on the upstream or downstream side of the site, either a recorded drainage easement or written permission as determined by the City Stormwater Section Director must be obtained from the affected property owner(s) before issuance of grading or building permits. Discharge velocities shall be reduced or dissipated to provide non-erosive flows and reduce damage to downstream properties.
17. Detention Basins shall be operated and maintained by the developer and/or property owners. The City of Flagstaff shall only accept large-scale regional detention basins for operation and maintenance. Large-scale regional basins provide a common public benefit beyond the mitigation of the development being proposed. The City shall not accept small-scale, local on-site detention basins for operation, maintenance, or liability.
18. Maintenance of subdivision on-site detention facilities shall be the responsibility of the property owner, developer or homeowner's association. Refer to City of Flagstaff Standard Plat Dedication Language for Drainage Maintenance Easements.
19. The City of Flagstaff Parks and Recreation Division must review and approve proposed stormwater detention facilities designed within designated public areas or parks. Review and approval from the Parks and Recreation Commission may also be required.
20. No part of a private detention basin shall be constructed in a public right-of-way or public utility easement.
21. Site designs which consolidate detention areas into a limited number of larger facilities are preferred over designs which utilize many small facilities. Designs which will demand considerable maintenance, will be difficult to maintain and access, or utilize numerous small facilities will not be permitted if other alternatives are physically possible.
22. All new subdivisions are required to provide detention for the entire subdivision, including the respective one-half of all abutting streets to the subdivision. Two or more subdivisions may join to provide a common detention facility.

5.3.8.2 Detention Facility Design

Detention facilities which incorporate basins below grade or embankments shall be

designed and constructed as permanent drainage structures which are protected from long term erosion and are as maintenance free as possible. Detention basins and related facilities should be designed to minimize the following typical problems:

- Grass and vegetation maintenance
- Sedimentation control
- Bank deterioration
- Standing water or soggy surfaces
- Mosquito control
- Blockage of outlet structures
- Litter accumulation
- Maintenance of fences and perimeter plantings

No detention basin facility shall retain standing water longer than 36 hours unless the facility has been designed and constructed as a permanent body of water with appropriate health, safety, and water quality measures for such a body of water.

Basin inlet and outlet structures may be at or below grade or a combination of both. Drainage crossings or culverts shall be provided whenever runoff entering or exiting a basin crosses pedestrian paths or sidewalks. Inlets and outlets shall not direct flow through a handicap accessible ramp or handicap parking space.

Riprap aprons or other energy dissipating measures should be used at all inflow points (side slope and basin floor) to reduce velocities and encourage sedimentation.

Low flow channels are required on the bottom of basins which serve as multi-use areas and are recommended on all basins. Low flow channels should be designed with a minimum longitudinal slope of 0.5 percent. Concrete lined low flow channels can be designed with a minimum longitudinal slope of 0.2 percent.

If any portion of a detention basin is a retaining wall, design information for determining factors of safety against sliding and overturning is required. Provisions shall also be incorporated to prevent seepage through and under the retaining wall.

All detention facilities shall be incorporated into the Landscaping Plans.

All detention facilities will be reviewed for compliance with this Manual and other applicable criterion. The order of preference for detention facility design shall be:

1. The use of natural land-formed basins.
2. The use of structures, such as retaining walls or weir walls not to exceed four (4) feet in height, blend with the natural or built surroundings. Materials shall be limited to materials such as brick, native stone, rusticated masonry block, or form-lined colored concrete to blend with the natural or built surroundings.
3. The use of underground detention for all or part of the detention volume

requirement.

Location and Configuration

In general, open detention facilities located adjacent to streets or buildings are discouraged. No portion of a detention basin will be permitted within any public right-of-way or public utility easement.

Curvilinear or irregular shapes are required for open surface basins, whenever possible. The designer should vary the shape and side slopes of the basin and maximize the linear footage of the perimeter. Curvilinear contours at areas immediately adjacent to walls or structures are encouraged.

The basin shape or floor should have a minimum length to width dimension of 4:1 if possible. Designs that incorporate basins in series with two or more stages or terraces are encouraged.

Slope and Depth Criteria

The following minimum slope and depth criteria are required for multi-use basins and basins that have unrestricted access:

- A maximum of 2H:1V for protected side slopes and 3H:1V for unprotected side slopes where depths of ponding are less than three feet.
- A maximum of 4:1 for side slopes where depths of ponding exceed 3 feet.
- Basins greater than 6 feet in depth will require a benched configuration with bench widths at least 3 times the height of the slope above it with a minimum width of 6 feet.
- Multi-purpose Basins containing human activity areas shall incorporate access slopes of 8H:1V or flatter (12H:1V for ADA compliance) into the design for ingress and egress.

A geotechnical report may be required by the City Stormwater Section Director to ensure basin slopes are globally stable for excessive ponding depths or cut/fill heights. A minimum freeboard of 0.5 foot above the 100-year high water elevation is required for all detention facilities. Freeboard may include adjacent parking lot areas.

The basin floor should be graded to drain toward the basin outlet. The minimum recommended slope is 0.5 percent. A meandering low flow channel across the basin bottom is recommended to accommodate frequent flows and prevent standing water.

All detention basins shall include appropriate surface treatment, stability improvements, and erosion control measures including but not limited to linings, landscaping, seeding, grass, rock, gravel, or any combination thereof. At a minimum, detention basins shall include hydroseeding to promote vegetation and slope stability. Hydroseed mixes shall conform to the current City of Flagstaff Engineering Design and Construction Standards.

Table 5-7 below summarizes the various stabilization methods that should be used within the City of Flagstaff.

TABLE 5-7: APPROVED STABILIZATION METHODS FOR BASIN SIDE SLOPES

SIDE SLOPE RATIO	APPROVED STABILIZATION METHODS
3H:1V or flatter	Approved hydroseed Screened rock with minimal fines Hand-placed riprap with filter fabric
No steeper than 2H:1V	Approved hydroseed (if basin depth ≤ 3 ft), TRM Hand-placed riprap with filter fabric (if basin depth > 3 ft) Gabion mattress (if basin depth > 3 ft)
No steeper than 1.5H:1V	Articulated revetment units
No steeper than 1H:1V	Grouted riprap Concrete lining with welded wire mat Gabion baskets, Mattress
Steeper than 1H:1V	Retaining wall

Riprap used for basin side slope stabilization shall have a minimum D_{50} of 6 inches with an overall thickness of 12 inches. Riprap aprons for basin inflow points shall have a D_{50} that is designed based on the inflow velocity. Other stabilization methods may be approved by the City Stormwater Section Director if proper justification is provided along with a demonstrated capability of lasting performance.

Landscaping and Surface Treatment

Detention basin side slopes, embankments, and periphery shall be landscaped to mitigate and accentuate the basin. All above ground detention basins shall be treated with a native ground cover seed mix. A minimum of two (2) plant units (as defined in the Flagstaff City Code Division 10-50.60 Landscaping Standards) shall be required for every 100 feet of the perimeter of the basin, as measured at the top of the basin, in addition to on-lot landscaping requirements. Where detention basins are constructed partially or entirely within required landscaping buffers, they must be adequately landscaped to meet the requirements of the landscape area in compliance with Section 10-50.60.050, Landscaping Standards.

Underground facilities will not require landscaping.

Trees, shrubs, and other native vegetation may be used on basin side slopes and periphery. Any landscaping placed on the basin floor shall not have a density such that it interferes with the stormwater storage function of the basin or regular maintenance activities. For basins located adjacent to streets, landscaping shall be in accordance with street buffer requirements to screen the basin from the street.

The basin floor (if not using sod) and side slopes shall be seeded with a mix of native grasses

(5 pounds/1000 square feet) in accordance with Engineering Standards 13-17-002. Prior to seeding, the ground surface must be scarified and cultivated to a depth of six (6) inches and cleared of all debris and large stones (greater than 1-inch in any dimension). After clearing, grubbing, and cultivation, an organic fertilizer should be applied as specified by the landscape designer. An average of ten (10) pounds of fertilizer/1000 square feet is the desired treatment. When existing soil is unsuitable for growing native grass, incorporation of topsoil is recommended. A temporary irrigation system shall be installed to assist in the establishment of the seed and any other plant material shown on the landscaping plan.

Detention basins intended to accommodate passive or active recreation on the floor of the basin (e.g., playgrounds or sports fields) shall use turf grass on the basin floor. Prior to seeding or sodding, native material on the basin floor must be over-excavated to a depth of six (6) inches and planted with topsoil. A permanent irrigation system must be installed to maintain the turf grass.

Use of decomposed granite or small gradation (screened) rock shall be limited to basin side slopes of 3H: 1V or flatter and is not recommended for use on basin floors, in low flow channels, or at the basin inlets and outlets. Use of bio-mass filter landscaping treatment on basin floors is encouraged.

Over-excavation will be required to account for any volume displacement from landscaping islands, boulders, or rock riprap placement within the basin and shall be noted on the Grading & Drainage and Landscape Plans.

Outlet Structures

Due to multi-frequency detention requirements, multi-stage outlet structures may be necessary in the design of many detention facilities. The outlet structure(s) should be designed to ensure complete basin drainage and can take the form of drop inlets, culverts, weirs, orifices, or any combination thereof. The use of weirs is encouraged. FCDMC Hydraulics Manual Figure 9.4 illustrates typical outlet structure configurations. Outlet structures that require manual operation to properly function are not permitted.

Outlet configurations should match the pre-development flow characteristics at the property boundary where flow leaves the site. If pre-development flows originally left the site as sheet flow or scattered shallow concentrated flows, the outlet configuration should incorporate control measures to recreate sheet flow or shallow concentrated flows. Outlets can incorporate devices such as level spreaders, perforated pipes, or concrete troughs with weep holes to achieve the intended drainage characteristics.

Outlet structures for detention basins shall be sized based on hydrologic reservoir-routing calculations and stage-discharge relationships. Inlet control should not always be assumed on detention facility outlet pipes; therefore, outlet pipes should be evaluated using the FHWA HDS-5 procedures.

Outlet structures shall be constructed such that they are physically opposite and the

longest distance from the inlet structure(s), whenever possible. The distance between outlet structures and inflow points should be maximized to lengthen flow paths and detention times and provide effective settling of pollutants and sediment.

Metal outlet pipes projecting from a basin side slope or embankment are not permitted. Appropriate headwalls, commercial end sections, mitered sloped concrete protection, etc. are required for all outlet structures that incorporate only a pipe/culvert as the primary outlet structure.

The minimum recommended outlet culvert size for detention facilities is 12 inches. Orifice plates are permitted provided the orifice plate is permanent, tamper-proof, and connects to a 12-inch minimum diameter outlet pipe. Outlet structures incorporating orifice plates shall include a trash rack to minimize clogging. FCDMC Hydraulics Manual Figure 9.5 illustrates a recommended method of orifice plate construction.

Outlet pipes less than 12 inches in diameter may require adequate sediment and debris collection measures to be incorporated into the basin design to minimize clogging. Outlet structures shall not be oversized to account for debris blockage or clogging. Sediment traps should also be incorporated into the design of all multi-use detention facilities. FCDMC Hydraulics Manual Figure 9.12 illustrates a sediment trap concept.

Outlet pipes which present a hazard to children (e.g., outlet pipe connects directly to a large storm drain system) should be equipped with a bar/grate configuration in accordance with the adopted International Building Code (IBC) safety requirements to prevent entrance of children into the outlet opening. https://codes.iccsafe.org/content/IBC2021P2

Local scour at culvert outlets as well as long term degradation downstream of the facility must be considered in the overall basin design. Erosion control measures such as energy dissipators, cut-off walls, riprap aprons or basins, and rock lined channels shall be provided to reduce outlet velocities and allow flows to return to pre-developed conditions, to as great an extent as possible, before exiting onto the downstream property.

Detention Embankments

It is recommended that detention facilities be constructed with the storage volume located entirely below the natural ground or finished grade adjacent to the facility. Use of detention embankments or berms is discouraged due to the potential for downstream flood hazard in the event of failure, however, the following criteria must be incorporated into the detention embankment design, at a minimum:

- Vegetated embankments shall be less than 20 feet in height and shall have side slopes no steeper than 3H:1V. Embankments protected with riprap or other approved erosion control measures shall be no steeper than 2H:1V.
- A geotechnical engineering study and slope stability analysis is required for embankments exceeding 10 feet in height or for embankment slopes exceeding

those given above. It is recommended that ADWR *Guidelines for the Design and Construction of Small, Low hazard Potential Embankment Dams* be utilized for design criteria.

- Top width of the embankment shall be a minimum of 1/2 the height of the embankment.
- Design of spillways shall also incorporate adequate erosion control and energy dissipating measures to ensure the stability of the embankment. The use of concrete spillways is preferred.
- Seepage through the embankment and piping, particularly along the outside of the primary outlet conduit and spillway wall, must also be considered in the design of the embankment. Soil used for detention embankments should have a relatively low permeability after placement and shall be compacted to a minimum of 95%.
- No detention facility can be designed to be a jurisdictional dam based on ADWR criteria without approval of the City Stormwater Section Director.

A minimum of 1 foot of freeboard above the spillway elevation is required for public detention facilities that incorporate an embankment. The spillway elevation should be set equal to or above the 100-year water surface elevation.

Emergency Overflow

All detention facilities shall incorporate provisions for emergency overflow for instances where the primary outlet structure fails or storm events greater than the design capacity occur. The overflow shall be designed to pass the post development 100-year inflow peak discharge at a minimum.

Design criteria shall incorporate the protection of the basin and the method of discharge. The overflow must be conveyed downstream in the same manner as it would have under pre-development, historic conditions.

The use of concrete spillways is preferred for embankments exceeding ten (10) feet in height or when embankment stability could be compromised during overflow.

Spillways for detention facilities that employ embankments must be designed to protect the embankment side slopes, particularly on the downstream side. It is recommended that the spillway be located to direct flow around the embankment on or through natural ground versus placing the spillway directly over the primary outlet structure. The safety of downstream persons, properties, and consequences of embankment failure should be considered and evaluated.

Safety

Detention facilities in general should be open, visible, and accessible so that persons can appreciate any hazard and guard themselves, and so that rescue efforts, if necessary, are

not impeded.

To reduce the potential dangers associated with detention facilities the following recommendations are made in the design and construction:

- Keep the basin and water depths shallow.
- Keep side slopes as flat (4H:1V or flatter) as possible to allow easier egress in the event of flooding.
- The ground surface side slopes around the facility should be made rough.
- Break up ponding water with islands, boulders, and mounds; put solid objects for holding onto in the ponding area such as large plants or rocks.
- Avoid sudden constrictions and high velocities at outlets. Broad open rectangular weirs are preferable to anything involving the mouths of pipes and/or creating a hazardous vortex at the outlet.
- Restricting public access and identifying potential hazards associated with detention basins. In multi-use basin areas, signage shall be utilized to notify the basin users of the potential for flooding.

If detention facilities must be designed with steeper side slopes or vertical walls, adequate routes out of the basin should be provided in addition to any necessary safety fencing.

Signage should be provided to inform the public of the basin purpose and potential safety hazard from stormwater. (e.g., DANGER - This basin is designed to collect stormwater runoff DO NOT ENTER during rainy or threatening weather).

Security Barriers

Detention basins designed in accordance with the Slope and Depth Criteria Section and in accordance with the previous section, in normal instances, should preclude the need for security barriers to prevent unauthorized access. Special situations may require the use of security barriers, even though the criteria has been met. Security barriers, with maintenance access gates, are recommended along the top of all basin side slopes steeper than 3H:1V and where water depths exceed 3 feet.

Security barriers may consist of masonry, wood, chain-link, or wrought-iron (pool-type) fencing and must be a minimum height of 60 inches. Fencing, if necessary, should not restrict the hydraulic capacity of inlet or outlet structures.

Appropriate hand railings shall be provided for all retaining walls or inlet/outlet structure headwalls and wingwalls over 30 inches in height. Detail sections of proposed barriers shall be shown on the grading and drainage plans or development plans, as appropriate.

Underground Storage

Design considerations shall include underground storage location and emergency flow conveyance to assure foundation stability and safe conveyance of flow in the event of blockage or failure of an underground storage system.

All stormwater collected in an underground storage system shall be completely drained within 36 hours. All underground storage systems should include an underdrain system to ensure stormwater can be completely drained.

Underground storage systems shall have inlets, outlets, and piping that are properly sized for the anticipated peak discharges. In no case shall inlet and outlet piping be less than 12 inches in diameter. It is recommended that inlet and outlet piping be at least 18 inches in diameter to facilitate maintenance and limit sedimentation.

When underground storage systems incorporate an open bottom arch pipe, inlets shall include erosion protection to limit scour. The surface of the erosion protection shall be level with design elevation of the system.

Underground storage systems shall include a non-woven geotextile filter fabric under the underlying rock layer. The filter fabric shall be overlapped a minimum of 2 feet and shall extend vertically along the sides of the system to limit the migration of fines into the system.

Ponding depths for inlets shall not exceed 8 inches.

Underground storage systems shall provide a minimum of 0.5 foot of freeboard. It is recommended that underground systems provide 1 foot of freeboard.

Where possible, underground storage systems shall drain naturally and should not rely on the use of stormwater pumps. Chamber or pipe sizes should be selected based on cover requirements and outfall constraints.

Underground systems shall provide an emergency overflow capable of passing the 100-year peak inflow to account for clogging of the primary outlet. Underground systems shall also provide means of inspection to monitor and schedule maintenance.

Where an underground storage system is proposed, failure or blockage of the system shall not pose a hazard to public safety or property.

Stormwater Pumps

The use of a stormwater pump(s) may be allowed if site constraints prevent a detention facility from having positive drainage. Site constraints may include existing topography, existing infrastructure, etc. Any use of stormwater pumps will require approval from the City Stormwater Section Director. The following criteria shall apply when designing stormwater facilities to include the use of pumps:

1. Under no circumstances shall pumps rely on manual operation. Pumps shall be provided

with automatic control switches with an option to override to manual control if needed.

2. If the use of a pump is proposed, the detention facility shall provide an emergency overflow spillway directed to a local watercourse if present, or the historical outfall location.
3. The use of pumps shall require one of the following criteria:
    a. Additional storage volume to contain the entire volume of the 100-year post-development hydrograph from the drainage area contributing to the basin, or
    b. A back-up pump with an emergency power source.

    It is highly recommended that pumped stormwater facilities are designed with duplex pumps, where either pump can operate alone if one pump becomes temporarily offline.
4. Any service equipment (excluding components that require submersion) shall either be elevated 1 foot above the 100-year water surface elevation or shall be waterproofed.
5. Pumps shall be in an accessible location for routine maintenance and emergency service. Pumps shall not be placed into a wet well or dry well that is incapable of physical entry.
6. Pumps shall be sized accordingly to limit discharge to the pre-development flow rates, as required by the drainage policy set forth in this Manual.
7. The collection system shall be designed to limit the amount of sediment and debris that enters the pump sump.
8. The pump(s) shall be designed to pass a 2.5” sphere.
9. The pumps shall have a high-water alarm with a light that provides a visual alert. The pump housing shall include the name and phone number of the owner and/or operator for emergency contact.
10. Supporting documentation and engineering analysis shall be provided to prove the pumps have been properly sized.
11. If pumps discharge stormwater to a gutter in the street, special care shall be given to the roadway classification and maximum allowable spread.
12. Operation and Maintenance Manual shall be provided to the City for approval with the Design Plans that, at a minimum, shall include a narrative stating maintenance responsibility, describing the equipment installed, the typical operation, required maintenance activities, and needed inspection activities.

6.0 LOW IMPACT DEVELOPMENT

Volumetric increases to City stormwater conveyance systems due to increased impervious surface have resulted in the need to upsize stormwater infrastructure. While detention is effective in controlling peak discharges, the volumetric increase is not abated. Low Impact Development (LID) is an accepted standard in which stormwater is infiltrated and/or reused, resulting in the mitigation of these volumetric increases.

Low Impact Development addresses water quality concerns that can arise when impervious areas are added to previously undeveloped sites. Runoff from impervious areas often contains suspended solids and heavy metals along with other contaminants. Many of the Low Impact Development measures will remove some of these pollutants.

Water conservation is also a consideration when designing for the Low Impact Development requirements. Water can in many cases be reused or directed towards landscape areas in an effort to reduce water consumption. The use of LID aims to control volume increases and reduce the cost of upsizing downstream infrastructure as well as promote water quality and water conservation.

6.1 GENERAL INFORMATION

The City of Flagstaff has implemented Low Impact Development standards intended to target two main emerging concerns – water quality and volumetric reductions. Water quality concerns arise when impervious areas are added to previously undeveloped sites. Runoff from impervious areas often contains suspended solids and heavy metals along with other contaminants. This policy is intended to treat water before off-site discharge and utilize Best Management Practices. The City also intends to reduce water volume by promoting infiltration and thus reducing impacts to local infrastructure. This section outlines the City's Low Impact Development Standards.

6.2 LOW IMPACT DEVELOPMENT POLICIES

1. Stormwater LID is required for all new subdivisions, commercial and industrial developments, redevelopment of non-conforming sites (i.e., existing developed sites that do not have LID that have been razed and vacant for greater than six months), and other developments greater than 1/4 acre in size. LID shall be implemented according to Ordinance No. 2009-07.
    a. Developments are required to retain/infiltrate one (1) inch of runoff from all additional impervious surfaces. The requirement to detain the 2-year storm is not required for sites that fully capture the runoff capture volume. Alternatively, water quality treatment devices can be sized for the 2-year 1-hour storm, but the 2-year detention requirement will not be waived.
2. LID requirements may be waived by the City Stormwater Section Director for the

following:

a. Single-family residential structure or lot (i.e., not associated with a new subdivision).

b. Residential subdivisions with lot areas > 1 acre in area, if it can be shown that such a waiver will not result in any adverse downstream effects, nor create any disturbance to the existing drainage patterns both within and adjacent to the subdivision.

c. Developments less than 1/4 acre or increases in impervious area of < 5,000 square feet. It must be demonstrated to the satisfaction of the Stormwater Section Director that there will be no increase in the potential for damage to adjacent properties and adequate off-site or downstream drainage capacity is available.

3. For developments requiring LID, runoff from all new impervious surfaces shall be infiltrated or reused in accordance with the current applicable standard.

4. The methodology for determining the required volume of stormwater to be infiltrated or reused is as follows:

   a. Impervious Surface Area (square feet) X 1 inch = Runoff Capture Volume

5. In order to provide specific guidance for the design of these LID facilities, the City has developed the City of Flagstaff Low Impact Development (LID) Guidance Manual (Jan 2009). The Manual is hereby adopted as part of these Requirements.

6. The City has established a maximum ponding depth of (0.3) three-tenths of (1) one foot without an engineered infiltration system. Geotechnical investigations that test in situ infiltration may be approved to show higher ponding depths will infiltrate within 36 hours. In all cases, infiltration testing shall be done at the basin floor elevation and shall be performed during saturated conditions. Such approvals are at the discretion of the City Stormwater Section Director.

7. Developments which are phased shall prepare a master stormwater LID plan for the entire development. The master stormwater LID plan must either be implemented with the first phase, if possible, or LID measures must stand alone for each phase. Interim temporary LID facilities may be required for phasing.

8. The City shall not accept small-scale, local on-site LID systems for operation, maintenance, or liability.

9. Maintenance of local on-site LID facilities shall be the responsibility of the property owner, developer or homeowner's association. The City shall reserve the right to periodically inspect any LID facilities to verify that regular maintenance activities are being performed. Final Plats; Covenants, Conditions, and Restrictions (CC&R's); and/or

Development Plans shall include a special note stating that (1) the owner(s) shall be solely responsible for the operation, maintenance, and liability for all LID facilities; and, (2) the City of Flagstaff may periodically inspect said LID facilities to verify that regular maintenance activities are being performed adequately.

10. The City of Flagstaff Parks and Recreation Division shall review and approve proposed stormwater LID facilities designed within designated public areas or parks. Review and approval from the Parks and Recreation Commission may also be required.
11. No part of a private LID facility shall be constructed in a public right-of-way or public utility easement.
12. If low impact development (LID) is proposed in the right-of-way, the design shall ensure the preservation of adjacent pavement section, or other associated infrastructure, as the result of infiltration and/or standing water associated with an IMP. An approval from the City Engineer and the Public Works Section Head is required.
13. A detailed operations and maintenance manual is required to be submitted with the construction plans that, at a minimum, shall include a narrative describing the purpose and function of the IMP, required maintenance activities, and needed inspection activities.
14. The runoff control volume (ROCV) requirement can be addressed by: (1) retaining the required minimum ROCV for a minimum of 24 hours, (2) treating the discharge from the 2-year storm, or (3) utilizing a combination of both approaches. The maintenance of LID facilities shall be the responsibility of the developer, HOA, or property owner(s).

6.3 RAINWATER HARVESTING REQUIREMENTS

Rainwater harvesting is the process of intercepting, conveying, and storing rainfall for future use. Interest in adapting this practice to urban areas is increasing as it provides the combined benefits of conserving potable water and reducing stormwater runoff. When harvested rainwater is used to irrigate landscaped areas, the water is either evapotranspired by vegetation or infiltrated into the soil, thereby helping to maintain the pre-development water conservation.

Active rainwater harvesting systems are mandatory, with a storage tank sized to capture a minimum 1” of rainfall from the roof, or to provide anticipated annual landscaping water demand, whichever is less, for new developments other than single-family residential (including those less than 1/4 acre), EXCEPT:

1. In cases in which the developer uses exclusively native/drought-tolerant plants in compliance with the Landscaping Standards and utilizes passive rainwater harvesting,

or

2. Where landscaping water demand can be met through other sources of non-potable water, or
3. In areas of food production, such as community gardens.

Passive rainwater harvesting is the practice of slowing down water and encouraging it to soak into the ground. By building simple structures, stormwater can be used beneficially, encouraging plant growth in landscapes and natural areas, healing erosion cuts, and can even replace the need to irrigate with potable water. The key is capturing rain and snow that falls on the property instead of letting it run off uselessly to contribute to erosion and/or flooding.

In a passive rainwater harvesting system, runoff is directed from the catchment area to the landscaped area, where water can be immediately used by the plants. Catchment areas include soil surfaces, roofs, roads, and sidewalks. Passive rainwater harvesting can be incorporated into sites through grading plans that allow water to reach landscaped areas.

6.4 LID REFERENCES

The City of Flagstaff has created a guidance manual to assist with site design to include the necessary components of low impact development. ROCV treatment and rainwater harvesting shall conform to the implementation guidelines outlined in the following reference material:

- City of Flagstaff *Low Impact Development – Guidance Manual for Site Design and Implementation* (2009, or latest edition)
- City of Flagstaff Ordinance 2012-03 – Amendments to the LID manual to include Chapter 6 *Rainwater Harvesting*
- City of Flagstaff *Residential Rainwater Harvesting – A Guide to Water-Wise Planning and Design* (2012, or latest edition)

7.0 EROSION HAZARD/BUILDING SETBACKS

In addition to the hazards associated with flooding, natural and unlined artificial channels can experience erosion of the channel banks over a long period of time or during a single storm event. This can present a particular danger to adjacent structures or other development as the channel banks erode or migrate.

The purpose of this section is to present erosion hazard and building setback policies to be applied to new development adjacent to natural watercourses or unlined engineered open channels in order to protect structures from potential damage. This requirement is in addition to other applicable setbacks in the City of Flagstaff City Code and the adopted International Building Codes.

POLICIES

1. All new buildings or structures constructed adjacent to a natural watercourse or an unprotected engineered channel located within City of Flagstaff shall be set back from the channel top of bank in order to protect the structure from erosion of the channel banks and to allow for maintenance access and buffer. Refer to ADWR SS 5-96 for guidance.
2. The setback shall be measured from the top edge of the highest channel bank with the minimum setback being ten (10) feet to allow for access and maintenance considerations. Refer to ADWR SS 5-96 Level 1 – 3 for guidance to determine the Erosion Hazard Setback – this governs if greater than 10’ including adequate maintenance access.
3. A slope stability analysis of the channel may be required by the City Stormwater Section Director if conditions exist which indicate that the channel bank may be unstable.
4. Exceptions or reductions of the building setback requirements may be granted by the Stormwater Section Director if it can be demonstrated that adequate erosion and flow velocity protection can and will be constructed. All requests and plans for exception or reduction of setback requirements must be accompanied by a detailed soil-stability and/or sediment transport studies approved by the Stormwater Section Director. Requests for reduction of the minimum building hazard setbacks must take access and maintenance into consideration.
5. Building setbacks from natural channels or unlined engineered channels may still be applicable even if it is demonstrated that the channel is stable under Policies 3 and 4 above.
6. Natural vegetation is not an acceptable means of bank stabilization for the purpose of reducing building setbacks. Vegetation may be used along watercourses where flow velocities are less than five (5) feet per second during the 100-year discharge, provided that there is an acceptable seeding and maintenance program.

8.0 EROSION AND SEDIMENT CONTROL

Erosion and sedimentation are natural or geologic processes by which soil material is detached and transported from one location and deposited in another, primarily by rainfall and stormwater runoff. Urban development tends to accelerate erosion and sedimentation, resulting in safety hazards, costly maintenance problems, unsightly conditions, instability of slopes, and disruption of ecosystems.

For these reasons, the total design process of any project (public or private) must be done with due consideration given to minimizing erosion and sedimentation, particularly during construction activities. This section will present general guidelines and criteria for erosion and sediment control measures or Best Management Practices (BMP). Additional guidelines, policies, and criteria will be incorporated into subsequent revisions of this manual or as state or federal NPDES requirements mandate.

8.1 POLICIES

1. The effects of erosion shall be considered in the location and design stages of new development, since erosion can be controlled to a considerable degree by geometric design particularly relating to cross-section.
2. The level of effort by the engineer and use of erosion control measures shall be commensurate with the potential for erosion.
3. On-site erosion control measures shall be applied to reduce the gross erosion (e.g., gullies or rilling) and sediment transport from the site.
4. Sediment control shall be used whenever possible or necessary to prevent offsite damage or sediment deposition on public streets.
5. Special consideration shall be given to the maintenance of existing and proposed vegetative cover in areas of high erosion potential such as erodible soils, steep slopes, drainageways, and banks of streams.
6. Storm Water Pollution Prevention Plans (SWPPP) are required for any land disturbing activity greater than one acre. Small construction operations that disturb between one and five acres may be eligible for an low erosivity waiver (LEW) if it can be proved the activities present a low potential for soil erosion for the duration of the project in accordance with the EPA Stormwater Phase II (https://lew.epa.gov/) . SWPPP's should be prepared by an engineer.

8.2 GENERAL GUIDELINES

The design of erosion and sediment control measures involves the application of common-sense planning, scheduling, and the control activities which will minimize the adverse impacts of soil erosion, transport, and deposition. The following basic guidelines should govern the development and implementation of sound erosion and sediment control

measures:

- The project should be planned to take advantage of topography, soil type(s), waterways, and natural vegetation on the site.
- The smallest practical area(s) should be exposed for the shortest possible time.
- Use of flat side slopes, rounded and blended with the natural terrain.
- Drainage channels designed with regard to width, depth, slopes, alignment and protective treatment.
- Use of facilities for groundwater interception.
- Use of berms, dikes, sediment traps and other protective devices.
- Use of protective ground covers, grassed swales, natural vegetation, and landscaping.
- A thorough maintenance and follow-up program should be implemented.

These basic guidelines should be tied together in the planning process that identifies potential erosion and sediment control problems before construction begins.

8.3 DESIGN CRITERIA

The following criteria represent the minimum requirements necessary for controlling erosion and sedimentation from construction activities. These criteria are intended to work in conjunction with individually developed plans and establish minimum standards of soil conservation practice which apply to all land disturbing activities.

8.4 STABILIZATION

The following criteria refers to stabilization of denuded areas and soil stockpiles:

1. Permanent or temporary soil stabilization should be applied to denuded areas within fifteen (15) days after final grade is reached on any portion of the site. Soil stabilization should also be applied within (15) days to denuded areas which may not be at final grade but will remain dormant for longer than sixty (60) days.
2. Applicable practices include but are not limited to temporary erosion control material, vegetative establishment, mulching, and the early application of a gravel base on areas to be paved.
3. Soil stockpiles should be stabilized or protected with sediment trapping measures to prevent soil loss.

8.5 CUT AND FILL SLOPES

Cut and fill slopes, including those for public roadways, shall be designed and constructed in a manner that will minimize erosion. Consideration shall be given to the length and steepness of the slope, the soil type, upslope drainage area, groundwater conditions, and other applicable factors. The following guidelines are provided to aid in developing

adequate design:

1. Roughened soils surfaces are preferred to smooth surfaces on slopes.
2. Diversions shall be constructed at the top of long steep cut slopes which have significant (greater than 40 feet in length upslope) drainage area above the slope in accordance with International Building Code, Appendix J. Diversions or terraces may be utilized to reduce slope lengths.
3. Concentrated stormwater shall not be allowed to flow down a cut or fill slope unless contained within an adequate temporary or permanent channel flume or slope drain structure.
4. Wherever a slope face crosses a water seepage plane that endangers the stability of the slope, adequate subsurface drainage facilities or other protection measures shall be provided.
5. Grading Property Line setbacks per International Building Code, Appendix J. Setback shall be Fill Height/2, minimum 2' and need not exceed 20' maximum.

8.6 STREAM CROSSINGS

All construction related to crossing streams or washes shall be in accordance with U.S. Army Corps of Engineers Section 404 Permitting requirements, ADEQ Section 401 Water Quality Certification requirements, and requirements of the City Stormwater Section Director.

Construction vehicles shall be kept out of watercourses to the extent possible or in areas not identified on the approved plans. Where in-channel work is permitted, precautions shall be taken to stabilize the work area during construction, prevent sedimentation, and allow stormwater runoff through the work area. The channel bed and banks shall always be re-stabilized immediately after in-channel work is completed.

Where an active (wet) watercourse must be crossed by construction vehicles regularly, a temporary stream crossing shall be provided in accordance with criteria established by the Corps of Engineers 404 permitting program or the City Stormwater Section Director.

8.7 VEGETATIVE COVER

Seed bed preparation shall be considered for all vegetative control measures on public roadway fill slopes. Soil characteristics such as depth of rock, pH, fertility, and moisture shall be evaluated during plant selection. Lime, fertilizer, and irrigation will often be required to establish vegetative cover.

Permanent seeding with perennial cover shall only be used for public roadway fill slopes not exceeding 2H:1V and six (6) feet in height, during acceptable growing seasons.

Sodding should be used in areas requiring additional protection from concentrated flow, such as grassed swales and waterways and storm drain inlets (if velocities are acceptable).

Sodding may also be appropriate when an immediate aesthetic effect is desired.

Mulching shall be used on public roadway slopes with all seeding operations to provide temporary protection during adverse weather conditions. Typical mulching material includes straw, hay, and wood chips.

8.8 STORMWATER POLLUTION PROTECTION PLANS

Stormwater Pollution Prevention Plans (SWPPP), BMP's, erosion, and sediment control design methods and facilities should be in accordance with the ADOT Erosion and Pollution Control Manual (2012, or latest version). The SWPPP can be a separate plan sheet or can be incorporated into the grading & drainage plans.

9.0 BURNED WATERSHEDS AND POST-WILDFIRE FLOODING

Wildfires in the Western United States have historically played a significant role in forest ecology. Before modern development, wildfires were a periodic natural process driving forest succession. Wildfires traditionally burned through forested areas with low intensity, removing low lying vegetation and initiating new plant growth in the following years. During the late 20th century, humans began to significantly alter forest ecosystems through fire suppression in an effort to protect property.

As a result of high levels of fire suppression, forests across the Western U.S. now contain unprecedented amounts of trees and other fuel loads. Combined with record level droughts and drier forests, wildfires now burn as high intensity crown fires. Even after wildfires have been successfully contained and suppressed, the lasting implications of the resulting burn scars have proven to be highly problematic for both existing and future development.

Infiltration capacities of the underlying soil matrix in burn scars are significantly reduced due to high intensity heat, loss of organic matter, and changes to water repellency. More importantly, as rainfall events occur over burn scars with little to no vegetation and newly altered soils, extreme flooding, debris/mud flows, and erosion follow. As seasonal monsoons begin to hit the Flagstaff area in mid to late summer, rainfall events over burn scars have been shown to create monumental floods that are highly threatening to property. This section is intended to provide information and design criteria for projects located either within or downstream of a burned watershed.

9.1 BURNED WATERSHED POLICIES

The City of Flagstaff has adopted new stormwater management policies in this section regarding projects located within or downstream of burned watersheds.

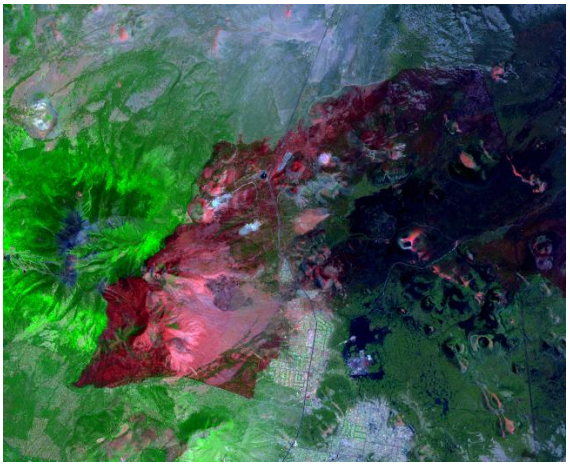
1. Due to the complexity of hydrologic and hydraulic modeling of burned watersheds, a two-dimensional (2D) flood routing model shall be performed for all burned watersheds within the City of Flagstaff.
    a. 2D models are better equipped to determine overtopping and possible secondary flow paths. Post-wildfire flood limits are also much higher than historical values and should be mapped to determine properties and infrastructure that are at risk.
    b. For burned watersheds that have already been studied, flow rates shall be determined from existing 2D model cross sections.
    c. Lumped parameter modeling such as HEC-HMS may be utilized if applicable and a 2D model is beyond the scope of a particular analysis.
2. A flood depth map and velocity map shall be provided with all 2D flood models of

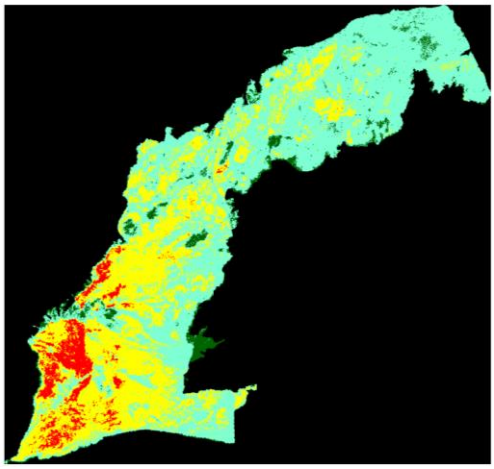
burned watersheds. See section 10 for mapping requirements of 2D models.

3. Post-wildfire hydrologic and hydraulic parameters shall be adjusted in conjunction with burn severity maps produced by the USFS BAER Team if available.
4. All culverts downstream of burn scars shall be assessed to determine if a bulking factor should be considered to account for sediment and debris loads.
5. New culverts that are downstream of burn scars shall be designed to include the bulking factor as determined in 4. and including a 50% clogging factor. This requirement shall be in place for a 10-year post-burn period, or until a stabilization project has been constructed or until the it is demonstrated that the watershed has sufficiently recovered.
6. New culverts within or downstream of burn scars shall not include trash racks due to the speed at which total clogging occurs. This requirement shall be in place for a 10-year post-burn period, or until a stabilization project has been constructed or until the it is demonstrated that the watershed has sufficiently recovered.
7. For projects located within or downstream of a burned watershed, post-wildfire no adverse impact criteria shall apply (see Section 9.7).

9.2 POST WILDFIRE ASSESSMENT

The U.S. Forest Service has implemented Burned Area Emergency Response (BAER) teams to identify and assess post-wildfire threats to human life, safety, property, and natural resources for burn areas that impact a national forest. The BAER Imagery Support program tracks wildfire progression with satellite imagery and generates Burned Area Reflectance Classification (BARC) maps used to predict soil burn severity by comparing the reflectance in certain wavelengths between pre- and post-wildfire aerial images. The BARC process includes both field verification and spatial data analysis aimed at creating GIS layers that are used to modify drainage models. The images below are the BARC products from the Pipeline Fire (26,532 acres) that burned in the Flagstaff area in June 2022. On the left is the aerial imagery that was taken by the BAER team, and on the right is the soil burn severity prediction.





Burn severity is a qualitative assessment of the heat pulse directed toward the ground during a fire. The assessment considers factors including but not limited to soil heating, fuel and duff consumption, and the extent/degree of burned vegetation. Areas that resulted in the burning of all or most of the soil organic matter have been known to form thicker hydrophobic layers that significantly reduce infiltration capacity. The burn severity maps include three classifications: *low severity* (light green)*, moderate severity* (yellow)*, and high severity* (red). Areas that remained unburned are shown in dark green.

- **Low severity** – surface organic layers are not completely consumed, and roots are generally unchanged due to minimal heat penetration of the soil. Exposed mineral soil layers may appear lightly charred, but the canopy and understory vegetation are generally unchanged. A visual indicator is black ash.
- **Moderate severity** – up to 80% of the pre-fire ground cover may be consumed. Roots may be scorched but are generally not completely consumed, and soil structure is generally unchanged. A visual indicator is gray ash.
- **High Severity** – All or nearly all of the pre-fire ground cover is generally consumed, along with roots up to 0.1 inches (0.25 cm) in diameter. Charring may be visible on larger roots. Significant bare or ash-covered soil is exposed. Soil structure is unstable due to loss of root mass. A visual indicator is white and orange ash.

Due to the on-going development of Post-Fire science, it is recommended that the designer of projects impacted by post-wildfire flows reference current published sources such as the BAER manual, BaRC products and other sources including information on re-burn areas as applicable.

9.3 POST WILDFIRE ASSESSMENT

Accounting for changes in runoff hydrology of post-wildfire conditions is typically a matter of determining the extent to which watersheds have been impacted by burn severity. When comparing hydrographs of pre-fire and post-fire watersheds, post-fire hydrographs have higher peak discharges, faster times to peak, and higher hydrograph volumes. Wildfires may alter any or all of the components that are used to compute hydrologic models (e.g., vegetative cover, surface depression storage, infiltration, etc.).

When adjusting parameters used to estimate infiltration capacities, several methods are available such as curve number (an empirical method) or Green and Ampt (a physical method). Existing methods for adjusting hydrologic parameters including infiltration to account for wildfire effects are heavily reliant upon the judgement of engineers and hydrologists who have experience in burned watersheds. Developing flood models is an iterative process that relies on observation of field data to calibrate hydrologic and hydraulic modeling parameters to produce accurate flood stages and velocities for any given rainfall event. Due to a lack of complete soils data in Northern Arizona from the USDA Web Soil Survey at the time of this Manual, the Green and Ampt loss method will require approval from the City Stormwater Section Director and the input parameters will be provided by the City of Flagstaff for consistency in the area.

Adjustment of Curve Number

The adjustment of curve number to account for post-wildfire conditions has increasingly been studied for the last decade or two. The Natural Resource Conservation Service (NRCS) – a department of the U.S. Department of Agriculture – has published curve numbers for burned watersheds for the Southwest Region (Region 3 – Arizona and New Mexico) under Hydrology Technical Note No. 4 *Hydrologic Analyses of Post-Wildfire Conditions* (August 2016). Table 9-1 and Table 9-2 summarize the curve numbers for various combinations of hydrologic soil group, burn severity, and hydrophobicity.

TABLE 9-1: POST-FIRE CURVE NUMBERS

POST-WILDFIRE CONDITION	CURVE NUMBER
High burn severity with hydrophobic soils	95
High burn severity without hydrophobic soils	90 - 91
Moderate burn severity with hydrophobic soils	90
Moderate burn severity without hydrophobic soils	85
Low burn severity	$CN_{pre\text{-}fire}$ + 5
Straw mulch with good coverage	60
Seeding with log erosion barriers, 1-year post-fire	75
Log erosion barriers without hydrophobic soils	85

From Table 8 of USDA Hydrology Technical Note No. 4

TABLE 9-2: POST-FIRE CURVE NUMBERS BY HYDROLOGIC SOIL GROUP

HYDROLOGIC SOIL GROUP	$CN_{PRE-FIRE}$	$CN_{POST-FIRE}$		
		LOW BURN SEVERITY	MODERATE BURN SEVERITY	HIGH BURN SEVERITY
B	56	65	-	-
C	67	70 - 75	80	90
D	77	80 - 85	90	95

From Table 9 OF USDA Hydrology Technical Note No. 4

The values presented in Table 9-1 and Table 9-2 are intended to provide initial estimations for post-fire curve numbers. Due to the on-going development of Post-Fire science, it is recommended that the designer of projects impacted by post-wildfire flows reference current published sources for model parameters including information on re-burn areas as applicable. There is local monitoring that is on-going that should be consulted.

Curve number values should be iterated in conjunction with field observations to produce approximations of flood depths, velocities, and volumes within an acceptable error limit. The consultant shall submit all curve numbers to the City for approval with the appropriate back up studies and information.

Adjustment of Green and Ampt Infiltration Parameters

Two simplified methods of adjusting infiltration parameters for the Green and Ampt method are available: (1) the hydraulic conductivity may be reduced or (2) the percentage of impervious area may be increased. The hydraulic conductivity is a quantitative measure of a saturated soil's ability to transmit water when subjected to a hydraulic gradient. By reducing this parameter, the soil will transmit less water as losses and more surface runoff will occur. Alternatively, by increasing the percentage of *impervious* area for a given catchment, the remaining percentage of *pervious* area of the catchment will decrease and subsequently, a smaller fraction of the catchment will transmit infiltration losses.

Due to the on-going development of Post-Fire science, it is recommended that the designer of projects impacted by post-wildfire flows reference current published sources for model parameters including information on re-burn areas as applicable. There is local monitoring that is on-going that should be consulted. The consultant shall submit all parameters to the City for approval with the appropriate back up studies and information.

9.4 POST WILDFIRE SEDIMENTATION

Normal principles of open channel flow are based on liquid water that is relatively free from sediment and debris. Predicting the movement of sediment and debris laden water presents challenges due to the high variability in size, shape, and availability of any given soil mass. Sediment typically has relatively consistent unit weights; however, the particle

size distribution and soil cohesion can be highly variable, both of which influence the prediction of sediment transport. The energy of a stream current is directly proportional to the likelihood of transporting sediment as well as the distance a particle travels before being deposited back onto the channel bed.

Higher levels of sediment transport are very common following wildfires in mountainous regions. A lack of vegetation and roots to hold the soil in place largely contribute to the susceptibility of erosion. Additionally, the steepness of mountainous watersheds contributes both to the energy of any given stream as well as lowering the minimum energy required to move any given soil particle. Not only do streams from post-wildfire watersheds contain high sediment loads, they also contain high amounts of debris including logs and partially burned branches. Once a sediment laden water course reaches a flatter area where water can begin to spread out, the average stream velocity is reduced, and sediment deposition occurs. However, vegetation debris is more susceptible to being transported farther distances due to the effects of buoyancy.

9.5 SEDIMENT BULKING

Hydrographs that are obtained from traditional drainage models do not account for sediment bulking. Sediment bulking refers to the concept of raising hydrograph flow rates to account for larger volumes due to sediment loads. For any given hydrograph, the total bulked volumetric flow rate is equal to the sum of the volumetric flow rate of water and the volumetric flow rate of sediment. A simple method to account for sediment bulking is the application of a bulking factor to the flow rate of water. As discussed in USDA Hydrology Technical Note 4, debris flows are defined as flows which entrain at least 20% gravel and coarse-grained granular material; for hyper-concentrated debris flows, that percentage may be as high as 60%. Mud flows involve large amounts of suspended particles, particularly silt and clay. Both debris and mud flows have a higher density than normal streamflow which can contribute to higher dynamic loads.

Due to the on-going development of Post-Fire science, it is recommended that the designer of projects impacted by post-wildfire flows reference current published sources for model parameters for sediment and sediment bulking including information on re-burn areas as applicable. There is local monitoring that is on-going that should be consulted.

9.6 PREVIOUS WILDFIRES AND EXISTING BURN SCARS NEAR FLAGSTAFF

The first recorded wildfire to affect the Flagstaff area occurred in 1977 and was named the Radio Fire, which burned the south side of Mount Elden. Since 2010, wildfires have become increasingly more common, with several fires occurring in the summer of 2022. Table 9-3 summarizes previous recorded wildfires that have affected the Flagstaff area. The wildfires vary greatly in size and post-fire flooding impacts.

TABLE 9-3: PREVIOUS WILDFIRES IN THE FLAGSTAFF AREA

WILDFIRE NAME	SIZE (ACRES)	YEAR	GENERAL LOCATION	CAUSE
Radio Fire	4,594	1977	South Mount Elden	Campfire
Schultz Fire	15,051	2010	Schultz Peak	Campfire
Museum Fire	1,961	2019	Dry Lake Hills/North Mount Elden	Logging
Tunnel Fire	19,060	2022	Highway 89, Sunset Crater	Unknown
Haywire Fire	5,575	2022	Haywire Crater	Unknown
Pipeline Fire	26,532	2022	Southeast San Francisco Peaks, Schultz Peak, Highway 89, O'Leary Peak	Camper burning trash

9.7 POST WILDFIRE NO ADVERSE IMPACT CRITERIA

No Adverse Impact (NAI) is a drainage concept that has developed since the mid to late 20th century. Simply stated, no adverse impact means that the actions of any community or property owner should not adversely impact the property and rights of those downstream. Adverse impact can be determined and/or measured in a variety of different ways, but generally can be attributed to higher flood stages, increased velocities, increased flow rates, degradation of water quality, or creating non-historical outfall locations without permission or without properly attenuating impacts.

The NAI criteria for projects affected by post-fire flooding are different than traditional projects in unburned watersheds which do not allow any negative drainage impact. The intent of the NAI criteria is to provide a mechanism to allow for reasonable impacts through exceptions and higher allowances for proposed mitigations in areas with watersheds affected by fire. The following NAI criteria apply to projects that incorporate flood mitigation measures or other drainage related improvements.

No Adverse Impact – Flow Depth

The following criteria are applicable to the *flood inundation area* which is defined as any area where excess runoff flows or ponds to depths of 0.5 feet or higher for any given storm event.

1. No greater than 10% increase in maximum water surface elevation is permitted for the post-development, post-fire storm event compared to the pre-development, post-fire flow depth for all typical frequency storms at or above the 5-year storm event and up to the 100-yr storm event, unless flooding is fully contained within a

defined conveyance and is within a drainage easement or right-of-way.

Any increase in water surface elevation higher than the allowable limits set forth in this section will require proof of adequate downstream capacity and will require approval of the City Stormwater Section Director.

No Adverse Impact – Velocity

The following criteria are applicable to areas that have maximum flood velocities at or above 3 feet per second. Lower velocities are generally considered non-erosive.

1. Increases in maximum flood velocity shall not exceed 10% of the pre-development, post-fire velocity, for all frequency storms at or above the 5-year storm event and up to the 100-yr storm event.
    a. Any improvements that exceed the greater of the two limits shall include adequate erosion protection to mitigate potential damage that might result from the increase.
    b. Areas that have velocity increases higher than the allowable limits shall also be contained within an existing or proposed channel or other conveyance system and shall be contained within a drainage easement or right-of-way.

Any increase in velocity higher than the allowable limits set forth in this section will require proof of adequate erosion protection measures and will require approval of the City Stormwater Section Director.

10.0 TWO-DIMENSIONAL FLOOD MODELING

Per FCDMC Hydraulics Manual Chapter 12.2, two-dimensional flood models are best suited for applications where:

1. There are large areas of sheet flow that cause significant flow attenuation and transmission losses.
2. There are significant obstructions to flow, the local effects of which need to be simulated.
3. There are distributary flow areas that cannot be readily modeled as flow diversions using 1D hydraulic rating curves.
4. There are channels that can be modeled using 1D methods, but overbank flow is unconfined.
5. Unconfined flow hydrology and hydraulics are interdependent and cannot be modeled separately with an acceptable degree of accuracy.

10.1 MODELING PARAMETERS

Any two-dimensional flood model within the City of Flagstaff shall be developed using the following guidelines.

Elevation Data

Two-dimensional flood models shall utilize a 1-meter maximum or better resolution digital elevation model (DEM) produced from the most recently available aerial LiDAR survey. Break lines and key elevation points should be provided to create the DEM.

Grid Size

The design engineer shall consider the terrain, project objectives, area and conveyances when using engineering judgement in selecting the grid size for a 2D model. The designer shall provide a write up that describes the sizing, break lines and refinement regions for approval by the City Stormwater Section Director.

Rainfall

Point rainfall values shall be taken from NOAA Atlas 14 and should be spatially varied.

The need for areal reduction of point rainfall should be evaluated based on the size of the watershed and locations where design flow rates are needed. Engineering judgement must be applied when considering the use of an areal reduction factor. In many cases, no areal reduction may be the best solution, especially for small watersheds or areas with complex distributary flow.

Rainfall Losses

Rainfall losses shall be modeled using either the curve number method or Green and Ampt

method. A soil limiting infiltration depth must be specified when using the Green and Ampt method of losses.

The adjustment of hydraulic conductivity (XKSAT) should not be modified based on vegetative canopy cover.

Time Step

2D models should be developed using automated time step adjustments. A time step no greater than 0.1 hours is reasonable in many situations.

Model Verification/Calibration

Every 2D model should be verified and/or calibrated to the greatest extent possible. This may include the modeling of a historical rainfall event and comparing available stream gage data as well as field observations. If modeling results are significantly different than observed/recorded events, modeling parameters should be adjusted accordingly to match the field conditions to the greatest extent possible.

Cross Sections

Flow recording cross sections shall be defined at key locations such as street crossings, wash confluences, detention basins, or other areas that could be deemed appropriate. Cross sections shall be perpendicular to the flow direction.

Flow Obstructions

2D models should include pertinent flow obstructions such as levees, buildings and other permanent structures that impede flow. Walls that are non-flow through should be considered by the consultant and included if determined to impact flow depths and patterns. Fences need not be considered.

Hydraulic Structures

Hydraulic structures such as culverts, bridges, and storm drains should be included in the 2D model to a level consistent with the purpose of the model as approved by the City Stormwater Section Director. Structures such as culverts and catch basins should have individual hydraulic rating curves developed based on the existing or proposed configuration.

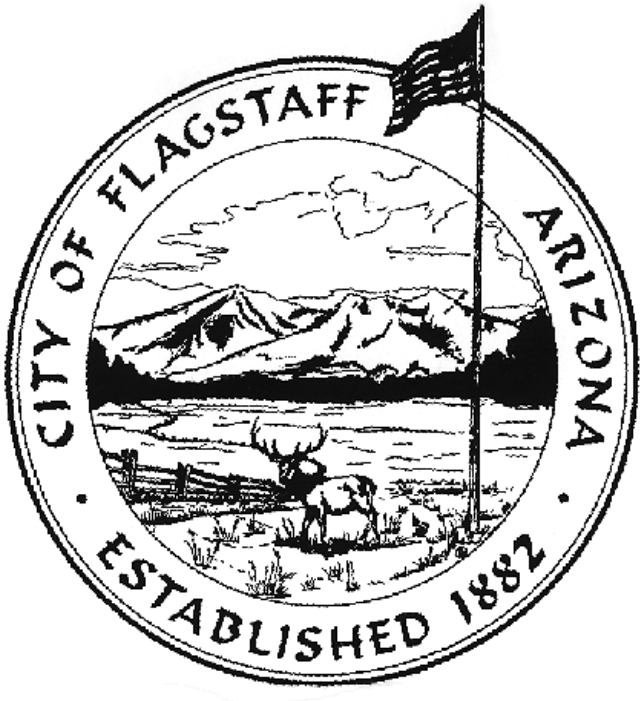
10.2 MAPPING REQUIREMENTS

Two dimensional models shall be required to provide both flood depth and flood velocity maps at a visible scale. Flood maps shall report maximum flow depths and maximum velocities per the following schedule.

Maximum Flow Depth	Maximum Velocity
• < 0.20 ft (Do not plot) • 0.2 - 0.5 ft • 0.5 - 1.0 ft • 1.0 - 2.0 ft • 2.0 - 3.0 ft • 3.0 - 4.0 ft • 4.0 - 5.0 ft • > 5.0 ft	• < 2.0 ft/sec (Do not plot) • 2.0 – 4.0 ft/sec • 4.0 - 6.0 ft/sec • 6.0 - 8.0 ft/sec • 8.0 - 10.0 ft/sec • > 10.0 ft/sec

Careful consideration shall be given to the grid color plots to ensure that results are easily able to be visually determined.

CITY OF FLAGSTAFF
STORMWATER MANAGEMENT
DESIGN MANUAL



City of Flagstaff Engineering Division
Stormwater Management Section
211 West Aspen Avenue
Flagstaff, Arizona 86001

March, 2009

FOREWARD

The information presented in this manual is to be used for the preparation of drainage reports, flood studies, engineered plans, and other stormwater related analyses required by the City of Flagstaff. Other appropriate procedures not presented in this manual may also be used, provided that approval for their use is first obtained from the Stormwater Manager.

The information contained in this manual is based on what is believed to be the best procedures and techniques available at the time this document was prepared. Every attempt was made to define the applicability and the limits of the policies, criteria, and procedures presented herein. It is however, the responsibility of the user of this manual to exercise proper engineering judgement in the application of the procedures presented herein for the analysis and design of stormwater and flood control improvements.

As further progress is made in applied hydrology and hydraulics, appropriate modifications will be made to this manual. The user should therefore contact the Stormwater Management Section, prior to the use of this manual, to obtain any modifications and errata sheets that may apply.

ACKNOWLEDGEMENTS

This manual was prepared by the City of Flagstaff Utilities Division, Stormwater Management Section. The City of Flagstaff would like to extend its appreciation to the City Staff and Flagstaff's consulting engineering firms who provided input and technical review of the manual during its development.

March, 2009

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DEFINITIONS

For the purposes of use in this manual, the following terms are defined as indicated:

AGGREGATION - a progressive buildup or raising of a channel or stream bed due to sediment deposition.

ARTERIAL STREET - a Type I or Type II street as defined in the City of Flagstaff Engineering Design and Construction Standards & Specifications.

ATTENUATION - a reduction in downstream peak flood discharges induced by storage provided within stormwater detention facilities, channels, and overbank areas.

BASE FLOOD - means that flood event having a one (1) percent chance of being equaled or exceeded in any given year. Also referred to as the 100-year flood event.

CARRYOVER FLOW - is that portion of gutter flow which bypasses an inlet on a continuous grade. Also referred to as "bypass flow".

CITY - shall mean the City of Flagstaff.

CHANNEL - a natural or man-made conveyance for water in which the water surface is exposed to the atmosphere and the gravity force component in the direction of motion is the driving force.

COMBINATION INLET - a pavement drainage structure typically comprised of a curb-opening and a grate inlet.

COLLECTOR STREET - a Type III street as defined in the City of Flagstaff Engineering Design and Construction Standards & Specifications.

CRITICAL DEPTH - is that depth of flow at which the specific energy of a given flow rate is at a minimum.

CROWN - synonymous with "soffit". Not to be confused with a street crown.

CURB - a concrete barrier found at the edge of the street pavement, usually six to eight inches in height.

CURB-OPENING INLET - a pavement drainage inlet consisting of an opening in the vertical curb of a roadway section.

CULVERT - a relatively short, closed conduit typically designed hydraulically to take advantage of submergence to increase hydraulic capacity used for the purpose of conveying surface runoff under an embankment or roadway fill section.

DEGRADATION - a progressive lowering of a channel bed due to scour.

DESIGN CRITERIA - are the standards by which a policy is carried out or placed into effect.

DETENTION FACILITY - a permanent flood control system or stormwater management facility whose primary purpose is to temporarily store stormwater and release the stored stormwater runoff at controlled rates. Also used as a means of attenuating the effects of increased runoff caused by development by temporarily storing runoff and metering the discharge at pre-development rates, thereby lengthening the duration of flow.

DEVELOPMENT - means any land change, including but not limited to subdivisions, buildings, other structures, mining, dredging, clearing, grubbing, stripping, grading, paving, excavation, drilling, transporting and filling of land.

DROP INLET - a drainage inlet with a horizontal or nearly horizontal opening.

DROP STRUCTURE - a hydraulic structure used in an open channel or conduit for grade control or energy dissipation purposes.

EMBANKMENT - a man-made earth fill structure constructed for the purpose of roadway elevation, detention and/or impoundment of water.

ENERGY DISSIPATOR - any device designed to protect downstream areas from erosion by reducing the velocity of flow to acceptable limits.

ENGINEER - a registered professional engineer in the State of Arizona who demonstrates proficiency in the specific area of design.

EROSION - the process of removal and transport of soil particles or land surface by the action of wind, water, ice, gravity or any combination thereof.

EROSION AND SEDIMENT CONTROL - the control of solid material, both mineral and organic, during a land disturbing activity or development to prevent its transport out of the disturbed area or development.

FEMA - an abbreviation for the Federal Emergency Management Agency.

FILTER BLANKET (LAYER) - a layer of graded, intermediate size gravel placed between fine-grained (natural) material and riprap to prevent the erosion of the finer material. Also referred to as a "granular filter".

FILTER FABRIC - a layer of synthetic material that serves the same purpose as a filter blanket.

FLARED WINGWALLS - the part of a culvert headwall which serves as a retaining wall for the roadway embankment or channel banks. The walls form an angle to the centerline of the culvert.

FLOODPLAIN - is those areas adjoining the channel of a watercourse including areas where drainage is or may be restricted by man-made structures which have been or may be covered partially or wholly by floodwater from the one hundred year flood.

FLOODWAY - is the channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than a designated height.

FLOODWAY FRINGE - is that portion of the Special Flood Hazard Area (100-year floodplain) located outside of the Regulatory Floodway.

FLUME - an open or closed channel used to convey water, typically down an embankment.

FREEBOARD - is the additional vertical distance between the calculated maximum level water surface in a culvert, reservoir, tank, detention basin, channel, canal, or wash and the top of the confining structure.

FROUDE NUMBER - a dimensionless number that represents the ratio of inertial forces to gravitational forces. High Froude numbers are indicative of high velocity and high potential for scour.

GRADE CONTROL STRUCTURE - a hydraulic structure constructed across an open channel or stream from bank to bank to control bed slope and prevent channel degradation and headcutting.

GRADING AND DRAINAGE PLAN - the set of drawings and other documents that comprise all the information and specifications for the drainage system, structures, concepts and techniques that will be used to control stormwater runoff, erosion, and sediment transport.

GRATE INLET - a drainage structure consisting of an opening in the gutter, covered by one or more metal grates, set flush with the pavement or gutter or located at the roadside in a low point, swale or channel.

GUTTER - that portion of the roadway section adjacent to the curb which is utilized to convey stormwater runoff. It may include a portion or all of a traveled lane, shoulder or parking lane, and a limited width adjacent to the curb may be of different materials and have a different cross slope.

HEADCUTTING - is an abrupt vertical drop in an earthen channel bottom or embankment caused by erosive flows. This type of erosion typically moves upstream due to changes in discharge and sediment load characteristics.

HEADWALL - the structural appurtenance usually applied to the end of a culvert to control an adjacent roadway embankment and protect the culvert end.

HEADWATER - is that depth of water impounded upstream of a culvert due to the influence of

the culvert constriction, friction, and configuration.

HYDRAULIC GRADE LINE (HGL) - a line which represents the static head plus the pressure head of flowing water and is equal to the total energy grade line minus the velocity head at any point along a storm drain. Typically referred to as the locus of elevations to which the water would rise in successive piezometer tubes if the tubes were installed along a pipe run.

HYDRAULIC JUMP - an abrupt rise in the water surface caused by abrupt transitions from supercritical flow regime to a subcritical flow regime in the flow direction.

IMPERVIOUS - the condition of being impenetrable to water.

IMPROVED INLET - a flared, depressed or tapered inlet that has entrance geometry that decreases the flow constriction at the inlet and thus increases the capacity of a culvert entrance.

INVERT - the floor, inside bottom or the lowest portion of a conduit or channel.

LAND DISTURBING ACTIVITY - any use of the land that results in a change in the natural cover or topography that may cause erosion and contribute to sediment and alter the quality and/or quantity of storm water runoff emanating from that land.

LOCAL SCOUR - erosion which occurs as the result of high velocity flow at a culvert, storm drain outlet, pier, or abutment which extends only a limited distance downstream.

LOW CHORD - the elevation of the lowest portion of a bridge deck structure used to determine the open area below the bridge available for freeboard and flow conveyance.

MANNING'S "n" - a coefficient of roughness, typically used in a formula for estimating the capacity of an open channel or conduit to convey water.

MILD SLOPE - a slope where the critical depth is less than the normal depth.

MUTLI-PURPOSE FACILITY - a detention facility which provides other benefits in addition to flood control, such as recreation, parking, visual buffers, and stormwater water treatment.

NORMAL FLOW - is open channel flow which occurs when the discharge, velocity, depth, slope, and channel cross-section are uniform throughout the reach. The water surface profile and channel bottom are parallel.

NPDES - acronym for the National Pollutant Discharge Elimination System program and permitting process administered by the Environmental Protection Agency for the purpose of improving the quality of the nation's waters by mitigating non-point source pollution in urban stormwater runoff.

OBSTRUCTION - is any physical alteration in, along, across or projecting into any channel, watercourse, or floodway which may impede or divert floodwaters, or may itself be carried

downstream to cause damage to life or property. Examples include but are not limited to: any dam, wall, embankment, bridge, conduit, culvert, building, structure, levee, dike, abutment, projection, excavation, fill, stockpile, fence, wire, rock, gravel, refuse, vehicle, equipment, or vegetation.

POLICY - is a set of goals that establish a definite course or method of action and that are established to guide and determine present and future decisions. Policy is implemented through design criteria established as standards for making decisions.

PRESSURE FLOW - the flow of water within a closed conduit without a free surface open to atmospheric pressure.

RESERVOIR ROUTING - flood routing of inflow and outflow hydrographs through a reservoir or detention basin.

RETENTION BASIN - is a stormwater storage facility which is drained by subsurface infiltration instead of a positive outlet.

RIPRAP - rock or stones placed in a loose assemblage along the banks/bed of a channel or outlet of a conduit to inhibit erosion and scour.

RIVERINE - means relating to, formed by, or resembling a river (including tributaries), stream, wash, or brook.

SAG - synonymous with "sump".

SEDIMENT TRAP - an area within a stormwater detention facility or construction site which is designed to trap incoming sediments for the purpose of facilitating maintenance.

SEDIMENTATION - the process involving the deposition of soil particles which have been carried by flood waters or stormwater runoff.

SEEPAGE - the movement of water through pores and voids of pervious material such as soil, gravel, filter fabric, etc.

SETBACK - the minimum horizontal distance between a structure and a channel, stream, wash, riverine, natural watercourse, or detention basin as measured from the top edge of the highest bank.

SHALL - means a required element.

SHEET FLOW - shallow, diffuse runoff typically characterized by an approximately equal depth of runoff across a broad width of flow without concentrating in gullies and streams (often referred to as overland flow).

SHOULD - means a recommended element.

SLOTTED DRAIN INLET - a pavement drainage inlet composed of a continuous slot built into the soffit of a pipe which serves to intercept, collect and transport the flow.

SOFFIT – is the inside top of a culvert or storm drain conduit. Also refereed to as the "crown".

SOIL STABILIZATION - the installation of vegetative, synthetic, or structural measures to protect soil from erosive forces of raindrop impact and flowing water.

SPREAD - the width of flow measured laterally from the roadway face of curb.

STEADY FLOW - flow characteristic in which the discharge passing a given cross section remains constant in time.

STEEP SLOPE - a slope where the critical depth is greater than the normal depth.

STORM DRAIN - a combination of underground conduits (laterals, trunks, pipes) and surface inlet structures utilized for the purpose of removing stormwater runoff from the ground surface or street pavement and conveying it to a downstream discharge point.

STORM DURATION - the period or length of a storm event.

STORMWATER MANAGEMENT - the collection, conveyance, storage, treatment and disposal of stormwater runoff in a manner to minimize channel erosion, flood damage, and/or degradation of water quality and in a manner to enhance and ensure public health, safety, and general welfare, which shall include a system of vegetative or structural measures, or both, that control the increased volume and rate of runoff caused by manmade changes to the land.

STORMWATER MANAGER - is the duly designated head of the City of Flagstaff Stormwater Management Section, or his/her duly authorized representative or agent.

STORMWATER RUNOFF - is the direct response of a watershed or drainage area to precipitation from a storm event and/or snow melt and includes surface and subsurface runoff or drainage that enters a watercourse, street, storm drain or other concentrated flow during and following precipitation.

SUBCRITICAL FLOW - flow regime which occurs when the Froude number is less than one (1), flow depths are greater than critical depth, small water surface disturbances travel both up and downstream, and the control of the flow depth is always located downstream.

SUMP - a low point typically found within a street profile where stormwater runoff collects. Also referred to as a “sag”.

SUPERCRITICAL FLOW - flow regime which occurs when the Froude number is greater than one (1), depths are less than critical depth, small water surface disturbances are always swept downstream, and the location of the flow control is always upstream.

TAILWATER - the water surface elevation or depth of flow in a channel, watercourse, or other receiving water body directly downstream of a culvert or storm drain outlet.

TIME OF CONCENTRATION (T_C) - is the time required for stormwater runoff to flow from the hydraulically most remote point of a watershed or drainage area to the point of interest or watershed outlet. The most remote point is the point from which the time of runoff is the greatest. Thus, the T_C is the maximum time for water to travel through the watershed, which is not always the maximum distance from the outlet to any point in the watershed.

UNIFORM FLOW - flow characteristic in which the flow rate and depth remain constant along the length of the channel reach.

WASH - is a natural watercourse which is essentially undisturbed by development.

WATERCOURSE - is a naturally occurring river, riverine, stream, creek, wash, lake or other body of water or channel consisting of banks and bed through which continuous or periodic flows occur. This may include any depression serving as a conveyor of stormwater.

WATERSHED - the catchment area for rainfall which is delineated as the drainage area producing stormwater runoff to a given point. It is assumed that the base flow in a stream also originates from the same area.

WEIR - is a depression or notch in the side or top of an outlet structure or a depression of specific shape in the embankment of a stormwater detention facility. Weirs are classified in accordance with the specific shape of the notch such as rectangular, V-notch, trapezoidal, parabolic, or proportional.

CHAPTER 1: INTRODUCTION

1.1. PURPOSE

This manual has been developed to assist in the design and evaluation of stormwater management facilities within the Corporate Limits of the City of Flagstaff, Arizona. Stormwater management policies, design criteria, and recommended design procedures are presented herein for conducting hydrologic and hydraulic studies, design, and evaluations. Although the intent of this manual is to establish uniform design practices, it neither replaces the need for engineering judgement nor precludes the use of information not presented. Other accepted engineering procedures may be used to conduct hydrologic and hydraulic studies if prior approval from the Stormwater Manager is obtained.

The overall goals for the development of this manual are to: (1) ensure compliance with applicable floodplain and stormwater management regulations, policies, and design criteria; (2) minimize public expenditures for drainage projects; (3) minimize the review time of drainage report and plan submittals; and (4) provide consistent policies and criteria that will result in uniform practices and drainage infrastructure within the City of Flagstaff.

1.2. APPLICABILITY

The policies, design criteria, and procedures presented in this manual are applicable to the design and analysis of drainage facilities of both public improvement and private development projects within the City of Flagstaff. However, the applicability of many of the items contained herein may have limited ranges.

The hydrologic design criteria presented in this manual is based on accepted engineering procedures and criteria. Due to the lack of gauged runoff data for the City of Flagstaff, these methods do not have any point of reference to any historic events and in no way ensure that design flows are reasonable, correct, or calibrated.

1.3. USE OF THIS MANUAL

The policies, design criteria, and procedures presented in this manual are to be utilized in the preparation of drainage reports, flood studies, grading and drainage plans, and public improvement plans required by the City of Flagstaff.

The use of this manual is intended to act as guidance to the policies and design criteria specific to the City of Flagstaff. There is no intent to inhibit sound innovative engineering design or use of new techniques, procedures, or data.

It is the responsibility of the design engineer to utilize proper engineering judgement when applying any procedure or criteria contained in this manual to a specific site or condition.

This manual is dynamic in nature and shall be periodically reviewed and updated to keep it up-to-date with new legal and technical developments in the field of stormwater management. It is the intent of the City of Flagstaff to periodically issue revisions to this manual which incorporate new data, methods, criteria and such other information as may be deemed appropriate.

Use of this manual does not supersede the need for acquiring various permits or authorizations required by the Federal Emergency Management Agency, Environmental Protection Agency, U.S. Army Corps of Engineers, State of Arizona, Coconino County, or the City of Flagstaff.

CHAPTER 2: DRAINAGE REPORTS AND PLANS

The purpose of this chapter is to present criteria for submittals of drainage reports, floodplain studies, grading and drainage plans, and public drainage improvement plans to the City of Flagstaff for review and approval.

Drainage reports and engineered grading and drainage plans are required to: (1) analyze the impact that the proposed development will have on stormwater discharges; (2) provide adequate data to ensure that the development is designed to be protected from flooding and conforms to applicable floodplain and stormwater management regulations; and (3) provide data for the design of public and private drainage facilities.

Drainage reports shall be of sufficient detail to demonstrate that the development or project will not create drainage or flooding problems and that any on-site drainage facilities are properly sized to detain and/or convey the design storm flows.

2.1. DRAINAGE REPORT REQUIREMENTS

Drainage reports will be required for the following land development activities:

1. Residential, commercial, and industrial subdivisions.
2. Application for rezoning.
3. Any multi-family residential, commercial, or industrial development; parking lot; or park.
4. Public improvements involving new streets, culverts, storm drains, open channels, and private/public detention facilities or other drainage infrastructure.
5. Application for Conditional Letter of Map Revision (CLOMR) or Letter of Map Revision (LOMR) to the Federal Emergency Management Agency (FEMA).

A drainage report may also be required for application for a building permit, floodplain use permit, or grading permit if site conditions warrant or if drainage dictates the development of the site.

Drainage reports submitted to the City for review and approval shall be prepared and sealed by an Arizona Registered Professional Civil Engineer.

2.1.1. Rezoning Applications

Drainage reports and plans for rezoning applications need to address the manner in which stormwater is to be managed in conjunction with development of the project. Off-site drainage and flood prone areas should be identified and required drainage improvements shown in general on the development plan. The information needs to be adequate enough to demonstrate that the site can be developed in compliance with City of Flagstaff (COF) Floodplain Management Regulations and stormwater management requirements. Detailed hydrologic and hydraulic analyses will not be

required for most rezoning applications, unless the Stormwater Manager determines that the site drainage is a limiting factor in the successful development of the subject site.

2.1.2. Subdivision Applications

A preliminary drainage report is required for all Preliminary Plat submittals. This report should contain the following information at a minimum: (1) a description of how the proposed development will comply with COF stormwater management, floodplain management, and detention requirements; (2) a description of any existing drainage conveyances or problems such as natural watercourses, floodplains, and drainage from adjacent lands; (3) preliminary drainage conveyances, detention facility, sizing, and location(s); and (4) the effects of proposed detention location(s) on any resource protected areas, as defined in the COF Land Development Code. Detailed hydrologic and hydraulic analyses are typically not required at this stage, however, the information provided must be adequate to demonstrate compliance with applicable regulations.

2.1.3. Drainage Report Content and Format

Drainage reports shall contain the following information, at a minimum, and shall be presented in the format outlined below:

1. Cover Sheet
   - Title of report.
   - Date of report completion/submittal and any revisions.
   - Project name, address, and COF File number.
   - Name, address, and phone number of client.
   - Name, address, and phone number of engineering firm responsible for report.
   - Seal/signature of the Arizona Registered Professional Civil Engineer responsible for preparing the report.

2. Table of Contents
   - All report pages shall be numbered sequentially including any appendices.
   - List of all tables and illustrations.
   - Table of contents sealed by responsible engineer.

3. Introduction
   - Location map showing the project in relation to adjacent properties, streets, and nearby watercourses.
   - Legal description of subject property (can be placed in Appendix if too lengthy).
   - Description of the existing and proposed land use/project, drainage patterns, natural watercourses, drainage problems, and floodplain status within the development.
   - Summary of any previous hydrologic/hydraulic studies or other information which pertain to the development.
   - Description of potential impacts both upstream and downstream.
   - Effect of proposed construction on major drainage conveyances.

4. Objectives and Procedures Section
   - Brief summary of the purpose of the report in relation to the project (e.g., rezoning, Preliminary plat, subdivision, commercial development, etc.)
   - Description of the methodologies, assumptions, and procedures used in preparing the report.
   - Description of all applicable development standards, policies, detention requirements, and floodplain regulations to which the proposed development must adhere.

5. Hydrology Section
   - Drainage maps (drawn to scale) for pre and post-development conditions which clearly depict contributing watersheds, sub-basins, concentration points, flow patterns, measured flow lengths, elevations, and contours.
   - Hydrologic data sheets, for both pre and post-development conditions, for each concentration point including time of concentration calculations, rainfall intensities, runoff coefficients or curve numbers, and peak discharges.
   - Pre and post-development hydrology.
   - Summary table listing all concentration points, corresponding drainage areas, calculated peak discharges for pre and post-development conditions, and differences in discharges.

6. Hydraulics Section
   - Open channel design and capacity computations in accordance with the policies and criteria outlined in Chapter 4.
   - Design computations for all culverts in accordance with the policies and criteria outlined in Chapter 5.
   - Design computations for all storm drains, inlets, and street sections in accordance with policies and criteria outlined in Chapter 7. Storm drain design shall include a labeled schematic of storm drain network, design discharges, pipe capacities, profiles, outlet velocity, and hydraulic grade line.
   - All supporting data, printouts, tables, nomograph, etc., which are referenced in report.

7. Detention Design Section
   - Site plan (to scale) which clearly shows dimensions and locations of all proposed development and detention system(s) including but not limited to the following:
     a. Location, size, and type(s) of inflow and outflow structures.
     b. Location and size of access and maintenance access ramps and roadways, if applicable.
     c. Boundaries of Common Areas or private drainage easements, if applicable.
     d. Maximum water surface elevations, limits of ponding, and typical facility cross-section(s).
     e. Flow arrows, drainage divides, contours, and finished grades.
     f. Roof drainage direction(s) and finish floor elevations of all buildings.
   - Description of how the overall detention design will comply with grading criteria, resource preservation, and landscaping requirements.

- Description of maintenance schedule and responsibility.
- Detention volume estimate computation(s).
- Detailed reservoir-routing calculation sheets for all required design storms.
- Plotted inflow and outflow hydrographs (preferably superimposed).
- If retaining walls are utilized, include free-body diagrams showing all forces, moments and computations required for determining factors of safety against sliding and overturning.

8. Summary and Conclusions
   - A brief summary of the analyses and conclusions presented in the report.
   - A brief description of how the proposed development and/or public improvements will adhere to applicable stormwater detention and/or floodplain regulations and mitigate any impacts created by the development.

9. References
   - Provide a listing of pertinent sources of analysis and design procedures used.

10. Appendices
    - Appendices may be used for hydrologic, hydraulic, reservoir-routing calculations, etc., and other material not suited for inclusion in the main body of the report.

2.2. FLOODPLAIN STUDIES AND MAP REVISIONS

Detailed floodplain studies (i.e., Technical Data Notebooks) are required for the following applications to the FEMA:

- Conditional Letter of Map Revision (CLOMR),
- Letter of Map Revision (LOMR), and
- Physical Map Revision (PMR).

Floodplain studies may also be required by the Stormwater Manager for a Conditional Letter of Map Amendment (CLOMA) or Conditional Letter of Map Revision Based on Fill (CLOMR-F). Applications for Letters of Map Amendment (LOMA) and Letters of Map Revision based on Fill (LOMR-F) will typically not require a floodplain study, however, the FEMA application must be reviewed by the Stormwater Manager prior to submittal to FEMA. Flood studies may also be required by the Stormwater Manager for other development(s) that may adversely affect floodplain depths.

Floodplain studies submitted to the City for review and approval shall be prepared and sealed by an Arizona Registered Professional Engineer.

The City of Flagstaff will review all floodplain studies for technical compliance and completeness. Arizona Department of Water Resources (ADWR) review and approval may be required for all floodway revisions and new hydrologic studies. All local and federal review fees associated with

map revision requests are the responsibility of the applicant.

Specific guidelines for Flood Insurance Studies can be found in FEMA 37, *Guidelines and Specification for Study Contractors,* January, 1995 or latest version and *Addendum to Guidelines and Specifications for Study Contractors,* April, 1993 or latest version.

Floodplain study formats shall be in accordance with ADWR State Standard 1-97, "Requirement for Flood Study Technical Documentation" and applicable FEMA applications forms.

Hydrologic modeling performed in flood studies shall utilize U.S. Army Corps of Engineers, *HEC-1 Flood Hydrograph Package* program or other hydrologic models approved by FEMA.

Hydraulic modeling performed in flood studies shall utilize U.S. Army Corps of Engineers, *HEC-2 Water Surface Profiles* program. The *HEC-RAS River Analysis System* program is acceptable if the entire wash is modeled in *HEC-RAS* or the reach being modeled is hydraulically independent. The engineer is encouraged to contact FEMA for a list of accepted models.

2.2.1. General Guidelines

Hydraulic models required for map revision requests to FEMA are typically:

1. Duplicate Effective Model (natural and floodway models) -
   - using the same computer program (e.g., HEC-2), run the model on your computer and check the result with the output to make sure the model was duplicated
   - assures the baseline is correct and the revised model will tie back into the effective model upstream of the revised reach.

2. Corrected Effective Model -
   - using a newer version of the same program
   - more detailed cross sections that reflect conditions that existed when the original model was developed
   - fix technical errors
   - an improved computer model or improved bridge routine
   - add bridges, culverts, or other structures that existed but were not modeled
   - becomes the new base model to measure impacts of development/construction that occurred since the original model was developed

3. Existing Conditions Model -
   - update the corrected effective model to include existing conditions
   - natural changes in the floodplain
   - reflects fill in the floodway fringe since original model was developed
   - other channel improvements
   - other bridges and culverts
   - used as baseline model to measure the effects solely attributed to the "project" as reflected by the post-project model

4. Post-Project Model -
    - reflects the project (built or proposed) and determines the impacts of the project

Floodway analysis must include a Method 4 and/or 5 optimization and Method 1 floodway delineation runs.

River stationing shall correspond to river miles above the confluence with the applicable downstream watercourse as identified in the effective Flood Insurance Study.

When no discernable breaks in the geometry (e.g., change in bank slope) exists for determination of channel and overbank areas, channel and overbank limits should be determined based on similar "n" values.

Cross-sections should be located at places that fully describe the geometry of the reach and shall be oriented to be perpendicular to the flow lines and/or contours.

If the overall cross-section is skewed more than 18 degrees from the perpendicular of the flow line, either the cross-section needs to be resurveyed or reduced by an appropriate multiplier.

Cross-sections are not permitted to cross each other.

Obstructions or buildings within cross-sections should be physically modeled when possible or ineffective flow options utilized. Adjustment of the overbank "n" values may also be necessary.

Reach lengths should be determined based on the horizontal distance between the centers of mass of the overbank cross-sectional areas.

2.3. GRADING AND DRAINAGE PLANS

Grading and Drainage plans, prepared and sealed by an Arizona Registered Civil Engineer, are required for the following land development activities:

1. Residential, commercial, and industrial subdivisions.
2. Any multi-family residential, commercial, or industrial development; parking lot; or park.
3. Public improvements involving new streets and/or drainage facilities.
4. Application for CLOMR or LOMR.
5. Application for grading permit.

Grading and drainage plans may also be required by the Stormwater Manager or Building and Safety Director for building permit or floodplain use permit applications if site conditions warrant.

The engineer shall submit one reproducible (mylar) copy of the approved grading and drainage plan(s) as permanent public record.

2.3.1. Grading and Drainage Plan Requirements

Grading and Drainage Plans shall include the following information at a minimum:

- Vicinity map including north arrow, scale, boundary lines of site, and other information necessary to locate the development site.
- Name of subdivision or project and COF Project Number.
- Date(s) of preparation and revisions.
- Seal/signature of responsible engineer.
- Property lines, lot lines, right-of-way lines of streets, easements, and other rights-of-way, with accurate bearings and distances.
- Existing and proposed contours at 2' intervals. Spot elevations or 1' contour intervals where 2' contours do not show on the property or where needed to depict the grading.
- Floodplain and floodway locations, if applicable.
- Existing and proposed buildings or structures on the property and within 15 feet of the property limits, roof drainage directions, paved and landscaped areas, and dimensions of same.
- Finished floor and grade at foundation elevations of all structures.
- Location, dimensions, elevations, contours, characteristics, cross sections, profiles, and details for all existing and proposed drainage facilities, retaining walls, cribings, and other protective devices.
- Construction notes, specifications, and design details.
- Cross-sections of all open channels and detention basins, including design water surface elevation(s).
- Detention basins which show capacity, discharge(s), spillways, and the 100-year water surface elevation (WSE). Shading of the area inundated by the 100-year WSE is recommended.
- Recommendations included in the soils engineering or engineering geology report incorporated in the plans and/or specifications, if applicable.
- Dates and reference number of the soils report(s) together with the names, addresses and phone numbers of the firm(s) or individual(s) who prepared the report(s).
- Cut slopes no steeper than 2 horizontal (H):1 vertical (V) unless soils report states that the cut slope will be stable and will not create a hazard to public or private property.
- Fill slopes not constructed on natural slopes steeper than 2H:1V unless soils report recommends otherwise. Fill slopes shall not exceed 2H:1V.
- Top of cut slopes no nearer to the site boundary line than one fifth the vertical height of cut with a minimum of 2 feet and a maximum of 10 feet.
- Toe of fill slope(s) no nearer to the site boundary line than one half the height of the slope with a minimum of 2 feet and a maximum of 20 feet.
- Erosion control measures for all cut and fill slopes. (Note: referencing the landscape plan does not meet this requirement).
- Detention facility design details and cross-sections.
- Cut and fill quantities.
- Limits of grading or disturbance.

- Established benchmark of known elevation to which every other elevation is referenced.
- Horizontal control.
- Landscape Designer review block with signature.
- The engineer must review and sign the landscape plan for potential conflicts with grading and drainage plan.
- The following statement is required on all grading & drainage plans:

> "Adequate drainage, erosion and sediment control measures, best management practices, and/or other stormwater management facilities shall be provided and maintained at all times during construction. Damages to adjacent property and/or the construction site caused by the contractor's or property owner's failure to provide and maintain adequate drainage and erosion/sediment control for the construction area shall be the responsibility of the contractor and/or property owner."

2.4. PUBLIC IMPROVEMENT PLANS - DRAINAGE FACILITIES

In addition to plan presentation requirements set forth in Title 6 of the City of Flagstaff Engineering Design and Construction Standards & Specifications for public construction plans, the following information, at a minimum, shall also be included on public improvement plans for drainage facilities.

2.4.1. Storm Drain Systems:

- storm drain profile(s).
- the design frequency, discharge, and pipe capacity.
- pipe size, length, type, and slope(s), inlet/outlet invert elevations.
- outlet treatment.
- invert elevations in and out and rim elevations for all manholes and junction structures.
- existing and proposed grades and pipe cover.
- proposed utility crossings and vertical separations.
- typical trench detail(s)

2.4.2. Open Channels:

- the design frequency, design discharge, and channel capacity.
- velocities at the design discharge for all grades.
- channels grade(s).
- typical cross-section(s).
- transition details.
- HGL and available freeboard.
- channel lining(s) and details.
- drainage easement or right-of-way widths and setbacks.

2.4.3. Culverts:

- design frequency and design discharge.
- culvert slope and design velocities.
- inlet and outlet invert elevations.
- design and allowable headwater and tailwater elevations.
- headwalls.
- inlet and outlet protection measures.
- plotted headwater elevation(s) with contours in plan view.
- culvert profile w/controlling headwater elevation, pipe size and type, and slope.
- typical trench detail.
- temporary erosion and sediment control measures for channel reconstruction or culvert/bridge crossings shall also be included on public improvement plans

2.5. QUALITY OF SUBMITTALS

All drainage report and plan submittals presented to the City of Flagstaff for review shall be prepared and sealed by an Arizona Registered Professional Civil Engineer.

The engineer shall be held solely responsible for the correctness and adequacy of all data, drawings, calculations, and reports submitted to the City for review and approval. In addition, the engineer shall comply with all local, state, and federal floodplain regulations in the design of a development.

The Engineering Division will review drainage report and plan submittals for completeness and general compliance with all applicable local, state, and federal requirements. Approval by the City does not necessarily imply that the design is appropriate, nor that the development is in strict compliance with all applicable regulations and standards. Review and approval of drainage submittals shall not create liability on the part of the City or its employees for any flood damages that may result from reliance upon any administrative decision made by the City or its employees. When design procedures, equations, and data not included in this manual are used, the engineer must provide the City enough information on the methods and data to enable City staff to evaluate their applicability.

CHAPTER 3: HYDROLOGY

This chapter provides an overview of urban hydrologic methods and procedures used in the City of Flagstaff. The information presented herein is intended to provide the design engineer with guidance to the methods and procedures, their data requirements, and their applicability and limitations. Most of these methods and procedures can be applied using commonly available computer programs.

3.1. RATIONAL METHOD

The Rational formula is one of the most commonly used (and misused) simplified methods of estimating peak discharges for small uniform drainage areas. This method is typically used to size drainage structures for the peak discharge of a given return period. An extension of this method is often used to estimate the shape of the runoff hydrograph to design detention facilities and/or design a drainage structure that require routing of the hydrograph though the structure.

3.1.1. Rational Equation

The Rational Equation is expressed as follows:

$$\mathbf{Q = C_f\, C\, I\, A} \qquad \mathbf{(3.1)}$$

where:
- Q = maximum rate of runoff, cfs
- C_f = antecedent precipitation factor[1]
- C = runoff coefficient
- I = rainfall intensity, in/hr
- A = drainage area tributary to the design location, acres.

[1]Less frequent, higher intensity storms will require modification of the runoff coefficient due to infiltration and other losses which have a proportionally smaller effect on runoff (Wright-McLaughlin, 1969). Thus, an adjustment to the Rational Equation (see Table 3-1) is required to account for antecedent precipitation conditions for storms greater than the 10-year event. **Note:** The product of C_f times C should not exceed 1.0.

TABLE 3-1: ANTECEDENT PRECIPITATION FACTORS

Storm Frequency	Factor
25 Year	1.1
50 Year	1.2
100 Year	1.25

3.1.2. Rational Method Assumptions

The following assumptions are inherent when using the Rational Equation:

1. The peak flow occurs when the entire watershed is contributing to the flow.
2. The rainfall intensity is the same over the entire watershed.
3. The rainfall intensity is uniform over a duration equal to the time of concentration.
4. The frequency of the computed peak flow is the same as that of the rainfall intensity (e.g., the 25-year rainfall intensity is assumed to produce the 25-year peak flow).
5. All the land uses within a drainage area are uniformly distributed throughout the area.

3.1.3. Rational Method Limitations

The following limitations shall apply to the Rational Method in the City of Flagstaff:

1. The total drainage area must be less than or equal to 20 acres.
2. The time of concentration cannot be less than 5 minutes or greater than 60 minutes.
3. The land use of the contributing watershed must be fairly consistent over the entire drainage area and uniformly distributed throughout the area. That is, the contributing area should not consist of a large percentage of two or more land uses (e.g. 50% commercial and 50% undeveloped forest).
4. The contributing watershed cannot have drainage structures or facilities which would require flood routing to estimate the discharge at the point of interest.
5. If it is important to locate a specific land use within the drainage area then another hydrologic method should be used where hydrographs can be generated and routed through the drainage system.

In cases where the Rational Method is not applicable, more appropriate hydrologic methods shall be used as outlined in Sections 3.2 and 3.3 of this chapter.

3.1.4. Estimation of Area

An adequate topographic map of the subject site and surrounding drainage area is required to define the drainage boundary in acres. A field inspection of the area should also be made to determine if natural drainage divides have been altered.

It is generally recommended to consider the largest reasonable drainage area, especially in urbanized areas. The contributing drainage area can increase with more intense storm events as larger storms can overtop existing street crowns, curbs, or other drainage facilities.

3.1.5. Estimation of Rainfall Intensity

The rainfall intensity (I) in Equation 3.1 is estimated in inches/hour for the specified return period having a duration equal to the time of concentration for the drainage basin.

The rainfall intensities for the City of Flagstaff are shown in Table 3-2. These values were developed using the rainfall depth-duration frequency statistics for Arizona from NOAA Atlas 2, Volume VIII, Arizona (Miller et al, 1973).

3.1.6. Time of Concentration Estimation

The time of concentration (T_c) is the time necessary for the runoff to travel from the hydraulically most remote point of the drainage area to the point of interest. The T_c is not necessarily determined by the longest travel path. Several different T_c computations may be necessary. The duration of rainfall is then set equal to the estimated T_c and is used to obtain the average rainfall intensity (I).

The T_c used in the Rational Method typically consists of an inlet time (e.g., sheet flow or shallow concentrated flow) to a point where the flow enters a storm drain or open channel plus the time of flow in the storm drain or channel to the point of interest. Formulas for computing the time or composite time of concentration, as given in Equations 3.2 through 3.8, shall be used.

3.1.6.1. Overland or Sheet Flow

Sheet flow is the shallow mass of runoff on a planar surface with uniform depth across a sloping surface. The sheet flow length shall not exceed 100 feet in urban areas and 300 feet in natural, rural or wooded areas.

For sheet flow, Mannings kinematic solution, Equation 3.2, shall be used:

$$\mathbf{T_t = [0.007\ (nL)^{0.8} / (2.0)^{0.5}\ S^{0.4}]} \qquad \mathbf{(3.2)}$$

where: T_t = sheet flow travel time, hr
n = Mannings roughness coefficient (see Table 3-3)
L = flow length, ft
s = land slope, ft/ft

3.1.6.2. Shallow Concentrated Flow

After short distances, sheet flow tends to concentrate in rills and then gullies. The velocity of such shallow concentrated flow can be estimated by the following equations for slopes greater than 0.005 ft/ft:

Unpaved: $\mathbf{V = 16.1345\ (S)^{0.5}}$ **(3.3)**

Paved: $\mathbf{V = 20.3282\ (S)^{0.5}}$ **(3.4)**

where: V = average velocity, ft/s
S = slope of hydraulic grade line, ft/ft

3.1.6.3. Open Channel Flow

Velocities for open channel can be estimated by Manning's equation:

$$\mathbf{V = (1.49\ r^{2/3}\ s^{1/2})/n} \qquad \textbf{(3.5)}$$

where:
- V = average velocity, ft/s
- r = hydraulic radius (a/wp), ft
- a = cross-sectional area, ft^2
- wp = wetted perimeter, ft
- s = slope of hydraulic grade line, ft/ft
- n = Manning's roughness coefficient for open channel flow

Average velocity shall be determined based on the bank-full water surface elevation.

3.1.6.4. *Street Gutter Flow*

Flow velocities for concrete gutters can be estimated by:

$$\mathbf{V = 86\ S^{0.5}\ d^{0.67}\ or} \qquad \textbf{(3.6)}$$

If d = 6"(0.5'): $\mathbf{V = 54\ S^{0.5}}$ **(3.7)**

If d = 4"(0.33'): $\mathbf{V = 41\ S^{0.5}}$ **(3.8)**

where:
- S = longitudinal slope of gutter, ft/ft
- d = depth of water surface, ft
- v =velocity, ft/s

Note: These equations do not apply when depth of water is above the top of curb.

TABLE 3-2: CITY OF FLAGSTAFF RAINFALL INTENSITIES, INCHES/HOUR

Duration	Frequency, In Years					
	2	5	10	25	50	100
5-min.	3.96	5.04	5.76	6.84	7.68	8.52
10-min.	3.06	3.90	4.50	5.34	6.00	6.66
15-min.	2.48	3.20	3.48	4.40	4.92	5.48
30-min.	1.58	2.06	2.40	2.86	3.22	3.58
1-hour	0.95	1.25	1.46	1.76	1.98	2.21
2-hour	0.56	0.73	0.85	1.02	1.15	1.28
3-hour	0.41	0.53	0.62	0.74	0.83	0.92
6-hour	0.24	0.31	0.36	0.43	0.48	0.53
12-hour	0.14	0.19	0.21	0.26	0.29	0.32
24-hour	0.08	0.11	0.12	0.15	0.17	0.19

TABLE 3-3: MANNING'S "n" FOR SHEET FLOW[1]

Surface Description			'n' value
Concrete			0.012
Asphalt			0.011
Fallow (no residue)			0.05
Cultivated soils:	Residue cover ≤ 20%	0.06	
	Residue cover > 20%	0.17	
Grass:	Short grass, prairie		0.15
	Dense grasses		0.24
	Bermuda grass[1]		0.41
	Bluegrass sod		0.45
Range (natural)			0.13
Woods[2]:	Light underbrush		0.40
	Dense underbrush		0.80

***Note**:* These values were determined specifically for sheet flow conditions and are not appropriate for open channel flow calculations. These "n" values are a composite of information compiled by Engman (1986), with additions from the Florida Department of Transportation Drainage Manual (1986).

[1]Includes species such as weeping lovegrass, buffalo grass, blue grama grass, and native grass mixtures.

[2]When selecting "n", consider cover to a height of about 0.1 ft. This is the only part of plant cover that will obstruct sheet flow.

Rational Runoff Coefficient

Perhaps the most important variable in the Rational Equation is selection of the dimensionless runoff coefficient (C) which represents that fraction of rainfall that appears as surface runoff from a tributary area. This fraction of rainfall runoff is independent of rainfall intensity or volume for impervious areas, such as streets, rooftops, and parking lots. However, for pervious areas, the fraction of runoff varies with rainfall intensity and the accumulated volume of runoff. Therefore, the selection of a coefficient that is appropriate for the storm, soil type, slope, and land use conditions is critical. The design engineer should always document how and why a particular runoff coefficient was chosen. Thought should also be given to future changes in land use that might occur during the service life of the proposed drainage facility which can result in an inadequate drainage system.

Runoff coefficients based on surface type can be found in Table 3-4. Runoff coefficients based on land use, slope, and soil type are to be chosen from Table 3-5. The Hydrologic Soil Groups (HSG) used in Table 3-5 were developed by the Soil Conservation Service (now the Natural Resources Conservation Service) based on infiltration rates and are described as follows:

Group A - Soils having low runoff potential due to high infiltration rates even when thoroughly wetted. These soils consist primarily of deep, well to excessively drained sands or gravels and have a high rate of water transmission (greater than 0.3 in/hr).

Group B - Soils having moderate infiltration rates when thoroughly wetted and consist primarily of moderately deep to deep, moderately well to well drained soils with moderately fine to moderately coarse textures. These soils have a moderate rate of transmission (0.15 - 0.30 in/hr).

Group C - Soils having low infiltration rates when thoroughly wetted and consist primarily of soils with a layer that impedes downward movement of water and soils moderately fine to fine textures. These soils have a low rate of water transmission (0.05 - 0.15 in/hr).

Group D - Soils having high runoff potential. They have very low infiltration rates when thoroughly wetted and consist primarily of clay soils with high swelling potential, soils with permanently high water tables, soils with a claypan or clayey layer at or near the surface, and shallow soils over nearly impervious parent material. These soils have a very low rate of water transmission (0 - 0.05 in/hr).

HSG soils textures can be classified as:

A - Sand, loamy sand, or sandy loam
B - Silt loam or loam
C - Sandy clay loam
D - Clay loam, silty clay loam, sandy clay, silty clay, or clay

TABLE 3-4: RUNOFF COEFFICIENTS (C) BY SURFACE TYPE

Surface Description	**Runoff Coefficients**
Streets	0.95
Asphaltic Concrete	0.95
Concrete	0.95
Brick Pavers	0.90
Compacted ABC roadways/shoulders	0.50 - 0.70
Drives and Sidewalks	0.95
Gravel (open)	0.50
Roofs	0.95

	SLOPE		
Surface Description	**Flat** < 2%	**Avg.** 2% - 7%	**Steep** > 7%
Lawns			
Sandy Soils	0.10	0.20	0.30
Gravelly Soils	0.15	0.25	0.35
Clay Soils	0.20	0.30	0.40
Dense Vegetation			
Sandy Soils	0.07	0.14	0.20
Gravelly Soils	0.11	0.20	0.27
Clay Soils	0.15	0.25	0.35
Woods			
Sandy Soils	0.05	0.10	0.15
Gravelly Soils	0.07	0.12	0.17
Clay Soils	0.10	0.15	0.20

The coefficients in Table 3-4 are based on the assumption that the design storm does not occur when the surface is frozen. These coefficients are for recurrence intervals less than 25-years, therefore for 25, 50, and 100 year storms, the adjustment factors given in Table 3-1 must be applied to these values. When more than one surface type is present, a composite or weighted runoff coefficient (C_w) value must be used and can be calculated by an area (A) weighted average given in Equation 3.9 below:

$$C_w = (C_1A_1 + C_2A_2 + ... + C_nA_n) / A_{total} \quad \textbf{(3.9)}$$

TABLE 3-5: RUNOFF COEFFICIENTS BY SCS HSG, SLOPE, LAND USE

LAND USE	A			B			C			D		
	0-2%	2-6%	6%+	0-2%	2-6%	6%+	0-2%	2-6%	6%+	0-2%	2-6%	6%+
Bare Soil	0.09	0.14	0.18	0.12	0.17	0.24	0.16	0.21	0.31	0.20	0.25	0.38
Pasture	0.12	0.20	0.30	0.18	0.28	0.37	0.24	0.34	0.44	0.30	0.40	0.50
Meadow	0.10	0.16	0.25	0.14	0.22	0.30	0.20	0.28	.036	0.24	0.30	0.40
Forest	0.05	0.08	0.11	0.08	0.11	0.14	0.10	0.13	0.16	0.12	0.16	0.20
Residential												
Lot size 1/8 ac.	0.25	0.28	0.31	0.27	0.30	0.35	0.30	0.33	0.38	0.33	0.36	0.42
Lot size 1/4 ac.	0.22	0.26	0.29	0.24	0.29	0.33	0.27	0.31	0.36	0.30	0.34	0.40
Lot size 1/3 ac.	0.19	0.23	0.26	0.22	0.26	0.30	0.25	0.29	0.34	0.28	0.32	0.39
Lot size 1/2 ac.	0.16	0.20	0.24	0.19	0.23	0.28	0.22	0.27	0.32	0.26	0.30	0.37
Lot size 1 ac.	0.14	0.19	0.22	0.17	0.21	0.26	0.20	0.25	0.31	0.24	0.29	0.35
Industrial	0.67	0.68	0.68	0.68	0.68	0.69	0.68	0.69	0.69	0.69	0.69	0.70
Commercial	0.70	0.71	0.72	0.71	0.72	0.74	0.74	0.75	0.75	0.75	0.80	0.85
Open Space	0.05	0.10	0.14	0.08	0.13	0.19	0.12	0.17	0.24	0.16	0.21	0.28

The coefficients in Table 3-5 are based on the assumption that the design storm does not occur when the surface is frozen. These coefficients are for recurrence intervals less than 25-years, therefore for 25, 50, and 100 year storms, the adjustment factors given in Table 3-1 must be applied to these values.

NOTE: The residential, industrial, and commercial coefficients given in Table 3-5 are intended to be used for estimating discharges for larger areas where using weighted coefficients is impracticable. These land use coefficients shall not be used for smaller drainage basins where weighted runoff coefficients can be more accurately computed using the values given in Table 3-4 and the values for undeveloped areas given in Table 3-5.

3.1.7. Rational Method Hydrograph Shape

The Rational Method is designed solely to determine an estimated peak discharge for a given drainage area. However, it is often necessary to route the storm inflow through a drainage structure such as a detention basin. A procedure for estimating dimensionless hydrograph shapes for urbanized and undeveloped watersheds can be found in Chapter 2 of the Arizona Department of Transportation, *Highway Design Manual, Hydrology,* Report No. FHWA-AZ-93-281, March 1993.

3.2. SCS TR-55 METHOD

Analysis for drainage areas ranging from 10 to 40 acres in size may be designed using methods described in USDA, SCS, Technical Release 55, "*Urban Hydrology for Small Watersheds",* June 1986. Curve numbers for undeveloped forest shall be per ADWR, *Oak Creek Flood Warning System Hydrology Report,* TR 90-4, September 1990.

3.2.1. Graphical Peak Discharge Method

This method calculates peak flows as a function of drainage basin area, potential watershed storage, and the time of concentration when a hydrograph and/or reservoir routing are not required. Limitations for this method which can impact the accuracy of estimated peak flows are:

- The watershed should be hydrologically homogeneous (i.e., describable by one curve number greater than 40) for this method.
- T_c should be between 0.1 and 10 hours.
- I/P should be between 0.1 and 0.5.
- Watershed should have one main channel or branches with nearly equal times of concentration.
- Neither channel or reservoir routing can be incorporated.
- Adjustment factor (F_p) is applied for ponds/swamps that are not in the T_c flow path.
- Snow, frozen ground, and subsurface flows are not present.

3.2.2. Tabular Hydrograph Method

This method was developed to estimate partial composite flood hydrographs at any point in a watershed and is generally applicable to small, non-homogeneous areas which are beyond the limitations of the Rational Method. It is applicable for estimating the effects of land use change in a portion of the watershed as well as estimating the effects of proposed structures. Chapter 5 of TR-55 provides a detailed description of this method.

Assumptions and limitations inherent in the Tabular Method are as follows:

1. Total area should be less than 2000 acres. Typically, subareas are far smaller than this because the subareas should have fairly homogeneous land use.
2. Subarea T_c is from 0.1 to 2.0 hours and reach travel time (T_t) is less than or equal to three (3) hours.

3. Drainage areas of individual subareas differ by less than a factor of five.
4. Type II rainfall distribution is used for Arizona.

If either the T_c or the T_t limitations are exceeded, the watershed is very complex, or a higher degree of accuracy is required, HEC-1 methodology shall be utilized.

3.3. HEC-1 METHOD

Analysis of large drainage areas shall be Modeled using HEC-1 or HEC-HMS techniques. General guidance on HEC-1 can be found in the HEC-1, *Flood Hydrograph Package,* Users Manual or the Arizona Department of Transportation, *Highway Design Manual, Hydrology,* Report No. FHWA-AZ-93-281, March 1993.

The storm duration (PH Record) for the rainfall input is dependent on the total watershed area and shall be as follows:

1. If the watershed area is less than or equal to 1.0 square mile, the design storm duration shall be 6 hours.
2. If the watershed area is greater than or equal to 1.0 square mile, the design storm duration shall be 24 hours.

Storm durations used for FEMA flood studies shall be in accordance with current FEMA guidelines.

Most watersheds in the Flagstaff area are ungaged, therefore, unit hydrograph and soil loss parameters should be developed using the SCS dimensionless unit hydrograph (UD Record) and SCS curve number (CN) methodology. The SCS Type II rainfall distribution shall be used.

Calibration of the HEC-1 model to observed data should be performed if adequate stream gage and rainfall data is available for the watershed.

CHAPTER 4: OPEN CHANNELS

The purpose of this chapter is to present policies and design criteria for open channels intended to be public and outline channel and erosion protection design procedures. It is recommended that private open channels also be designed in accordance with this chapter.

An open channel is defined as a conveyance in which water flows with a free surface. Open channels in the City of Flagstaff will either be natural washes or artificial. Natural washes will typically consist of a compound cross-section consisting of a low flow channel and adjacent overbank floodplains. Artificial channels typically include drainage ditches, roadside channels, irrigation channels, and swales which have a regular geometric cross-section and can be either lined or unlined.

The principles of open channel flow are the same regardless of the channel type. Flow classifications are generally classified as steady or unsteady, uniform or varied, and subcritical or supercritical. Specific information on open channel flow concepts and total energy relationships can be found in Chow, V.T, *Open Channel Hydraulics*, 1959.

4.1. POLICIES

a. All open channel designs and/or related activities shall meet the minimum requirements and/or design criteria for the City of Flagstaff, Federal Emergency Management Agency, U.S. Army Corps of Engineers 404 permitting, and the Arizona Department of Environmental Quality, as applicable.

b. Safety of the general public shall be considered in the selection of location and cross-sectional geometry of artificial channels.

c. The design of artificial channels shall consider the frequency and type of maintenance expected and make allowance for access of maintenance equipment.

d. Channels shall be designed to follow natural drainage alignments whenever possible. Environmental impacts of modifications to natural channels, including disturbance of wildlife habitat, wetlands, and stream bank stability shall be assessed and disturbance minimized.

e. All channels which are to be maintained by the City of Flagstaff must be dedicated to the City either in fee title or granted as drainage easement.

f. Unless proper authorization from the City of Flagstaff and the adjacent property owner(s) is obtained, open channels must enter and exit a site where the channel historically flowed.

4.2. NATURAL CHANNELS

Natural washes, not designated by the City or FEMA as regulatory floodplains, which cross private property are encouraged be left in their natural state, if possible, upon development. Planning and other design measures must be used to protect development adjacent to natural washes from the flooding and erosion typically associated with increased development. As additional runoff from development is added to a natural channel, these channels can experience erosion and may require on-site detention, grade control, and/or localized bank protection.

Washes designated as Rural Floodplains per the City of Flagstaff Land Development Code must be left undisturbed and in their natural state. Alteration through channelization and FEMA map revisions and/or other development within a designated Rural Floodplains is prohibited.

If relocation of a natural stream channel is unavoidable, the cross section shape, meander pattern, roughness, sediment transport capacity, and slope should conform to the existing conditions insofar as practicable. Some means of energy dissipation may be necessary when existing conditions cannot be duplicated.

U.S. Army Corps of Engineers Section 404 and Section 401 of the Clean Water Act permitting processes may apply for impacts on Waters of the U.S. such as stream channelization, relocation, bank stabilization, or roadways crossings. Approval by the City does not supersede or waive compliance with other applicable Federal and State laws.

Natural channels should be analyzed using field observation, surveyed cross-sections, and Normal Depth/Uniform Flow (Manning's Equation) or step-backwater methods (HEC-2 or HEC-RAS are preferred), as applicable.

4.3. ARTIFICIAL CHANNELS

Artificial open channels have a wide variety of applications ranging from landscaping swales to large flood control facilities. The selection of the open channel type is influenced by numerous factors such as hydraulics, structural features, environmental concerns, sociologic impact, risks and liability, maintenance, and economics. Examples of various types of open channels are depicted in Figure 4-1.

All artificial open channel drainage systems shall be designed for the 25-year design storm at a minimum and checked with the 100-year design storm to determine available freeboard, minimum finished floor for structures elevations adjacent to the channel, and the potential for flood damages.

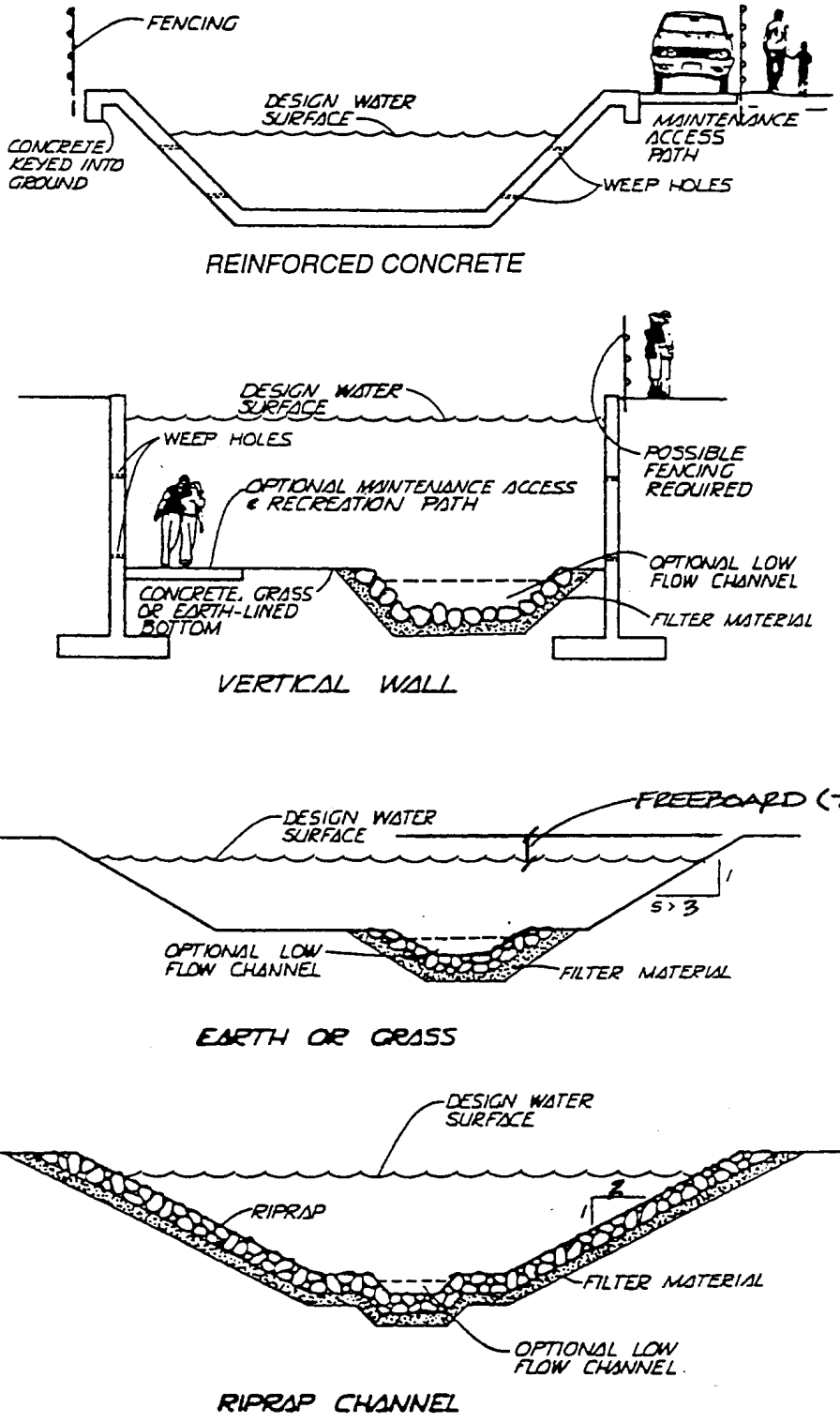


Figure 4-1: Typical Artificial Channels

4.3.1. Maintenance Access and Easements

Minimum width of fee title dedications or drainage easements for public open channels shall be dependent upon the top width of the channel, required setbacks per Uniform Building Code, and the need for maintenance access roads adjacent to the channel.

Maintenance access shall be provided along at least one side of all new open channels intended to become public. The minimum maintenance access width shall be twelve (12) feet. Maintenance access may either be necessary adjacent to the top of the channel bank, down into the channel bottom, or a combination of both. In all cases, the right-of-way or drainage easement must be of sufficient width to allow maintenance vehicles or equipment to operate freely.

4.3.2. Cross-Sectional Geometry

Trapezoidal or compound cross-sections are required for public open channels, unless prior approval of an alternate design is obtained from the Stormwater Manager. Channel side slopes shall be stable throughout the entire length and will be dependent upon the channel bank or lining material. Slope stability analysis may be required in some instances. Side slopes shall be no steeper than 3H:1V for natural vegetal or earth linings and 2H:1V for ungrouted riprap lining. Side slopes for rigid lined channels may be steeper depending on the structural stability of the lining. Channels with bottom widths greater than ten (10) feet should be designed with a minimum cross slope of 12H to 1V.

The depth of public open channels shall be determined by computation of the normal uniform flow depth for the design discharge plus a minimum of one foot of freeboard (see Section 4.3.4). The maximum depth for artificial public channels in residential areas should not exceed three (3) feet, including freeboard, for safety considerations.

Sediment transport requirements must be considered for conditions of flow below the design frequency, especially for multi-use corridors, if applicable. Low and high flow sections shall be considered in the design of channels with large cross sections and/or a design discharge greater than fifty (50) cubic feet per second.

4.3.3. Channel Slope and Velocities

The slope of a proposed channel is typically dependent upon the natural topography. However, variations can be accomplished by altering the channel alignment through a development, by adjusting the elevation of inflow and outflow points, or utilizing grade control. The selected channel configuration, alignment, and slope should result in a stable channel. The minimum allowable channel slope for public channels shall be 0.5 percent. The maximum allowable velocity for any open channel shall not exceed eighteen (18) feet per second.

Abrupt changes in channel slope shall be avoided except when necessary to create a desired hydraulic jump or grade control. When abrupt changes in slope are unavoidable, the slope changes should not cause the channel top width to vary by more than fifteen (15) percent.

Froude Numbers for earth, vegetal, grass, or riprap lined channels should not exceed 0.86 due to instability experienced with critical flow. The Froude Numbers for concrete lined channels should

not exceed 2.0 unless supercritical flow is being designed for. Supercritical flow designs must consider "run-up" and/or wave action. Channel designs should also avoid flow regimes that have Froude numbers in the range of 0.86 - 1.13.

All channel designs must identify supercritical or subcritical flow regimes for all portions of the channel reach. Natural, earth lined, vegetal, or riprap lined channels should not be designed for supercritical flow.

4.3.3.1. Grade Control Structures

Most channels constructed with earthen bottoms are constructed on slopes that are greater than their equilibrium slopes. In such cases, grade control structures (e.g., cut-off walls or sills, drop structures, chutes, or flumes) may be required to reduce bed erosion, reduce increases in channel slope and flow velocities, and to prevent general streambed degradation.

All grade control structures should consist of a control section, an adjacent protection section, and an energy dissipation section. Use of natural rock grade control structures is encouraged.

Concrete cut-off walls or sills, if required, shall be a minimum of eight (8) inches thick Class A concrete, two (2) feet deep below the channel bottom, and extend across the entire channel.

General Design Procedure: The general procedure for grade control structure design is:

1. Determine the total fall through the design reach.
2. For the selected channel, determine the equilibrium slope.
3. Determine the amount of fall to be controlled by the grade control or drop structures from the tailwater of the upstream structure to the head on the next structure downstream.
4. Select the size, location and type of structures to be used.

Design guidance on grade control structures can be found in the National Engineering Handbook, Section 11, "Drop Spillways" and Section 14, "Chute Spillways", or the Urban Drainage and Flood Control District, Denver Colorado, *Drainage Criteria Manual, Volume 2, "Grouted Sloping Boulder Drop Structures".*

4.3.4. Freeboard

Freeboard is the additional channel depth required between the calculated water surface elevation and the top of the lowest channel bank. The purpose of freeboard is to protect against hydraulic disturbances such as waves, obstructions of flow, debris, and sediment accumulation in addition to providing a factor of safety for flows greater than the design discharge.

The freeboard, under normal depth conditions, shall be calculated with Equation 4.1 for public channels, with a minimum of one (1) foot.

$$FB = 0.25 [Y + (V^2 / 2g)] \quad (4.1)$$

where: FB = required freeboard, in feet;
Y = the maximum depth of flow, in feet;
V = the average velocity of flow, in feet/second;
g = the acceleration due to gravity (32.2 ft/sec²)

Additional freeboard may be required at junctions and culvert inlets, where backwater effects may occur, and at locations where supercritical flow or hydraulic jumps occur. In areas of channel constriction, decrease of channel slope, or hydraulic jump, the channel depth may need to be increased to accommodate increases in flow depth and minimum freeboard requirements.

Special consideration should be given to the increased velocities and shear stresses that are generated as a result of non-uniform flow in bends. Superelevation of flow at channel bends is another important consideration and although the degree of superelevation is relatively small (usually less than one foot) when compared with the overall flow depth in the bend, it should be considered when establishing freeboard limits for bank protection on sharp bends. For specific design criteria for channel deflections or curves, refer to Brater and King, *Handbook of Hydraulics,* 1976 and Chow, *Open Channel Hydraulics*, 1959.

Channel linings of protected open channels shall extend to the elevation necessary to include the freeboard requirement.

4.3.5. Hydraulic Jump

Hydraulic jumps should only occur in planned locations at hydraulic structures and should be checked in the following cases:

- the slope of the channel abruptly changes from steep to mild;
- at abrupt expansions or contraction in the channel section;
- at locations where obstructions occur, such as a culvert or bridge, in a channel of steep slope;
- at sharp bends;
- dip crossing or culverts; and
- where steep or supercritical channels discharge into another channel.

Recommended procedures for computing hydraulic jump can be found in FHWA, HEC-14, 1983 and/or Chow, *Open Channel Hydraulics,* 1959.

4.3.6. Channel Transitions

Transition sections shall be designed to provide a gradual transition to avoid turbulence and eddies. Energy losses in transitions should be accounted for as part of the water surface profile calculations. Recommended guidance can be found in *U.S. Army Corps of Engineers, EM 1110-2-1601.*

A straight line connecting flow lines at the two ends of the transition should not make an angle

greater than 12.5 degrees with the axis of the main channel.

Scour downstream of rigid to natural or steep to mild transition sections should be accounted for through velocity slowing and energy dissipation.

4.4. CHANNEL LININGS

One of the most influencing factors in the design of artificial channels is the channel lining. The most prominent channel lining types include earth (natural), grass, rock, concrete, and other biotechnical or synthetic measures. These linings can be used alone or in combination to form a composite channel. Soil cement linings are not permitted for open channels intended to become public.

It is recommended to incorporate the use of grade control to limit channel slopes/velocities and preclude the need for channel linings. The use of alternate channel treatments other than riprap is strongly encouraged. Methods developed by the International Erosion Control Association for channel protection and streambank stabilization are recommended.

The order of preference for open channels and swales shall be:

1. The use of natural bio-f liters to promote infiltration and water quality treatment.

2. The use of underground facilities.

3. The use of natural land forms. Side slopes not to exceed 2H:1V. The horizontal alignment shall meander to the extent possible. Riprap lining shall be limited to areas where erosion is anticipated.

4.4.1. Earth Lined/Naturally Vegetated Channels

Earth lined and naturally vegetated channels are classified the same for the purposes of this section. This includes the common practice of hydroseeding with native grasses. Allowable velocities for erodible channels are given in Table 4-1. Shear stress and tractive force analysis may be required.

4.4.2. Grass Lined Channels

Grass lined channels require proper maintenance and irrigation to function properly. Non-maintained/non-irrigated grass lined channels will revert back to the earth lined channel classification in Section 4.4.1. Conditions under which vegetal linings may not be acceptable include, but are not limited to:

- Standing or continuous flowing water;
- Lack of regular maintenance;
- Lack of nutrients and/or inadequate topsoil;

- excessive shade; and
- high flow velocities.

Temporary erosion control measures (e.g., jute or straw matting or spray tacking substances) may be required to provide sufficient time for seeding to be established. Seeding and mulch should only be used when the channel's design velocity does not exceed the allowable velocity for bare soil. Allowable velocities for grass lined channels are given in Table 4-2.

4.4.3. Flexible Linings - Riprap Design Criteria

Due to long term maintenance considerations, fully lined riprap channels intended to become public must receive prior approval from the Stormwater Manager and Public Works Department. The use of grade control or other channel linings must be examined first. Riprap lined channels should only be designed for subcritical flow regimes. If the channel is to be designed as a complete riprap channel (side slopes and bottom), the riprap itself will control the velocity and an iterative process between riprap size and channel velocity, due to riprap roughness, is necessary.

The channel cross section design must account for riprap thickness in channel excavation. The riprap must be "inlaid" by over excavating to the depth of the riprap layer thickness. Riprap should not be placed on top of swale or channel bottom.

Wire tied riprap or gabion baskets may be required where higher velocities or steeper channel side slopes are proposed. Rock sizes and basket characteristics should meet the manufacturers specifications.

4.4.3.1. Edge and End Treatment

The edges of riprap revetments (flanks, toe, and head) require special treatment to prevent undermining. The flanks of the revetment shall be designed as illustrated in Figure 4-2. Riprap can be substituted for the compacted fill shown in Section A-A in Figure 4-2.

Undermining of the toe is one of the primary causes of riprap failure. The toe of the riprap shall be designed as illustrated in Figure 4-3a. The toe material should be placed in a toe trench along the entire length of the riprap blanket. Where a toe trench cannot be excavated, the riprap blanket should terminate in a thick, stone toe at the level of the streambed (see alternate design in Figure 4-3a). Under this alternate design, care must be taken to not form a dike at/or along the toe or that the channel's design is not impaired by this toe mound.

The size of the toe trench (or alternate stone toe) is controlled by the anticipated depth of scour along the stream bed and toe. As scour occurs, the stone in the toe will launch into the eroded area as illustrated in Figure 4-3b.

The volume of rock required for the toe must be equal to or exceed 1.5 times the volume of rock required to extend the riprap blanket (at its design thickness on a 2:1 slope) to the anticipated depth of scour. Dimensions should be based on the required volume using the thickness and depth determined by scour depth.

4.4.3.2. Riprap Material Criteria

The shape of the rock riprap shall be blocky or angular rather than elongated or smooth river run rock. Cinder material (e.g. clinkers, tufa, and scoria) shall not be used for rock riprap lining.
Rock material should be hard, dense, and have sufficient durability to withstand abrasive water action and freeze/thaw cycles. Durability index and absorption laboratory tests should be conducted to determine the quality of the rock (see ASTM C127). The durability absorption ration (DAR) is then computed as follows:

$$\mathbf{DAR} = \frac{\textbf{Durability Index}}{\textbf{\% Absorption + 1}} \qquad \textbf{(4.2)}$$

DAR specifications are:

1. DAR > 23, material is accepted;
2. DAR < 10, material is rejected;
3. DAR 10 through 23:
   a. DI of 52 or greater, material is accepted; and
   b. DI of 51 or less, material is rejected.

Rock riprap size is typically specified as D_{50}, which is defined as the average diameter of a rock for which 50 percent of the gradation is finer, by weight. The riprap blanket gradation should form an interlocked mass of angular rock with little or no apparent voids or pockets. The recommended maximum rock size is two (2) times the D_{50} and the minimum size is one-third (1/3) of the D_{50}. No rock shall have a length exceeding 3.0 times the calculated D_{50}. Section 4.4.4 provides a recommended design procedure for determining D_{50}.

The riprap blanket thickness shall be a minimum of 1.5 to 2.0 times the calculated D_{50}. A minimum thickness of twelve (12) inches shall be used in all cases. A thickness of $2.0D_{50}$ is recommended to offset the occurrence of segregation of the rock gradation when the riprap is mechanically dumped, rather than hand placed or keyed into place. The thickness shall be measured perpendicular to the slope on which the riprap will be placed.

4.4.3.3. Filter Layers

A filter layer is a transitional layer of gravel, small stone, or fabric placed between the underlying soil and the riprap blanket (or other structure). A filter shall be used whenever the riprap is being placed on noncohesive material subject to subsurface drainage.

Granular Filters: For rock riprap, a filter ratio of five (5) or less between layers will usually result in a stable condition. The filter layer (blanket) ratio is defined as the ratio of the 15 percent particle size (D_{15}) of the filter to the 85 percent particle size (D_{85}) of the base layer (channel bank). An additional requirement for stability is that the ratio of the 15 percent particle size of the filter material to the 15 percent particle size of the bank material should be greater than 5 but less than 40. These requirements are expressed as:

$$\frac{(D_{15})_{filter}}{(D_{85})_{bank}} < 5 < \frac{(D_{15})_{filter}}{(D_{15})_{bank}} < 40 \qquad (4.3)$$

The above relationships must hold between the filter blanket and the base material and between the riprap and filter blankets (USDOT, FHWA, HEC-15, 1988).

If the inequalities are satisfied by the riprap layer itself, then no filter layer is needed. If a single layer of filter material will not satisfy the filter requirements, one or more additional layers of filter material must be used. The filter requirement applies between the bank material and the filter blanket, between successive layers of filter material if more then one layer is used, and between the filter blanket and the riprap. In addition to the filter requirement, the grain size curves for the various layers should be approximately parallel to minimize the infiltration of fine material from the finer layer to the coarse layer. Not more than 5 percent of the filter material should pass the No. 200 sieve.

The thickness of the filter blanket should range from six (6) to fifteen (15) inches for a single layer, and 4 to 8 inches for individual layers of a multiple layer blanket. Where the gradation curves of adjacent layers are approximately parallel, the blanket thickness should approach the minimum. The blanket thickness should be increased above the minimum proportionately as the gradation curves depart from a parallel pattern. Figure 4-4 can be used as an aid in designing granular filters.

Filter Fabric: Synthetic, geotextile filter fabrics can be used as an alternative to granular filters. However, it is not a complete substitute for granular filters. The site conditions, application, and installation procedures must be carefully considered when evaluating filter fabric as a replacement for granular filters. The design criteria for such filter fabrics is dependent upon the permeability and effective opening size of the fabric. Essentially, the permeability of the fabric must exceed the permeability of the underlying soil and the fabric opening size (AOS) must be less than the soil particle size.

The criteria for the AOS is expressed as follows:

1. For soil with less than 50 percent of the particles, by weight, passing a No. 200 sieve, the AOS should be less than 0.6 mm (No. 30 sieve), and

2. For soil with more than 50 percent of the particle, by weight, passing a No. 200 sieve, the AOS should be less than 0.3 mm (No. 50 sieve).

Problems associated with filter fabrics are less resistance to stone movement and tearing. Direct mechanical dumping is not permitted. A minimum of four (4) inches of bedding material is recommended over non-woven filter fabric to prevent damage from mechanically dumped riprap.
Experimental evidence indicates that when channel banks are subjected to wave action, non-cohesive bank material has a tendency to migrate downstream beneath the fabric; this tendency was not found with granular filters. Filter fabrics can also induce translational or modified slump failures when used under rock riprap installed on steep slopes.

Filter Fabric Placement: Failures in filter fabrics often occur due to improper installation. Therefore, to provide optimum performance, a properly selected fabric should be installed per the following guidelines or the manufacturer's guidelines, whichever is more restrictive:

a. Heavy riprap may stretch the fabric as it settles. A four (4) to six (6) inch gravel bedding is required to be placed beneath the riprap for gradations having a D_{50} greater than 2 feet.
b. A filter cloth shall not extend into the channel beyond the riprap layer; it should be wrapped around the bottom of the toe material and back into the riprap layer.
c. Adequate overlaps must be provided between individual fabric sheets.
d. A sufficient number of folds should be included during placement to minimize tension and stretching under settlement.
e. Securing pins with washers are required at two (2) to five (5) foot intervals along the midpoint of overlaps.
f. Proper stone placement on the filter requires beginning at the toe and proceeding upslope. Dropping stone from heights greater than two (2) feet is not permitted.

TABLE 4-1: ALLOWABLE VELOCITIES FOR ERODIBLE CHANNELS

MATERIAL	VELOCITY (ft/sec)
Fine Sand (noncolloidal)	2.5
Sandy Loam (noncolloidal)	2.5
Silt Loam (noncolloidal)	3.0
Alluvial Silts (noncolloidal)	3.5
Alluvial Silts (colloidal)	5.0
Ordinary Firm Loam	3.5
Volcanic Ash	2.5
Fine Gravel	5.0
Stiff Clay (very colloidal)	5.0
Graded, Loam to Cobbles (noncolloidal)	5.0
Graded, Silts to Cobbles (colloidal)	5.0
Coarse gravel (noncolloidal)	6.0
Cobbles and Shingles	5.5
Shales and Hard Pans	6.0

For sinuous channels, multiply permissible velocity by:
0.95 for slightly sinuous;
0.90 for moderately sinuous; and
0.80 for highly sinuous

Source: USDOT, FHWA, 1961 and 1983

TABLE 4-2: ALLOWABLE VELOCITIES - GRASS LINED CHANNELS

VEGETATION TYPE	SLOPE[1](%)	MAXIMUM VELOCITY[2] (ft/s)	
		Erosion Resistant Soils	Easily Eroded Soils
Bermuda grass	0-5	7.0	5.0
	5-10	7.0	5.0
	> 10	6.0	4.0
Kent. bluegrass	0-5	7.0	5.0
Buffalo grass	5-10	6.0	4.0
	> 10	5.0	3.0
Native grass mixture	0-5[1]	5.0	4.0
	5-10	4.0	3.0
Lespedeza Kudzu, Alfalfa	0-5[3]	3.5	2.5
Annuals[4]	0-5	3.5	2.5
Sod		4.0	4.0
Lapped sod		5.5	5.5

[1] Do not use on slopes steeper than ten percent (10%) except for side slope in combination channel.
[2] Use velocities exceeding 5 ft/s only where good stand can be established and maintained.
[3] Do not use on slopes steeper than five percent (5%) except for side-slope in combination channel.
[4] Annuals - used on mild slopes or as temporary protection until permanent covers are established.

Source: USDA, TP-61, 1954

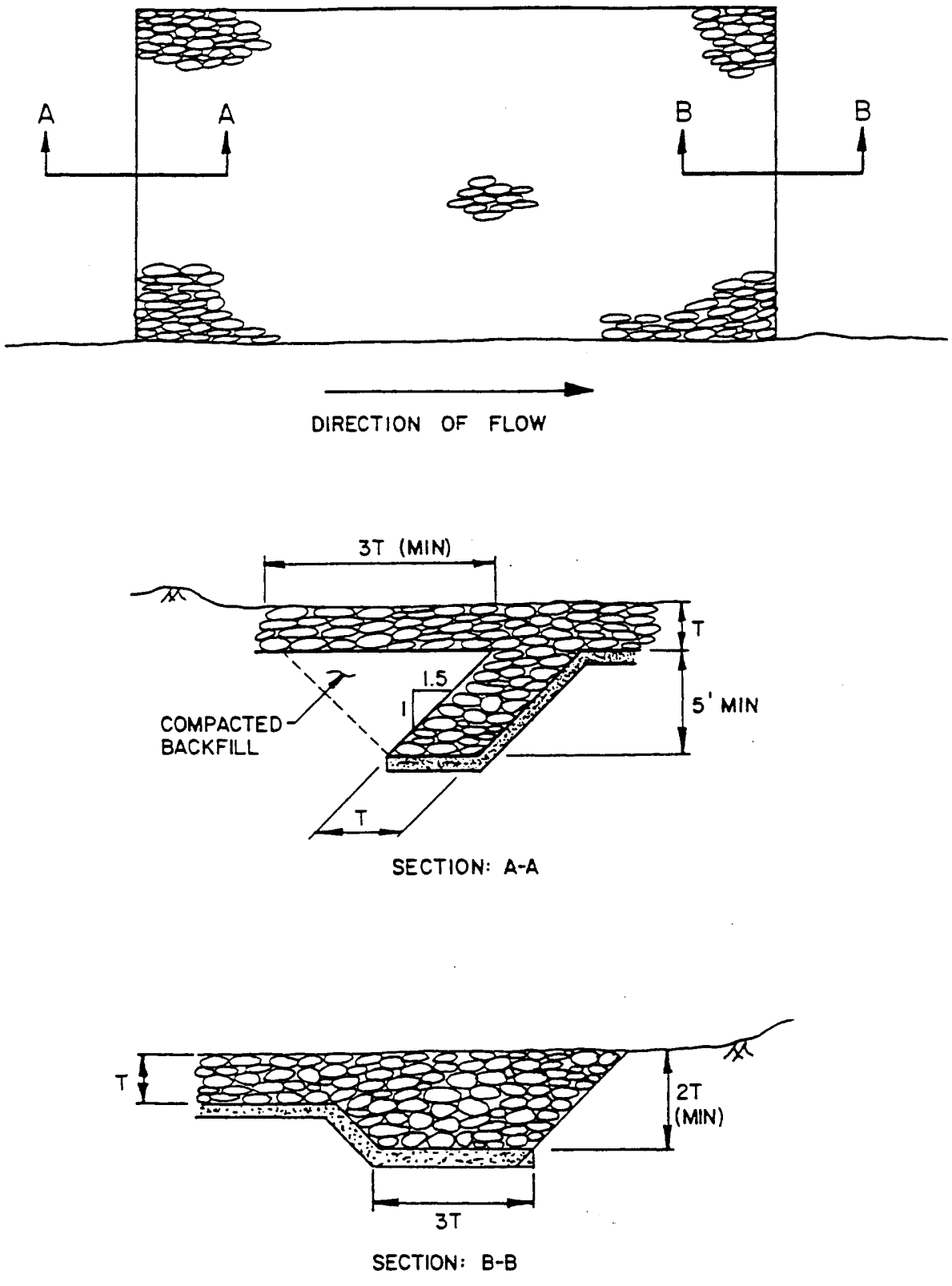


Figure 4-2: Typical Riprap Installation - Plan and Flank Details

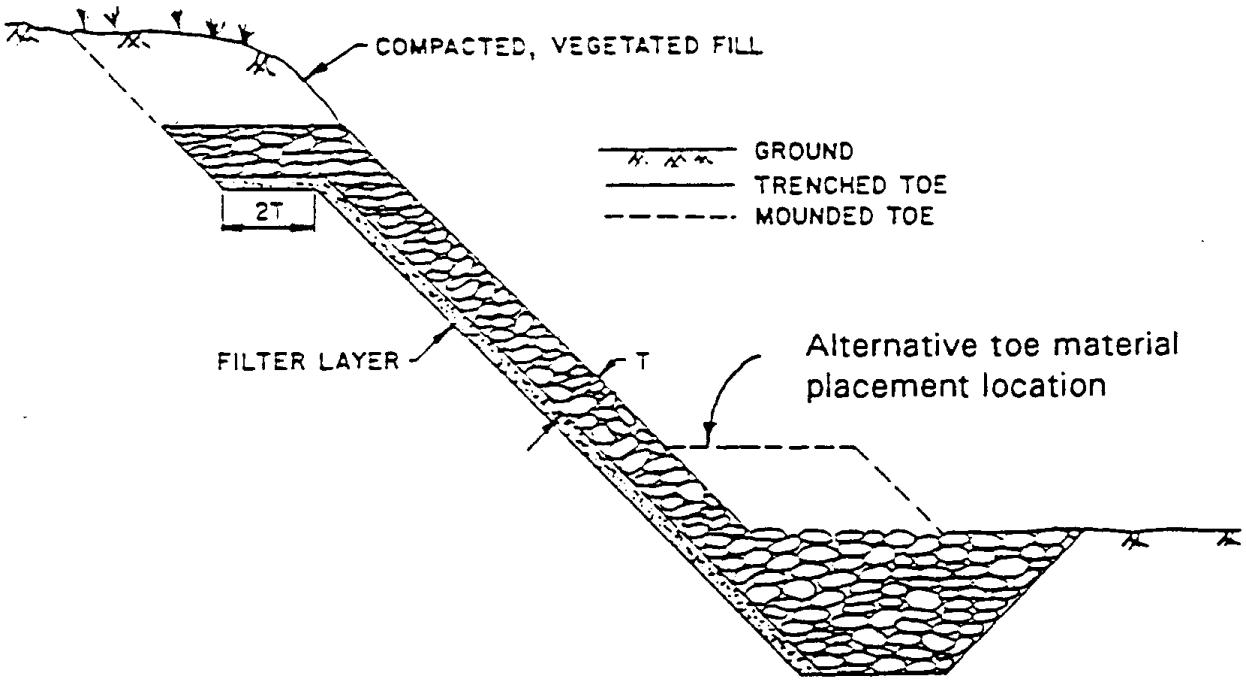


Figure 4-3a: Typical Riprap Installation - Bank Protection Only

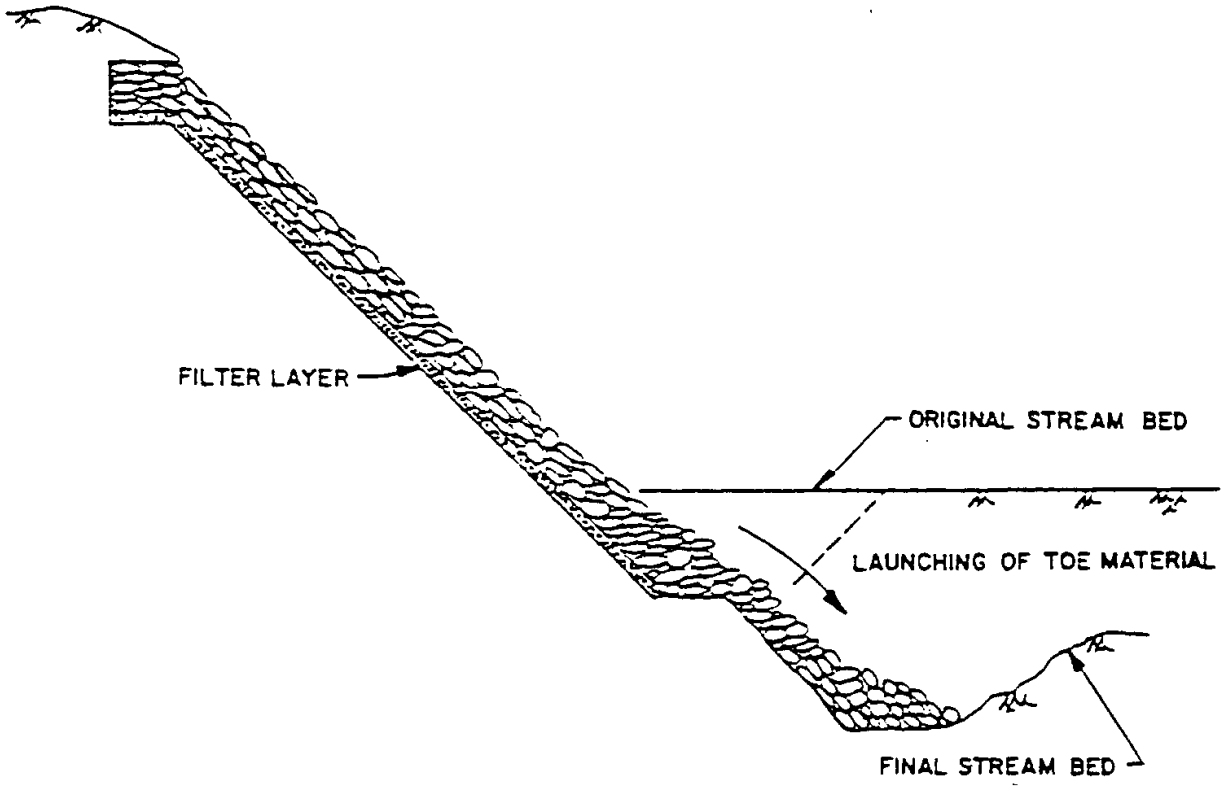


Figure 4-3b: Launching of Riprap Toe Material

PROJECT _____	Prepared by/Date: : ___/___ _____
DESCRIPTION _____	Checked by/Date: ___/___ _____
_____	Sheet _____ of _____

GRANULAR FILTER:

LAYER	DESCRIPTION	D_{15} (ft)	D_{85} (ft)	RATIO	$\frac{D_{15}\text{COARSE}}{D_{85}\text{FINE}}$	< 5 <	$\frac{D_{15}\text{COARSE}}{D_{15}\text{FINE}}$	< 40

SUMMARY:

LAYER DESCRIPTION	D_{15}	D_{85}	THICKNESS

FABRIC FILTER: PHYSICAL PROPERTIES CLASS: _____

HYDRAULIC PROPERTIES

PIPING RESISTANCE < 50% PASSING #200 AOS < 0.6 mm

< 50% PASSING #200 AOS < 0.3 mm

PERMEABILITY SOIL PERMEABILITY < FABRIC PERMEABILITY

SELECTED FABRIC FILTER SPECIFICATIONS: _____

Figure 4-4: Granular Filter Design Form

4.4.4. Riprap Design Procedure

The following procedure applies to riprap placement in both natural and prismatic channels and is based on tractive force theory. Additional design information, for discharges less than 50 ft^3/s, can be found in Federal Highway Administration (FHWA), HEC No. 15, *Design of Stable Channels with Flexible Linings,* 1988. Velocity is the primary design parameter and the following assumptions and limitations apply to this procedure:

- minimum riprap thickness equal to d_{100},
- the value of d_{85}/d_{15} less than 4.6,
- Froude Number of less than 1.2,
- side slopes no steeper than 2H:1V,
- a safety factor of 1.2,
- a maximum velocity less than 18 ft/s.
- typical riprap angle of repose of 39 degrees

If significant turbulence is caused by boundary irregularities (e.g., near obstructions or structures) this procedure is not applicable.

4.4.4.1. Riprap Sizing

The median size (D_{50}) of the riprap can be determined using Equation 4.4 below:

$$\mathbf{D_{50} = (0.001\ V^3) / (d^{0.5}\ K^{1.5})} \qquad \mathbf{(4.4)}$$

where:
- D_{50} = size of stone, ft
- V = average velocity in the channel, ft/s
- d = the average depth flow in the channel, ft
- K = side slope correction factor found in Equation 4.5

$$\mathbf{K = [1 - (Sin^2\ \phi / 0.396)]^{0.5}} \qquad \mathbf{(4.5)}$$

where: ϕ = the bank angle with horizontal (e.g., 3H:1V has ϕ = 18.43 degrees)

Equation 4.4 is based on a stone specific weight of 165 lbs/ft^3. If the rock density is significantly different from 165 lbs/ft^3 the D_{50} size found in Equation 4.4 should be multiplied by a specific weight correction factor found in Equation 4.6.

$$\mathbf{C_w = 2.12 / (S_{sg} - 1)^{1.5}} \qquad \mathbf{(4.6)}$$

where: S_{sg} = the specific gravity of the rock riprap

For design situations other than a uniform straight channel, the D_{50} size from Equation 4.4 should be multiplied by a Stability Correction Factor found in Equation 4.7.

$$\mathbf{C_{SF} = (SF / 1.2)^{1.5}} \qquad \mathbf{(4.7)}$$

where: SF = the stability factor to be applied as defined in Table 4-1 and is defined as the ratio of the average tractive force exerted by the flow field and the riprap material's critical shear stress.

NOTE: The correction factors computed in Equations 4.6 and 4.7 are multiplied together to form a single correction factor, C, to be applied to riprap size computed in Equation 4.4.

TABLE 4-3: GUIDELINES FOR SELECTION OF STABILITY FACTORS

Channel Condition	Stability Factor (SF)
Uniform flow; straight or mildly curving reach [curve radius/channel top width, (R_c/T) > 30]; little impact from wave action or debris; little uncertainty in design.	1.0 - 1.2
Gradually varied flow; moderate bend curvature (30 > R_c/T > 10); moderate impact from waves or debris; moderate uncertainty in design parameters.	1.3 - 1.6
Approaching rapidly varied flow; sharp bend curvature (10 > R_c/T); significant impact from waves or debris; high flow turbulence; significant uncertainty in design parameters.	1.61 - 2.0

4.4.5. Grouted Riprap

Grouted riprap provides advantages similar to concrete linings and can be used in applications where high flow velocities and tractive forces could pull away the rock in a typical dumped riprap section. Grouted riprap can also be used on pipe outlets, stilling basins below drop structures, or spillways.

Common problems associated with grouted riprap are settlement, failure to achieve complete penetration between the rocks, seepage, and undermining from runoff around and under the grouted riprap system.

Grouted riprap is considered a rigid structural lining comprised of a blanket of rock riprap that is held together by concrete grout injected into the voids between the rocks. For the grouted riprap to

properly function as a monolithic structure, the grout must extend the full thickness of the riprap blanket, instead of being placed or poured on top of the riprap blanket.

Weep holes or subsurface drains may be required to allow for reduction in lift forces and hydrostatic pressure buildup behind the riprap layer.

Subgrade conditions must be considered as with concrete lined channels. If the grouted riprap is intended for channel bank protection only, adequate key-ins and toe protection, below the estimated scour depth, shall be provided as depicted in Figure 4-5.

As the riprap layer is placed, a key-in or cut off trench shall be excavated around the rock section at the top of the slope and the upstream and downstream edges as illustrated in Figure 4-5.

4.4.5.1. Rock Material and Size

Rock used for grouted riprap should meet the same properties and specification as Section 4.4.3, however graded riprap shall not be used for grouting since the smaller rock in a well graded riprap mix will take up the void spaces intended for the grout. To accomplish this, rock smaller than the specified D_{50} is removed. Riprap smaller than twelve (12) inches should not be grouted. Riprap classification and gradation criteria are given in Table 4-4.

The median rock size shall not exceed 0.67 times the blanket thickness and the largest size rock shall not exceed the blanket thickness.

The minimum riprap blanket thickness shall be one (1) foot for channel velocities of 0.0 - 7.0 feet/second and two (2) feet for velocities from 7.0 - 15.0 feet/second.

TABLE 4-4: GROUTED RIPRAP CLASSIFICATION AND GRADATION

Riprap Designation	% Smaller Than Given Size By Weight	Intermediate Rock Dimension (inches)
Type MG	70 - 100	21
	50 - 70	18
	0 - 5	12
Type HG	100	30
	50 - 70	24
	0 - 5	18
Type VHG	100	42
	50 - 70	33
	0 - 5	24

4.4.5.2. Grout Requirements

Grout for riprap installation on public structures shall be in accordance with MAG Section 220.5 and the following criteria:

1. Air entrainment of 5 - 7%,
2. Compressive strength of not less than 3000 psi in 28 days,
3. Slump of 5 to 7 inches, and
4. 1.5 lbs./cy of fibermesh, or equivalent, shall be used to control shrinkage/cracking.
5. Type II cement. Maximum of 25% fly ash may be substituted for Portland cement.
6. Aggregate shall be comprised of 70% natural sand (fines) and 30% 3/8-inch rock (coarse).

4.4.5.3. Grouted Riprap Placement Requirements

Placement of grouted riprap for public structures shall be in accordance with the following criteria:

1. Final placement of riprap shall be approved by Stormwater Manager prior to placement of grout.

2. Fines and smaller gradation rock shall be removed from the rock blanket to ensure better penetration by the grout.

3. The riprap shall be clean of all dirt and deleterious materials and sprayed with clean water immediately prior to grouting.

4. A low pressure (< 10 psi) grout pump with a two (2) inch diameter nozzle shall be used.

5. Grout must be placed by injection methods using a pencil vibrator and grout penetration must extend the full thickness of the rock blanket. Pneumatically placed grout is not permitted. The grout mix and placement procedures must be controlled to achieve the specified thickness, penetration, and grade of the grout layer.

6. The finished level of the grout shall be 1/4 - 1/3 the rock size below the top of the rock. After the grout has been places and vibrated, excess grout should be removed from the exposed rock. A broom finish should be provided for the grout.

7. The finished surface shall be sealed with a clear liquid membrane curing compound per American Society for Testing and Materials (ASTM) C-309.

4.4.6. Concrete Lined Channels

Concrete lined channels are discouraged in residential and/or recreational areas, however, they may become necessary in cases with limited right-of-way, high velociies, and supercritical flow.

Common problems experienced with concrete lined channels are bedding/subgrade failure, liner failures due to seepage or high groundwater, and sedimentation. Lack of proper maintenance can result in vegetation growth through the concrete liner.

Supercritical flow is typically associated with concrete lined channels. Therefore, supercritical channels should not be designed with any curvature or bends and there shall be no reduction in cross sectional area at bridges/culverts or any other obstructions in the flow path. Lateral storm drains entering a concrete lined channel cannot protrude beyond the channel bank, into the channel flow area. The maximum allowable velocity in any concrete channel shall not exceed eighteen (18) feet per second.

Low flow or trickle channels are recommended on the bottom of all concrete lined channels. Low flow channels should be designed to convey the 2-year discharge at a minimum.

4.4.6.1. Concrete Lining Criteria

Side slopes shall be no steeper than 1H:1V unless designed to act as a structurally reinforced retaining wall designed to withstand soil and groundwater forces, or surcharging.

All concrete lining shall be designed to withstand anticipated hydrodynamic and hydrostatic forces. Minimum thickness shall be no less than eight (8) inches for supercritical channels and no less than six (6) inches for subcritical channels. The top of the concrete lining shall be adequately keyed into the channel banks as depicted in Figure 4-6.

Concrete channels shall be constructed of continuously reinforced concrete without transverse joints. The reinforcing shall be continuous both longitudinally and laterally. Expansion or contraction joints shall only be installed where new concrete lining is connected to a rigid structure or to existing concrete lining which is not continuously reinforced.

Longitudinal joints, where required, shall be constructed on the side-walls at least one (1) foot vertically above the channel invert. Construction joints are required for all cold joints and where the lining thickness changes. Reinforcement shall be continuous through the joint. All joints shall be designed to prevent differential movement by utilizing a staggered or step joint.

Reinforcement steel shall be a minimum grade 40 epoxy coated deformed bars. The ratio of steel area to concrete cross-sectional area shall be greater than 0.006. The ratio of transverse steel area to concrete cross-sectional area shall be greater than 0.003. Reinforcing steel shall be placed at he center of the section with a minimum clear cover of three (3) inches adjacent to the ground.

Additional steel shall be provided as needed to meet retaining wall structural requirements.

Earthwork for concrete lined channels shall be compacted to a minimum of ninety-five percent (95%) of maximum density, as determined by ASTM D-698 (Standard Proctor), for the following areas:

a. The twelve (12) inches of subgrade immediately beneath concrete lining (bottom and sides).
b. Top twelve (12) inches of earth surface within ten (10) feet of concrete channel lip.
c. Top twelve (12) inches of maintenance road subgrade.
d. All fill material.

A minimum of six (6) inches of aggregate base course granular bedding is required under channel bottom and side slopes.

Longitudinal underdrains may be required when temporary or permanent high water tables are experienced. Underdrains shall be free draining, consist of six (6) inch minimum perforated pipe in gravel or coarse sand, flap valves at the outlets, and shall daylight at check drops when applicable. Weepholes should be limited when possible, but are necessary on vertical wall sections to relieve hydrostatic pressure.

Side ditches along the tops of the channel should be utilized to intercept sheet flow and convey it to chutes or dip inlets.

Safety requirements for concrete lined channels shall consist of the following measures at a minimum:

a. A six (6) foot high chain link or comparable fence is required to prevent access wherever the 100-year channel concrete depth exceeds three (3) feet or on concrete channels with vertical walls exceeding thirty (30) inches in height. Appropriate numbers of gates and maintenance roads (12 ft. width), shall be placed and staggered where fencing is required on both sides of the channel.
b. Ladder-type steps shall be installed not more than 400 feet apart on alternating sides of the channel. The bottom rung or step shall be placed one (1) foot above the channel bottom.

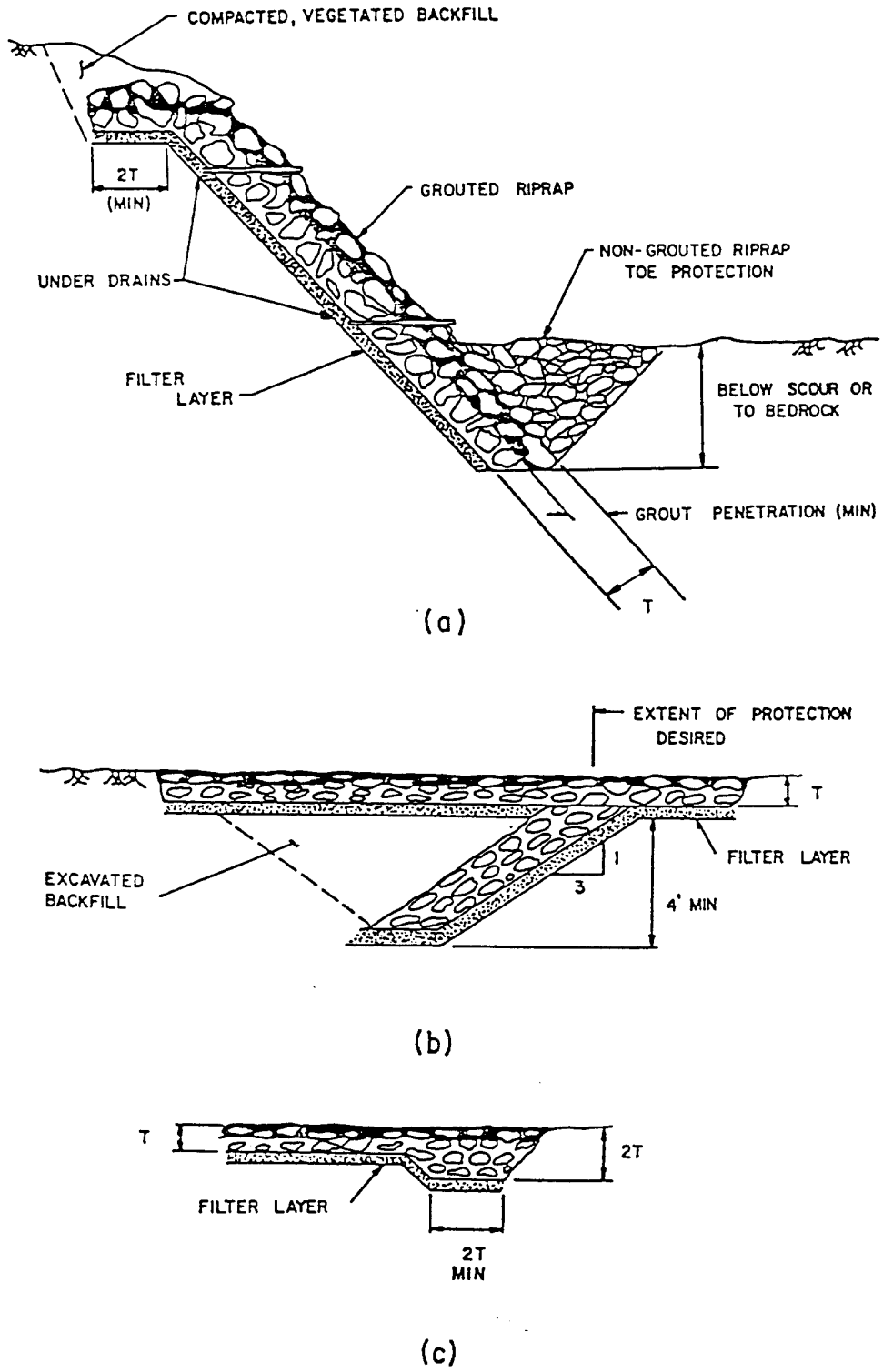


Figure 4-5: Grouted Riprap Sections

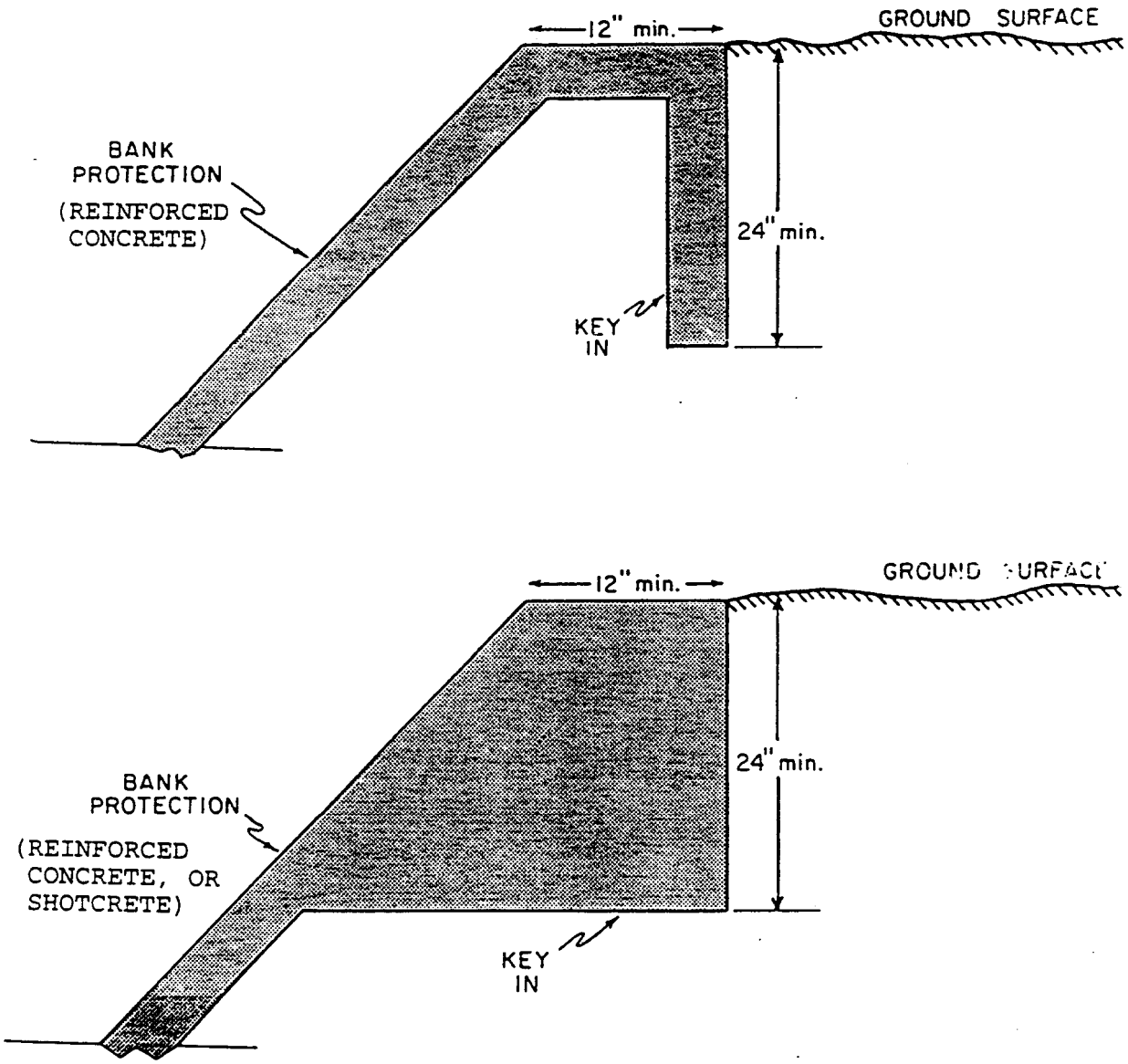


Figure 4-6: Concrete Lined Channels: Typical Key-Ins
Source: Simmons, Li and Associates, 1988

4.5. MANNING'S ROUGHNESS COEFFICIENTS

The Manning's 'n' value is an important variable in open channel design. Variations to the roughness coefficient significantly affect discharge, depth of flow, and velocity estimates. Care and sound engineering judgement must be exercised in the selection process. Factors which should be considered in the selection process are:

1. The physical roughness of the bottom and sides of the channel
2. The value of 'n' depends on the height, density, type of vegetation, and how the vegetation affects the flow through the channel. The 'n' value may increase in the Spring/Summer and diminish in Fall/Winter.
3. Channel shape variations, such as abrupt changes in channel cross sections or alternating small and large cross-sections, will require somewhat larger 'n' values than normal.
4. A significant increase in the 'n' value is possible if severe meandering occurs in the channel alignment. Meandering becomes more important when frequent changes in the direction of the curve occur with relatively small radii of curvature.
5. Active channel erosion or sedimentation will tend to increase the 'n' value, since these processes may cause variations in the shape of the channel. The potential for future erosion or sedimentation in the channel should also be considered.
6. Obstructions, such as log jams or deposits of debris, will increase the 'n' value. The level of this increase will depend on the number, type, and size of the obstruction(s).
7. To be conservative, it is better to use a higher resistance for capacity calculations and a lower resistance for stability calculations. Sensitivity studies may be important.
8. Due to floodplain vegetation, the 'n' value may vary with the depth of flow.

All of the above factors should be considered with respect to the type of channel, degree of maintenance, seasonal requirements, etc. as a basis for making a determination of an appropriate design 'n' value. The probable condition of the channel when the design event will occur should be considered. Values representative of a newly constructed channel are rarely appropriate as a basis for design capacity calculations.

For roughness coefficients for composite channels, refer to Chow, *Open Channel Hydraulics,* 1959.

Recommended Manning's 'n' values for use in open channel design and analysis are shown in Tables 4-5 and 4-6. For more information refer to the *Guide For Selecting Mannings Roughness Coefficients For Natural Channels and Floodplains,* FHWA-TS-84-204, 1984 or Chow, 1959.

TABLE 4-5: MANNING'S ROUGHNESS COEFFICIENTS (n)

ARTIFICIAL CHANNELS

		FLOW DEPTH		
Category	**Lining Type**	**0-0.5 ft**	**0.5-2.0 ft**	**> 2.0 ft**
Rigid	Concrete	0.015	0.013	0.013
	Grouted Rip-rap	0.040	0.030	0.028
	Stone Masonry	0.042	0.032	0.030
	Soil Cement	0.025	0.022	0.020
	Asphaltic Concrete	0.018	0.016	0.016
Unlined	Bare Soil	0.023	0.020	0.020
	Rock Cut	0.045	0.035	0.025
Temporary[1]	Woven Paper Net	0.016	0.015	0.015
	Jute Net	0.028	0.022	0.019
	Fiberglass Roving	0.028	0.022	0.019
	Straw with Net	0.065	0.033	0.025
	Curled Wood May	0.066	0.035	0.028
	Synthetic Mat	0.036	0.025	0.021
Gravel Riprap	1-inch D_{50}	0.044	0.033	0.030
	2-inch D_{50}	0.066	0.041	0.034
Rock Riprap	6-inch D_{50}	0.104	0.069	0.035
	12-inch D_{50}	-------	0.078	0.040

Values listed are representative values for their respective depth ranges. Manning's roughness coefficients vary with flow depth.

[1]Some "temporary" linings become permanent when buried.

Source: USDOT, HEC-15, 1988.

TABLE 4-6: UNIFORM FLOW VALUES OF ROUGHNESS COEFFICIENT (n)

TYPE OF CHANNEL AND DESCRIPTION	MINIMUM	NORMAL	MAXIMUM
EXCAVATED OR DREDGED			
Earth, straight, uniform	0.016	0.018	0.020
Clean, recently completed	0.018	0.022	0.025
Clean, after weathering	0.022	0.025	0.030
Gravel, uniform section, clean	0.022	0.027	0.033
Earth, winding and sluggish			
No vegetation	0.023	0.025	0.030
Grass, some weeds	0.025	0.030	0.033
Dense weeds/plants in deep channels	0.030	0.035	0.040
Earth bottom, rubble sides	0.025	0.030	0.035
Stony bottom, weedy sides	0.025	0.035	0.045
Cobble bottom, clean sides	0.030	0.040	0.050
Dragline excavated or dredged			
No vegetation	0.025	0.028	0.033
Light brush on banks	0.035	0.050	0.060
Rock cuts			
Smooth and uniform	0.025	0.035	0.040
Jagged and irregular	0.035	0.040	0.050
Unmaintained channels, weeds/brush uncut			
Dense weeds, high as flow depth	0.050	0.080	0.120
Clean bottom, brush on sides	0.040	0.050	0.080
Same, highest stage of flow	0.045	0.070	0.110
Dense brush, high stage	0.080	0.100	0.140
NATURAL STREAMS			
Minor streams (top width @ flood stage < 100')			
Streams on Plain			
Clean, straight, full stage, no rifts or deep pools	0.025	0.030	0.033
Same, more stones and weeds	0.030	0.035	0.040
Clean, winding, some pools and shoals	0.033	0.040	0.045
Same, some weeds and stones	0.035	0.045	0.050
Same, lower stages, more ineffective slopes and sections	0.040	0.048	0.055
Sluggish reaches, weedy, deep pools	0.050	0.070	0.080
Very weedy reaches, deep pools, or floodways w/heavy stands of timber and underbrush	0.075	0.100	0.150

Table 4-6 continued.

Mountain streams, no vegetation in channel, banks usually steep, trees and brush along banks submerged at high stages			
Bottom: gravel, cobbles, few boulders	0.030	0.040	0.050
Bottom: cobbles W/large boulders	0.040	0.050	0.070
Floodplains			
Pasture, no brush			
Short grass	0.025	0.030	0.035
High grass	0.030	0.035	0.050
Brush			
Scattered brush, heavy weeds	0.035	0.050	0.070
Light brush, trees, in winter	0.035	0.050	0.060
Light brush, trees, in summer	0.040	0.060	0.080
Medium to dense brush, in winter	0.045	0.070	0.110
Medium to dense brush, in summer	0.070	0.100	0.160
Trees			
Dense willows, summer, straight	0.110	0.150	0.200
Cleared land, tree stumps, no sprouts	0.030	0.040	0.050
Same, heavy growth of sprouts	0.050	0.060	0.080
Heavy stand of timber, few down trees, flood stage below branches	0.080	0.100	0.120
Same, flood stage above branches	0.100	0.120	0.160
Major streams (top width > 100').			
Regular section w/no boulders or brush	0.025	-------	0.060
Irregular and rough section	0.035	-------	0.100

Source: Chow, V.T., 1959

CHAPTER 5: CULVERTS AND BRIDGES

The purpose of this chapter is to present policies and criteria for the design and construction of roadway culverts. The culvert design procedures presented in this chapter are based on FHWA Hydraulic Design Series No. 5 (HDS-5), *Hydraulic Design of Highway Culverts,* 1985. HDS-5 design procedures should be used to expedite the review and approval of culvert designs.

Culverts are typically used to convey stormwater through an embankment or may serve as the primary outlet for detention facilities. Culverts are typically aligned with natural washes, watercourses, or open channels which serve as the primary outfall for local and regional drainageways. The design of culverts is influenced by purpose, hydraulic efficiency, site topography, effects on adjacent property, and cost. Bridges are typically not practical or warranted for most roadway crossings in the Flagstaff area, however bridge design criteria is presented in this chapter.

5.1. POLICIES

a. All culverts shall be hydraulically designed to determine whether inlet and outlet control conditions govern for the design storm discharge(s).

b. Culverts shall be used where:

1. bridges are not hydraulically required,
2. debris and ice are tolerable, and
3. they are more economical than a bridge structure.

Bridges shall be used:

1. where culverts cannot be used,
2. where more economical than a culvert,
3. to satisfy land use requirements,
4. to mitigate environmental harm caused by a culvert and fill,
5. to avoid floodway encroachments, and
6. to accommodate ice and large debris.

Bridge structures will require special design and review considerations as approved by the Stormwater Manager.

c. Culverts shall be located and designed to present a minimum hazard to traffic, persons, and property. Projecting ends shall not be permitted for culverts intended to become public.

d. Survey and resource information should include topographic features, channel characteristics, aquatic life, riparian habitat, highwater information, existing structures, and other related site specific information, as applicable.

e. Roadway culverts shall be designed to accommodate debris or proper provisions shall be made for debris maintenance. Where practicable, some means shall be provided for personnel and equipment access to facilitate maintenance.

f. Material selection shall include consideration of service life, hydraulic efficiency, and maintenance and shall not be made using first cost as the sole criteria.

g. Low water or at-grade, dip crossings of FEMA designated/mapped washes or other riverines are not permitted for public or private roadways which serve as the primary access to a development or single family residence.

h. Culvert or bridge crossings of FEMA designated/mapped washes shall be analyzed with HEC-2 Water Surface Profiles or HEC-RAS. It must be demonstrated and certified by the engineer that there will be no significant increases on the base flood elevations(s) and/or limits upstream or downstream of the crossing.

i. Erosion control measures may be required in all construction plans, as determined by the Stormwater Manager. These measures shall include, but not be limited to silt boxes, straw silt barriers, filter cloth, temporary silt fences, and check dams to minimize pollution of streams and damages to wetland areas.

5.2. CULVERT DESIGN CRITERIA

Performance curves shall be developed for all public culverts for evaluating hydraulic capacity versus various headwater depths, outlet velocities, and scour depths.

The culvert length and slope shall be chosen to approximate existing topography, and to the degree practicable, the culvert shall be aligned with the channel bottom and the skew angle of the watercourse.

Multiple barrel culvert crossings should fit onto the natural channel cross-section with minimal widening of the channel so as to avoid conveyance loss and sediment deposition. Multiple barrel culverts shall be avoided where the approach velocity is high, particularly supercritical, to avoid adverse hydraulic jump effects.

The minimum velocity through a culvert should be three (3) feet per second when the culvert is flowing partially full. The maximum allowable velocity for corrugated metal pipe should not exceed

twenty (20) feet per second.

5.2.1. Design Storm Criteria

Roadway culverts shall be designed to convey the following frequency flows without roadway overtopping:

Local Streets…….. 25-year

Collector/Arterial Streets…… 50-year

FEMA Mapped Watercourses ……100-year

The weir flow depth for the 100-year design storm shall be limited to 0.5 feet or less for roadways serving as secondary access to a development or subdivision.

Public roadway culvert or bridge crossings of riverine areas with a contributing watershed greater than 1/4 square miles should be designed to convey the 100-year peak discharge with no roadway overtopping. Bridge crossings for all other types of roadway classifications and crossings shall be designed for the 50-year storm event at a minimum.

Private streets or accesses crossing public drainage ways or FEMA designated floodplains shall be designed to convey the channel design discharge or the 100-year discharge whichever is greater.

Public facilities such as underpasses, depressed roadways, etc. where no overflow relief is available shall be designed for the 50-year event.

At-grade, dip crossings which serve as the primary access to a development are not permitted. Secondary access crossings of broad shallow washes, where installation of a culvert or bridge is impractical, may be dipped to allow the entire flow to cross the roadway. The pavement section must have a one-way cross slope in the direction of flow without raised curbs or medians. Cut-off walls and aprons will be required on both the upstream and downstream edges on the pavement to prevent headcutting and erosion.

5.2.2. Skewed Culverts

Culverts should be designed to closely conform to the natural stream in alignment, slope, and width, whenever possible. As a result, culverts are often skewed with respect to the roadway centerline. The culvert skew angle shall not exceed forty-five (45) degrees as measured from a line perpendicular to the roadway centerline.

Headwalls and wingwalls are required on all skewed culverts. Alterations of the normal inlet

configuration are generally required due to culvert skew. Inlets are often skewed with respect to the centerline of the culvert so that the headwalls are parallel to the roadway centerline to avoid warping of the roadway embankment fill. Figure 5-1 illustrates typical skewed headwall and wingwall configurations.

5.2.3. Headwater and Tailwater Conditions

5.2.3.1. Allowable Headwater

The allowable headwater (HW) is the depth of water that can be ponded at the upstream end of a culvert and shall be limited to one or more of the following parameters:

1. No damage or inundation to upstream property;
2. No greater than the low point in the road grade;
3. Equal to the elevation where flow diverts around the culvert; or
4. For culverts with cross-sectional area equal to or less than 30 sq. ft. - HW/D $\leq$ 1.5; and for culverts with cross-sectional area greater than 30 sq. ft. - HW/D $\leq$ 1.2.

A submerged inlet occurs when the headwater is greater than 1.2 times the pipe diameter (D). The ponded headwater elevation should be evaluated and plotted on the public improvement plans to ensure adequate drainage easement is reserved and flooding of adjacent property or buildings will not occur for the design storm.

5.2.3.2. Tailwater Relationship

A submerged outlet occurs where the tailwater elevation is higher than the crown of the culvert. For design purposes, downstream conditions which result in high tailwater should be avoided if possible.

A free outlet has a tailwater equal to or lower than critical depth. For culverts having free outlets, lowering the tailwater has no effect on the discharge or the backwater profile upstream of the tailwater.

The tailwater depth may be computed as the highest value of the following criteria:

1. The normal depth in the downstream channel for subcritical flow regimes;
2. The critical depth and equivalent hydraulic grade line if the outlet is operating with a free outfall;
3. The high water elevation that has the same design frequency if outlet is a detention basin, channel, or other body of water; or
4. The quantity $(d_c + D)/2$; where d_c = critical depth (ft.), and D = pipe diameter (ft.)

If culverts are placed in close proximity to each other, the headwater of the downstream culvert may influence the tailwater depth of the upstream culvert. It may be necessary to use the headwater

elevation of a nearby downstream culvert if it is greater than the tailwater depth of the upstream culvert or normal depth in the channel.

5.2.4. Inlet and Outlet Treatment

5.2.4.1. Inlets

Culvert inlets shall match the geometry of the roadway embankment whenever possible. In order to reduce headwater elevations, improve inlet capacity, and prevent damage to roadway embankments and culvert ends, the use of concrete headwalls and wingwalls, side or slope tapered inlets, and beveled edges may be required.

Commercial end sections are permitted on culverts 36" in diameter or less, if the design headwater is acceptable and other embankment protection measures are used. Concrete headwalls are required on all public culverts greater than 36" in diameter. Typical headwall and wingwall configurations are illustrated in Figure 5-1. Details of beveled edge, side tapered, and slope tapered inlets are illustrated in Figure 5-2a, 5-2b, and 5-2c respectively. Entrance loss coefficients (K_e) used for culvert design and analysis are given in Table 5-1.

Aprons may be required if high headwater depths are encountered or the approach velocity in the channel will cause scour. Aprons shall extend at least one pipe diameter beyond the pipe invert and shall not protrude above the normal channel or streambed elevation.

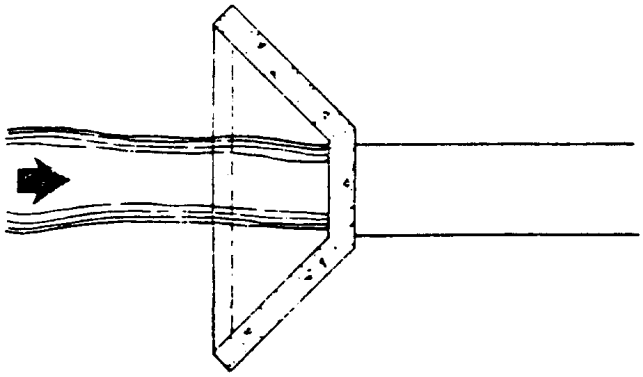
Concrete headwalls and aprons shall be constructed in accordance with MAG Standard Details and/or Arizona Department of Transportation, Highways Division, Structures Section Standard Drawings.

Metal pipe culverts with a span or diameter greater than 48 inches shall have a cut-off wall where the outlet velocity and downstream bed material may result in local scour.

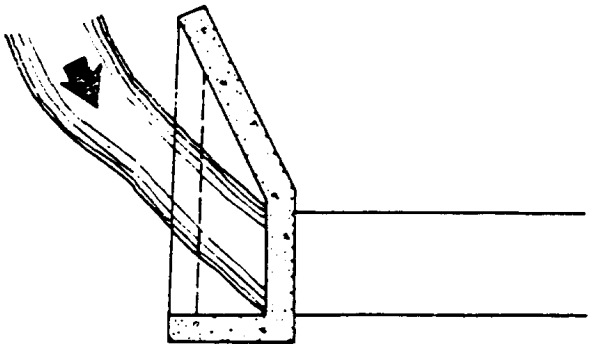
Improved inlets shall only be considered for culverts which operate under inlet control. Information and design procedures for improved inlets can be found in FHWA, *Structural Design Manual For Improved Inlets And Culverts,* 1983 or HDS-5.

Inlet riprap protection for commercial end sections shall extend around and over the top of the inlet a minimum of two (2) feet. Roadways designed for overtopping will require additional slope protection for the upstream and downstream spillway sections.

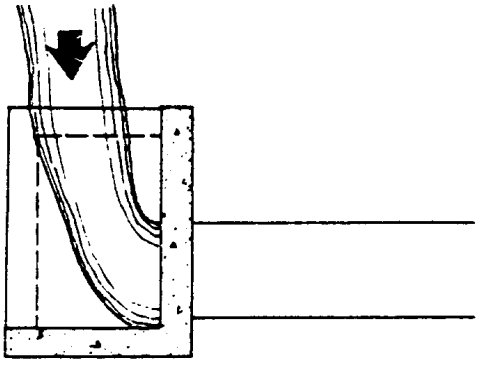
The use of drop inlets on culverts is discouraged due to problems associated with sediment and plugging of grate inlets. Drop inlets shall only be used when the upstream channel sides and bottom are bank protected and significant sediment loads are not anticipated. It should be noted that HDS-5 inlet control nomographs do not apply to drop inlets since the additional losses caused by the plunging flow are not accounted for. In this case, the analysis for a storm drain inlet should be used.



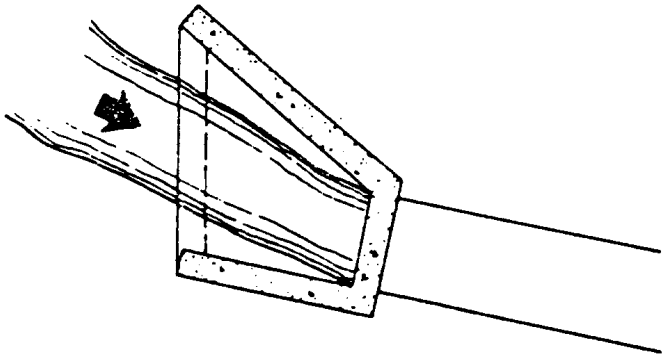
FLOW NORMAL TO EMBANKMENT



FLOW SKEWED TO EMBANKMENT



FLOW PARALLEL TO EMBANKMENT



FLOW AND CULVERT SKEWED
TO EMBANKMENT

Figure 5-1: Headwall and Wingwall Configurations

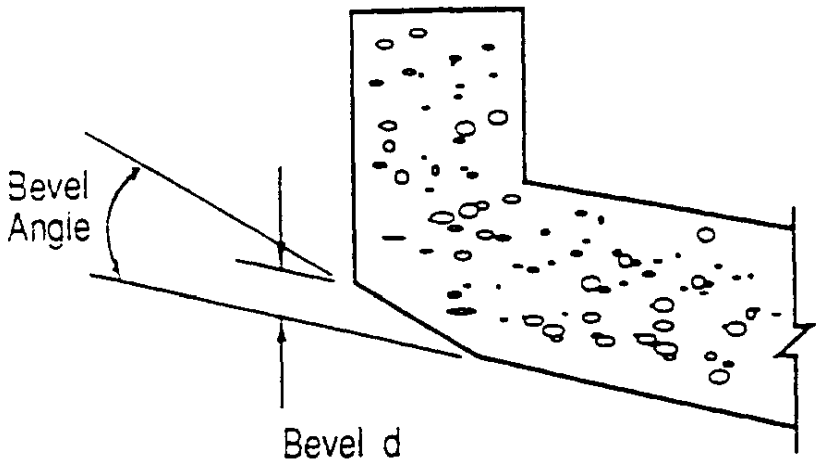
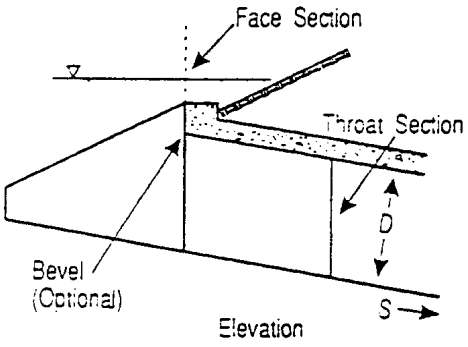


Figure 5-2a: Beveled Edge Detail



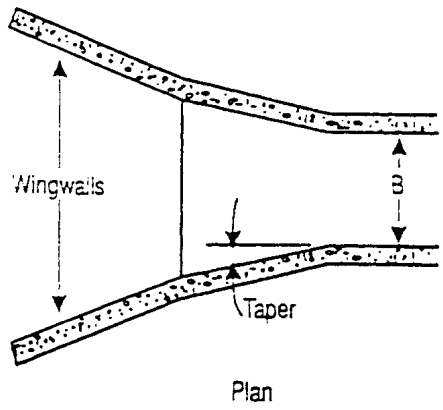
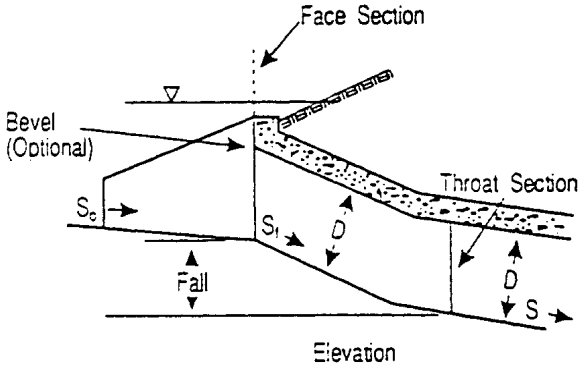


Figure 5-2b: Side Tapered Inlet



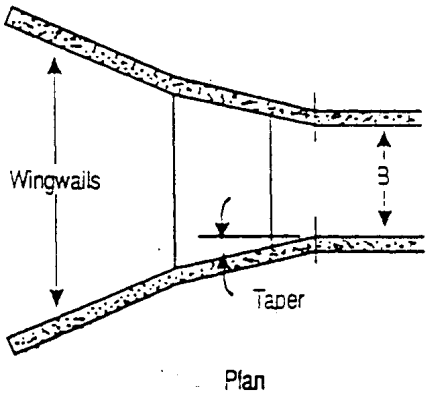


Figure 5-2c: Slope Tapered Inlet

Source: FHWA, HDS-5, 1985

TABLE 5-1: ENTRANCE LOSS COEFFICIENTS

TYPE OF STRUCTURE AND ENTRANCE DESIGN	COEFFICIENT, K_e
Pipe, Concrete:	
Mitered to conform to fill slope	0.7
Projecting from fill, sq. cut end	0.5
Projecting from fill, socket end (grooved end)	0.2
Headwall or headwall w/wingwalls	
Socket end	0.2
Square edged	0.5
Rounded (radius = 1/12D)	0.2
Manufactured end section conforming to slope	0.5
Beveled edges, 33.7° or 45° bevels	0.2
Side or slope tapered inlet	0.2
Pipe, or Pipe-Arch, Corrugated Metal:	
Projecting from fill (no headwall)	0.9
Mitered to conform to fill slope, paved or unpaved slope	0.7
Headwall or headwall w/wingwalls, square edged	0.5
Manufactured end section conforming to slope	0.5
Beveled edges, 33.7° or 45° bevels	0.2
Side or slope tapered inlet	0.2
Box, Reinforced Concrete:	
Headwall parallel to embankment (no wingwalls)	
Square-edged on 3 edges	0.5
Rounded on 3 edges to radius 1/12 barrel dimension, or beveled top edge	0.2
Wingwalls at 30° to 75° to barrel;	
Square edged at crown	0.4
Crown edge rounded to radius of 1/12 barrel dimension, or beveled top edge	0.2
Wingwall at 10° to 25° to barrel	
Square-edged at crown	0.5
Wingwalls parallel (extension of sides)	
Square-edged at crown	0.7
Side or slope tapered inlet	0.2

Source: USDOT, FHWA, HDS-5, 1985

5.2.4.2. Buoyancy Protection

Buoyancy or flotation is the phenomenon by which a culvert fails due to uplift forces. The buoyancy force is produced by high head on the outside of the culvert and a region of low pressure on the inside of the inlet caused by flow separation. This results in a bending moment exerted on the end of the culvert. This typically occurs on culverts under high head, on steep slopes, with projecting or mitered inlets, with debris blockage, with damaged inlets, or on large culvert skews. Large projecting or mitered corrugated metal pipe culverts are most susceptible to buoyancy. Concrete headwalls, slope paving or other means of anchoring shall be considered for all flexible culverts, particularly when embankment fill heights are less than 1.5 times the pipe diameter or fill slopes are flatter than 1H:1V. Rigid pipes susceptible to separation at the joints should be protected with tie bars. It is recommended to limit the headwater depth to 1.5 times the culvert height to help prevent buoyancy.

5.2.4.3. Outlets

The design of culvert outlets shall be based on structural considerations to protect the culvert outlet and embankment from local scour, bank sloughing, and general channel degradation, rather than hydraulic efficiency. Headwalls are required on all public culvert outlets (see *Inlets* section).

The maximum velocity at the culvert outlet shall be consistent with the velocity in the natural channel. Appropriate protection shall be considered when outlet velocities are between 4.0 and 15 ft/sec. Recommended outlet treatments are shown in Table 5-2.

Outlet velocities greater than 15 ft/sec shall be mitigated with energy dissipation as outlined in Chapter 11 of this manual.

TABLE 5-2 OUTLET PROTECTION MEASURES

OUTLET VELOCITY	LEVEL OF PROTECTION
Less than 4 fps	No protection required
4 to 10 fps	Dumped rock riprap apron
10 to 15 fps	Wire tied rock riprap[1]
Greater than 15 fps	Energy Dissipator

[1] It is recommended to use a concrete energy dissipator or increase the culvert size if velocities are greater than ten (10) feet/second.

5.2.4.4. Riprap Apron Design Procedure

Typical riprap aprons, as illustrated in Figure 5-3, are suitable for use with outlet velocities not exceeding ten (10) feet per second.

The following procedure is based on criteria developed for the U.S. Environmental Protection Agency, 1976. The riprap outlet protection configuration used in this procedure is illustrated in Figure 5-4.

Referring to Figure 5-4, the apron length (L_a) is computed by:

$$\mathbf{L_a = (1.8Q / D^{1.5}) + 7D \qquad for\ TW < 0.5D} \qquad \mathbf{(5.1)}$$

and,

$$\mathbf{L_a = (3Q / D^{1.5}) + 7D \qquad for\ TW \geq 0.5D} \qquad \mathbf{(5.2)}$$

where: Q = design discharge, ft/s
D = maximum inside culvert width, ft
TW = tailwater depth, ft

Where there is no well defined channel downstream of the culvert apron, the width (W_a) of the downstream end of the apron is computed as follows:

$$\mathbf{W_a = 3D + L_a \qquad for\ TW < 0.5D} \qquad \mathbf{(5.3)}$$

and,

$$\mathbf{W_a = 3D + 0.4L_a \qquad for\ TW \geq 0.5D} \qquad \mathbf{(5.4)}$$

The width of the upstream end of the riprap apron at the culvert outlet should be at least three (3) times the culvert width (D).

The median riprap apron rock size (D_{50}) can be computed by the following equation:

$$\mathbf{D_{50} = [0.02\ (Q)^{4/3}] / [TW\ (D)]} \qquad \mathbf{(5.5)}$$

5.2.4.5. Safety Considerations

During design and construction, culvert entrances may require safety precautions to protect life, health, traffic, and adjacent property. This may include the use of safety measures such as fencing, handrails, guard rails, warning signs, and safety/trash racks to limit or deter access by the public.

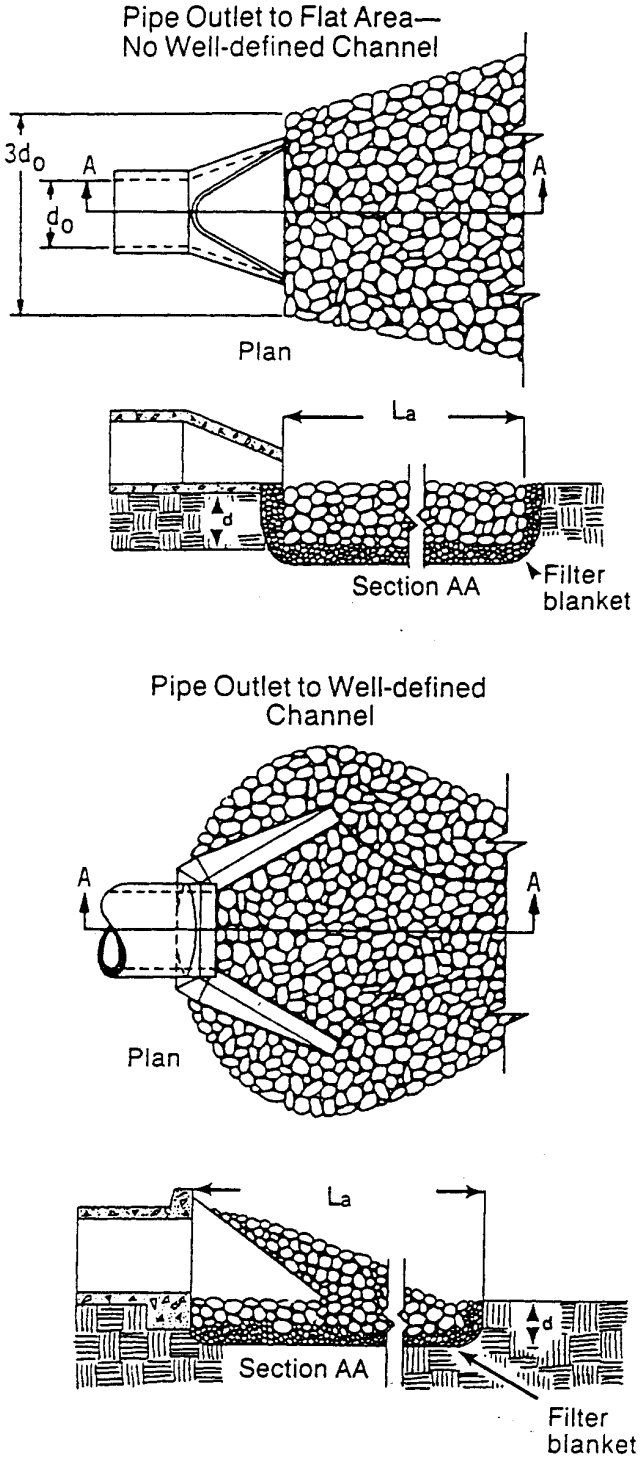


Figure 5-3: Riprap Outlet Protection
Source: North Carolina Erosion and Sediment Control Manual

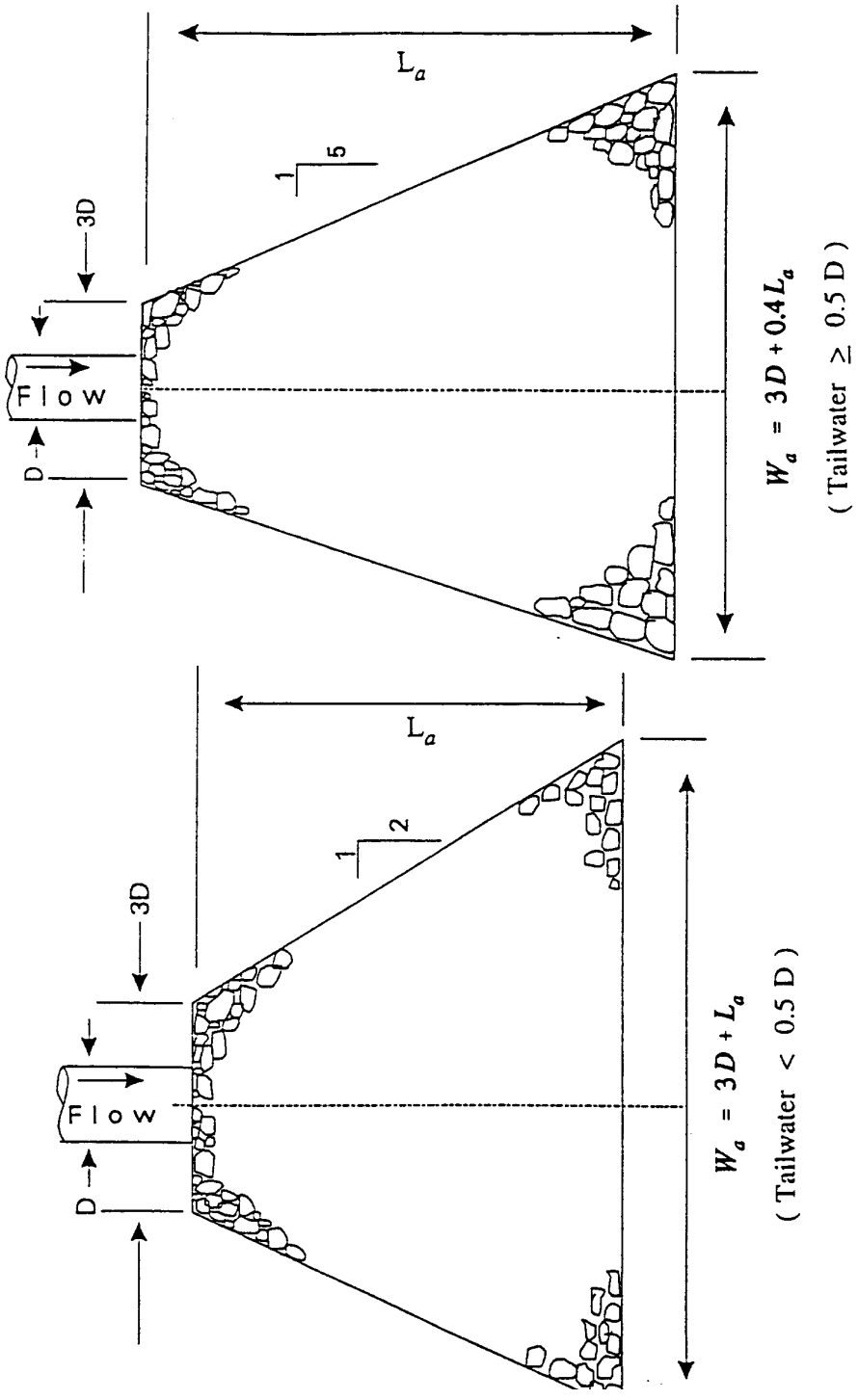


Figure 5-4: Conduit Outlet Protection Detail
Source: U.S. Environmental Protection Agency, 1976

Traffic should be protected from culvert ends as follows:

1. Small culverts (24" in diameter or less) can use a commercial end section or a sloped concrete wingwalls.
2. Culverts greater than 24" in diameter shall receive one of the following treatments:
   a. be extended to the appropriate "clear zone" distance per AASHTO Roadside Design Guide.
   b. Safety treated with a grate if the consequences of clogging and causing a potential flood hazard is less than the hazard of vehicles impacting an unprotected end. If a grate is used, an open area shall be provided between the bars of 1.5 to 3.0 times the area of the culvert entrance.
   c. Shielded with a guard rail if the culvert is very large, cannot be extended, has a channel which cannot be safely traversed by a vehicle, has significant flooding hazard with a grate, or has headwalls which protrude 6" or higher above driving surface within the "clear zone".

5.2.4.6. Debris Control

Debris control should be designed using FHWA, Hydraulic Engineering Circular No. 9, *Debris-Control Structures* and shall be considered for the following conditions:

1. Where experience or physical evidence indicates the watercourse will transport a heavy volume of controllable debris, particularly in urbanized areas,
2. For culverts located in mountainous or steep regions,
3. For culverts that are under high fills, and
4. Where maintenance access is limited.

It is recommended, however, that increasing the pipe size be used as an alternative to grates (this does not apply to detention basin outlet pipes).

5.2.5. Culvert Material and Installation

5.2.5.1. Material Selection

The material selected for culverts should be based on service life, durability, structural strength, hydraulic efficiency, bedding conditions, abrasion and corrosion resistance, and joint tightness. Acceptable materials for culverts intended to be public are:

- Corrugated Metal Pipe (CMP).
- Helical Corrugated or Spiral Rib Metal Pipe per MAG Section 760.3.
- Rubber Gasket Reinforced Concrete Pipe (RGRCP) - bell or groove and spigot or tongue.

- Reinforced Concrete Box Culvert (RCBC) per Section 5.2.5.2.

All metal pipe culverts shall be a minimum of 14 gauge, Aluminized Steel Type 2 pipe. Thicker gauge pipe may be warranted with increases in fill height per manufacturers recommendations.

Joints on metal pipe culverts, if required, shall be either rivet lap joint construction (annular corrugations) or continuous lock or welded seam (helical corrugations) and wrapped with non-woven geotextile filter fabric or "O" ring gaskets.

5.2.5.2. Reinforced Concrete Box Culverts

Reinforced Concrete Box Culverts (RCBC) shall be constructed in accordance with the ADOT Reinforced Concrete Box Culvert Manual (31-019), 1994 as revised; the ADOT Division of Highways Standard Drawings; and the following additional criteria:

1. Precast box sections shall meet ASTM C850.

2. The minimum acceptable RCBC height is three (3) feet for public facilities, however, four (4) feet is preferred due to maintenance concerns.

3. All RCBC shall have inlet cut off walls and an appropriately designed outlet cut-off wall, four (4) feet minimum.

4. Joints shall be smooth, sealed with butyl rubber or asphaltic mastic, and wrapped with a minimum one (1) foot wide nonwoven geotextile fabric.

Non-standard box culvert sizes may require special structural design.

5.2.5.3. Culvert Sizes and Shape

Minimum diameter for public roadway culverts shall be eighteen (18) inches or equivalent acrh pipe. Twelve (12) inch diameter pipes are permissible for private residential driveway crossings when adequate cover cannot be maintained.

Selection of minimum pipe size should also account for potential blockage from debris and sediment deposition (this does not apply to detention facility outlet structures).

Circular cross-sections are preferred, however, the use of arch or oval shapes is permitted only if dictated by hydraulic limitations, site characteristics, structural criteria, or environmental concerns.

5.2.5.4. Cover Requirements

Both minimum and maximum cover limits must be considered in the design of roadway culverts. Minimum cover limits are established to ensure the culvert's structural stability under live and impact

loads. Dead loads become the controlling factor with increases in fill height. Procedures for analyzing loads on buried conduit are outlined in the *Handbook of Steel Drainage and Highway Construction Products* and the *Concrete Pipe Design Manual*, latest editions respectively.

The minimum allowable cover for culverts 18 to 36 inches in diameter shall be one (1) foot from top of pipe to top of subgade or top of finish grade if no subgrade is present. For culverts greater than 36 inches in diameter, minimum cover should be 30% of the culvert diameter, if possible. The top of any culvert should never extend above the roadway subgrade into the roadway street section.

5.3. CULVERT DESIGN PROCEDURE

Culvert design shall be in accordance with the procedures given in the Federal Highway Administration (FHWA) Hydraulic Design Series Number 5 (HDS-5), *Hydraulic Design of Highway Culverts.* The nomographs used in HDS-5 are based on inlet control and are considered to be accurate to within about 10 percent in determining the required inlet control headwater (FHWA 1985). These nomographs were computed assuming a culvert slope of two (2) percent. For different culvert slopes, the nomographs are less accurate because inlet control headwater changes with slope. Computer programs used for culvert design and analysis should be fully HDS-5 compliant. The HY-8 computer program is also acceptable for culverts analysis.

Inlet or outlet control must be determined to properly design a culvert. Because Manning's Equation assumes uniform, steady flow, it should not be used to design culverts due to the rapidly varied flow conditions associated with culvert hydraulics.

The following procedure is based primarily on HDS-5 and uses the Culvert Design Form (the "Form") in Figure 5-5. This form is based on earlier versions published by the FHWA (1965) and the Arizona Department of Transportation (1973).

Step 1. Summarize the design discharge, tailwater height, drainage basin area, stream slope and general channel shape under the heading Hydrologic Data on the Form.

Step 2. Select a preliminary culvert shape, size, material, and entrance type under the heading Culvert Description on the Form. Enter the total design flow (Q) and flow per barrel (Q/N) in Rows 1 and 2 respectively.

Step 3. Evaluate Inlet Control:

a. Using the nomographs on Figures 5-6 through 5-9, locate the culvert size and flow rate on the appropriate scales. Nomagraphs for less common culvert shapes and materials can be found in FHWA HDS-5, HEC-5, HEC-10, or HEC-13 publications.

b. Extending a line from the culvert size through the design flow rate, determine the appropriate headwater/culvert-height (HW/D) based on entrance type from Scales 1, 2, & 3. Enter HW/D into Row 3 on the Form.

c. Multiply HW/D by the culvert height to obtain the required headwater (HW). If the approach velocity is negligible, or if it is intentionally disregarded by the designer, the headwater at the inlet (HW_i) equals the HW computed from the HW/D ratio. If approach velocity is considered, subtract the approach velocity head ($V_i^2 / 2g$). Enter HW_i in Row 4.

d. Evaluate if the inlet should be depressed (FALL) below the streambed in order to obtain the additional hydraulic head required to operate the culvert. Compute FALL using the formula given in Technical Footnote 3 on the Form. Note: When making this determination, the impacts of sedimentation must be considered, otherwise a larger size culvert may be required.

If FALL is negative or equals zero, set FALL equal to zero, and proceed to the next step. When FALL is positive and the culvert is under inlet control, the invert must be depressed below the streambed by this amount. If FALL is acceptable, enter FALL in Row 5 and proceed to the next step, however, if FALL is unacceptably large, select another culvert size and begin again at Step 3a.

e. Compute the invert elevation (EL_{hi}) of the inlet control section with the formula given in Technical Footnote 4. Enter this elevation into Row 6.

Step 4. Evaluate Outlet Control:

a. Determine the tailwater depth (TW) above the outlet invert by either normal depth for the design flow rate or backwater calculations (as appropriate) in the downstream channel and enter this depth in Row 7.

b. From Figures 5-10 through 5-12, determine the critical depth (d_c) of flow in the culvert. For other culvert shapes, refer to HDS-5. Enter d_c into Row 8.

NOTE: If $d_c > 0.9D$, consult the *Handbook of Hydraulics* (Brater and King) for a more accurate d_c determination, if needed, since the curves are truncated where they converge.

c. For tailwater elevations (TW) less than the crown of the culvert, calculate as $(d_c + D) / 2$, where D is the height of the culvert.

d. Determine the depth from the outlet invert to the hydraulic grade line (h_0) by selecting the larger of either TW or [(d_c + D)/2]. Enter this value in Row 10.

e. From Table 5-1 in this manual, obtain the appropriate entrance loss coefficient (K_e) for the proposed inlet configuration. Enter into Row 11.

f. Compute the head loss (H) using the formula in Technical Footnote 7 when downstream channel velocity is neglected. See Tables 5-3 and 5-4 for Mannings 'n' values. If the downstream channel velocity is included in the analysis, then use Equation 5.6.

$$\mathbf{H = [(V^2/2g) - (V_d^2/2g)] + [K_e + (29n^2L/R^{1.33})]\ V^2/2g} \qquad \mathbf{(5.6)}$$

where:

H	= head loss through culvert, feet,	
g	= acceleration due to gravity, 32.2 ft/sec^2,	
V	= average velocity of flow in culvert barrel, ft/s	
V_d^2	= channel velocity downstream of the culvert,	ft/s
K_e	= entrance loss coefficient (Table 5-1),	
n	= Manning's roughness coefficient,	
L	= barrel length, feet,	
R	= hydraulic radius of the full culvert barrel, feet,	
R	= A/P	
A	= full cross-sectional area of flow, sq. ft.,	
P	= wetted perimeter of the culvert barrel, feet.	

Enter headloss (H) in Row 12.

If the culvert has bends, junctions, or grates, Technical Footnote 7 or Equation 5.6 will not strictly apply. The engineer should refer to Chapter IV in HDS-5 for appropriate head loss parameters. Nomographs for evaluating headloss under outlet control can also be found in HDS-5.

g. Calculate the required outlet control headwater (EL_{ho}) which is defined in Technical Footnote 8. Enter into Row 13.

Step 5. Compare the headwater elevations computed for both inlet (HW_i) and outlet (EL_{ho}) control. The higher of the two values is designated as the controlling headwater elevation. If the controlling headwater elevation is higher than the design headwater previously established, the potential for using an improved inlet configuration should be considered if the culvert is under inlet control, giving consideration to sedimentation. Refer to Chapter IV in HDS-5 for additional information on improved inlets. However, under outlet control, an improved inlet should not be considered. Instead the engineer should consider increasing the culvert size or adding

more barrels.

Step 6. Calculate the outlet velocity:

a. For inlet control, determine the normal depth and velocity in the culvert from Manning's Equation. The velocity at normal depth is assumed to be equal to the outlet velocity (see Figure 5-13a).

b. For outlet control, determine the area of flow at the outlet based on the culvert geometry and the following:

1. Critical depth, if the tailwater is below critical depth,
2. The tailwater depth, if the tailwater is between critical depth and the crown of the culvert outlet, and,
3. The culvert height, if the tailwater is above the crown of the culvert outlet.

Once the flow area at the outlet is determined, the outlet velocity can be calculated by dividing the discharge in the culvert by the computed flow area (see Figure 5-13b).

Compare the culvert outlet velocity with the existing channel velocity to determine if outlet protection measures are required (see Section 5.2.3.2 of this Chapter).

Step 7. Repeat the design process if necessary until an acceptable culvert configuration is determined. Once the culvert geometry is determined, it must fit into the roadway cross section. The culvert must have adequate cover; the culvert length should be close to the roadway right-of-way width; and the headwalls and wingwalls must be properly dimensioned.

If the selected culvert will not fit the site, return to the culvert design process and select another culvert and length. If neither improved inlets or flow routing are to be applied, document the design. An acceptable design should always be accompanied by a performance curve which depicts culvert behavior over a range of discharges.

PROJECT : _____

STATION : _____

SHEET _____ OF _____

CULVERT DESIGN FORM

DESIGNER / DATE : _____ / _____ / _____

REVIEWER / DATE : _____ / _____ / _____

HYDROLOGICAL DATA

☐ METHOD : _____

☐ DRAINAGE AREA : _____ ☐ STREAM SLOPE : _____

☐ CHANNEL SHAPE : _____

SEE ADD'L SHTS.

☐ ROUTING : _____ ☐ OTHER : _____

DESIGN FLOWS/TAILWATER

R. I. (YEARS)	FLOW (cfs)	TW (ft)

ROADWAY ELEVATION : _____ (ft)

CULVERT DESCRIPTION:

MATERIAL - SHAPE - SIZE - ENTRANCE

TOTAL FLOW Q (cfs)	FLOW PER BARREL Q/N (1)	HEADWATER CALCULATIONS: INLET CONTROL HW i/D (2)	HW i (3)	FALL (4)	EL hi (5)	TW (6)	OUTLET CONTROL d c	(d c + D)/2 h o (7)	k e (8)	H	EL ho	CONTROL HEADWATER ELEVATION	OUTLET VELOCITY	COMMENTS

TECHNICAL FOOTNOTES:

(1) USE Q/NB FOR BOX CULVERTS

(2) $HW_i/D = HW/D$ OR HW_i/D FROM DESIGN CHARTS

(3) $FALL = HW_i - (EL_{hd} - EL_{sf})$; FALL IS ZERO FOR CULVERTS ON GRADE

(4) $EL_{hi} = HW_i + EL_i$ (INVERT OF INLET CONTROL SECTION)

(5) TW BASED ON DOWN STREAM CONTROL OR FLOW DEPTH IN CHANNEL.

(6) $h_o = TW$ or $(d_c + D/2)$ (WHICHEVER IS GREATER)

(7) $H = \left[+ k_e + (29n^2 L)/R^{1.33} \right] v^2/2g$

(8) $EL_{ho} = EL_o + H + h_o$

SUBSCRIPT DEFINITIONS :

a: APPROXIMATE
f: CULVERT FACE
hd: DESIGN HEADWATER
hi: HEADWATER IN INLET CONTROL
ho: HEADWATER IN OUTLET CONTROL
i: INLET CONTROL SECTION
o: OUTLET
sf: STREAMBED AT CULVERT FACE
tw: TAILWATER

COMMENTS / DISCUSSION :

CULVERT BARREL SELECTED :

SIZE : _____

SHAPE : _____

MATERIAL : _____ n _____

ENTRANCE : _____

Figure 5-5: Culvert Design Form

TABLE 5-3: MANNING'S "n" VALUES FOR CULVERTS

TYPE OF CONDUIT	WALL/JOINT DESCRIPTION	MANNING'S 'n'
Concrete pipe	Good joints, smooth walls	0.013
	Good joints, rough walls	0.014 - 0.016
	Poor joints, rough walls	0.016 - 0.017
	Badly spalled	0.015 - 0.020
Concrete Box	Good joints, smooth finished walls	0.014 - 0.018
	Poor joints, rough, unfinished walls	0.014 - 0.018
Corrugated Metal Pipes	2-2/3 by 1/2 inch corrugations	0.024 - 0.027
and Boxes, Annular or	6 by 1 inch corrugations	0.022 - 0.025
Helical Corrugations	5 by 1 inch corrugations	0.025 - 0.026
	3 by 1 inch corrugations	0.027 - 0.028
	6 by 2 inch corrugations	0.033 - 0.035
	9 by 2-1/2 inch corrugations	0.033 - 0.037
Spiral Rib Metal Pipe	3/4 by 3/4 inch recesses at 12 inch spacing, good joints	0.013
High Density Polyetheylene Pipe (HDPE)		0.013

Source: USDOT, FHWA, 1985

TABLE 5-4: MANNING'S "n" FOR CORRUGATED METAL PIPE

TYPE OF PIPE	UNPAVED
Annular 2.67" X 1/2" (All diameters)	0.024
Helical 1.5" X 1/4":	
8 inch dia.	0.012
10 inch dia.	0.014
Helical 2.67" X 1/2":	
12 inch dia.	0.011
18 inch dia.	0.014
24 inch dia.	0.015
30 inch dia.	0.017
36 inch dia.	0.018
42 inch dia.	0.019
48 inch dia.	0.020
54 inch dia. or greater	0.021
Annular 3" X 1" (all diameters)	0.027
Helical 3" X 1":	
36 inch dia.	0.022
42 inch dia.	0.022
48 inch dia.	0.023
54 inch dia.	0.023
60 inch dia.	0.024
66 inch dia.	0.025
72 inch dia.	0.026
78 inch dia.	0.027
Corrugations 6" X 2":	
60 inch dia.	0.033
72 inch dia.	0.032
120 inch dia.	0.030
180 inch dia.	0.028

Source: AISI, 1994

Note: In general, it is recommended that the annular resistance factors be used for corrugated metal pipes with helical corrugations unless certain specific design criteria are met. These criteria include: the conduit flows full; the conduit is circular in shape; there is no erosion resistant sediment build-up in the conduit; the conduit is greater than 20 diameters long; and the conduit is unlined. In most cases, culverts will not meet all of this criteria. However, charts are provided in "*Hydraulic Flow Resistance Factors for Corrugated Metal Conduits,"* J.M. Norman, FHWA-TS-80-216, 1980. (Source: HDS-5)

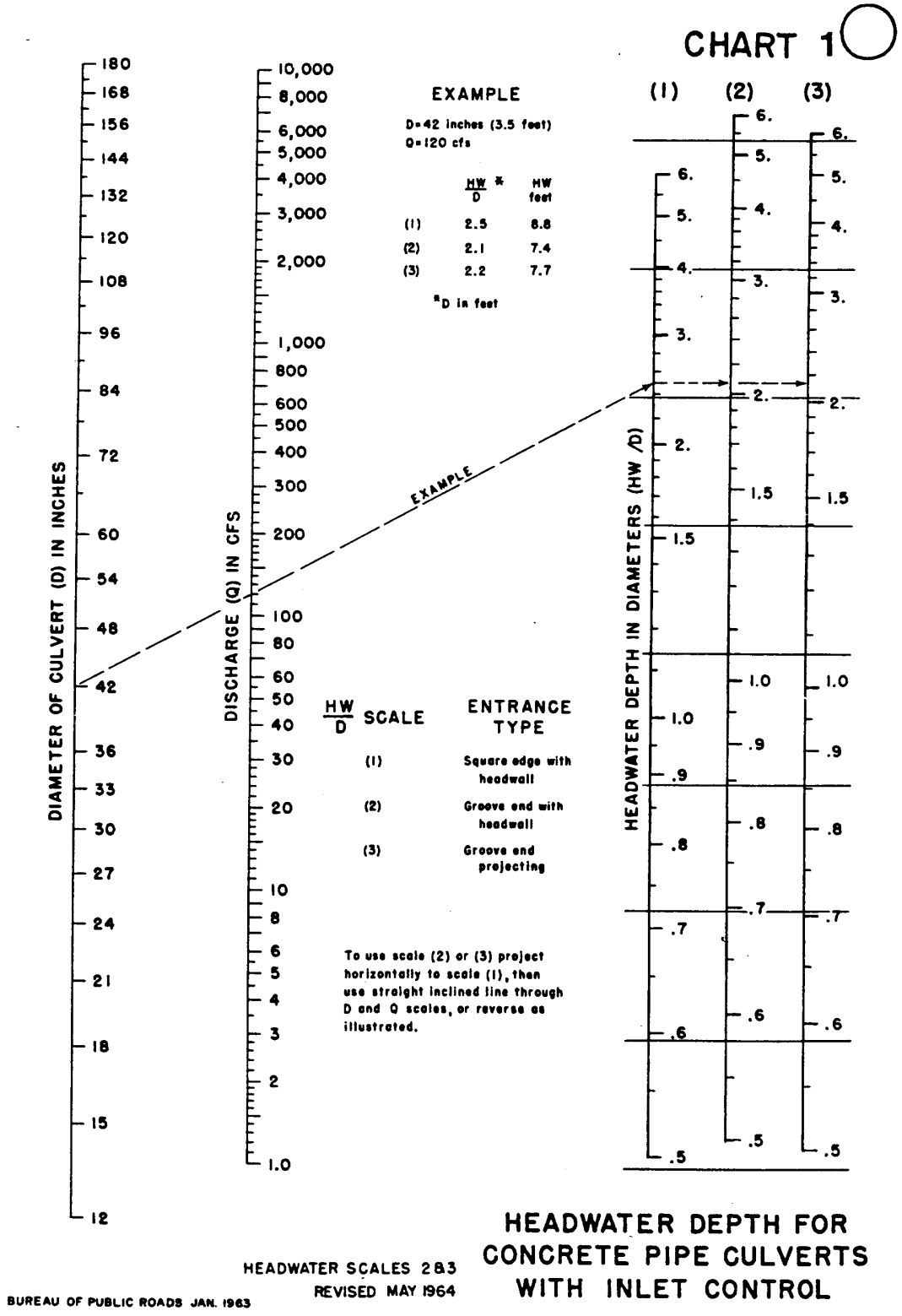


Figure 5-6
Source: FHWA, HDS-5, 1985

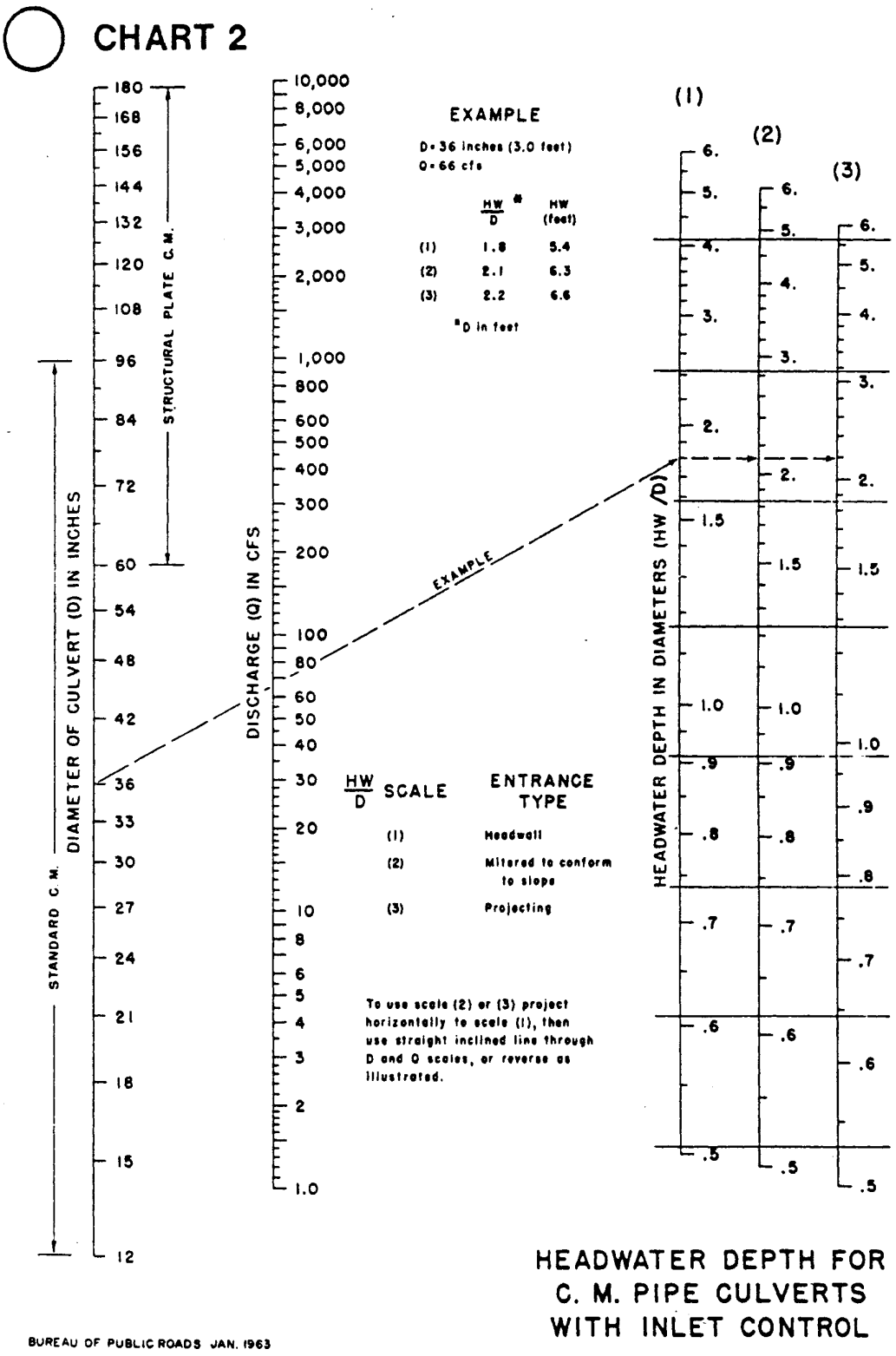


Figure 5-7
Source: FHWA, HDS-5, 1985

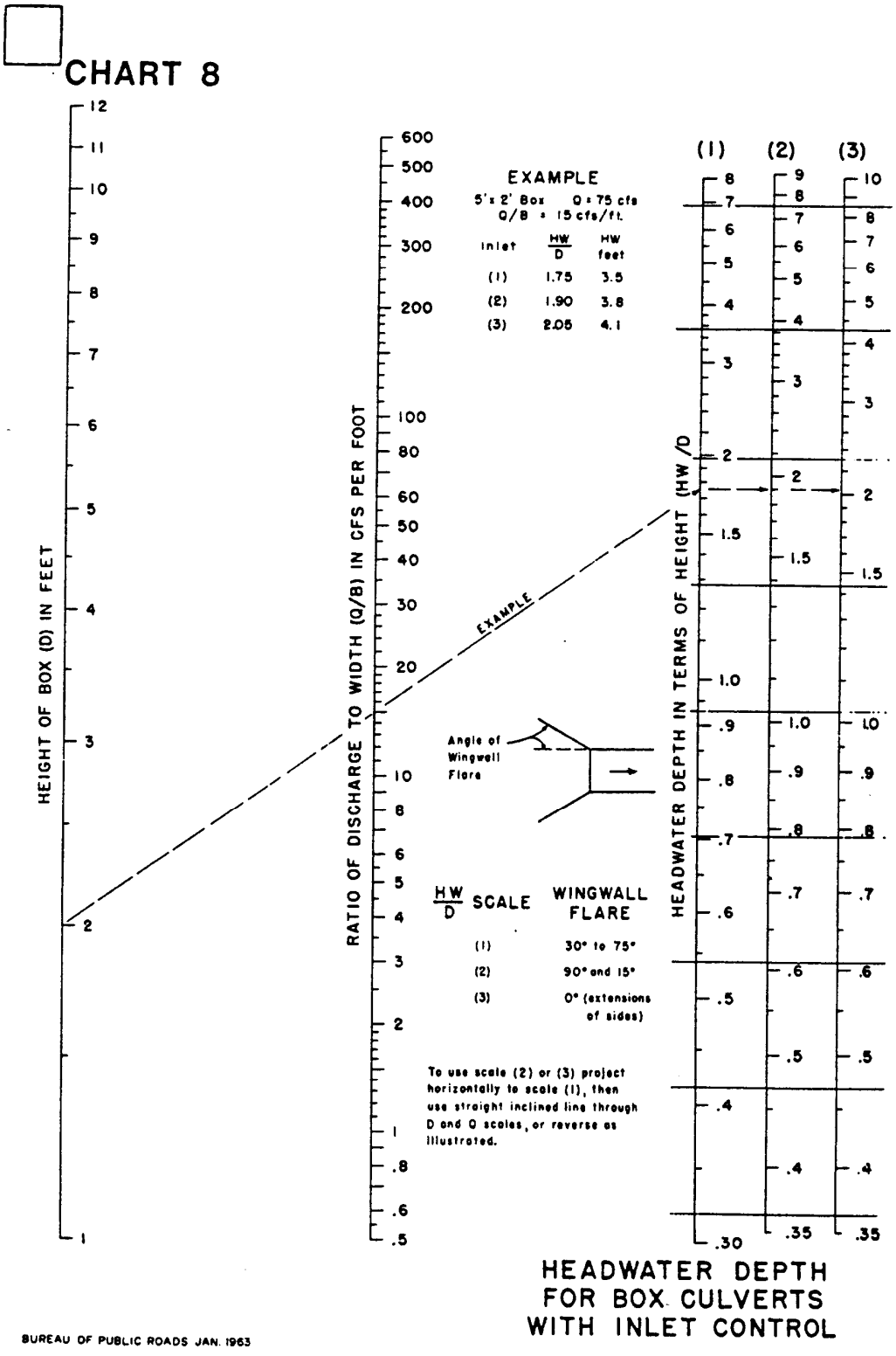


Figure 5-8
Source: FHWA, HDS-5, 1985

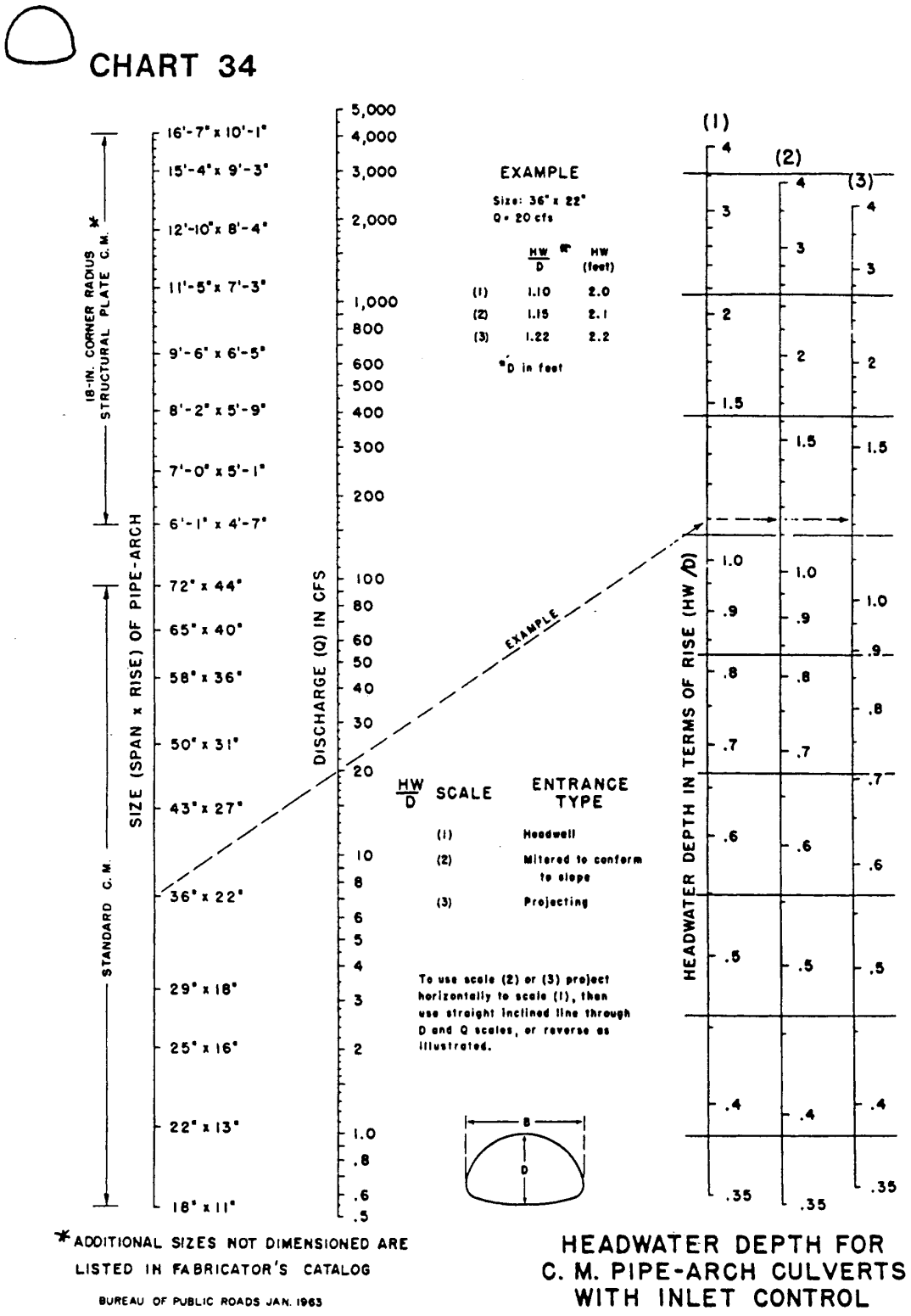


Figure 5-9
Source: FHWA, HDS-5, 1985

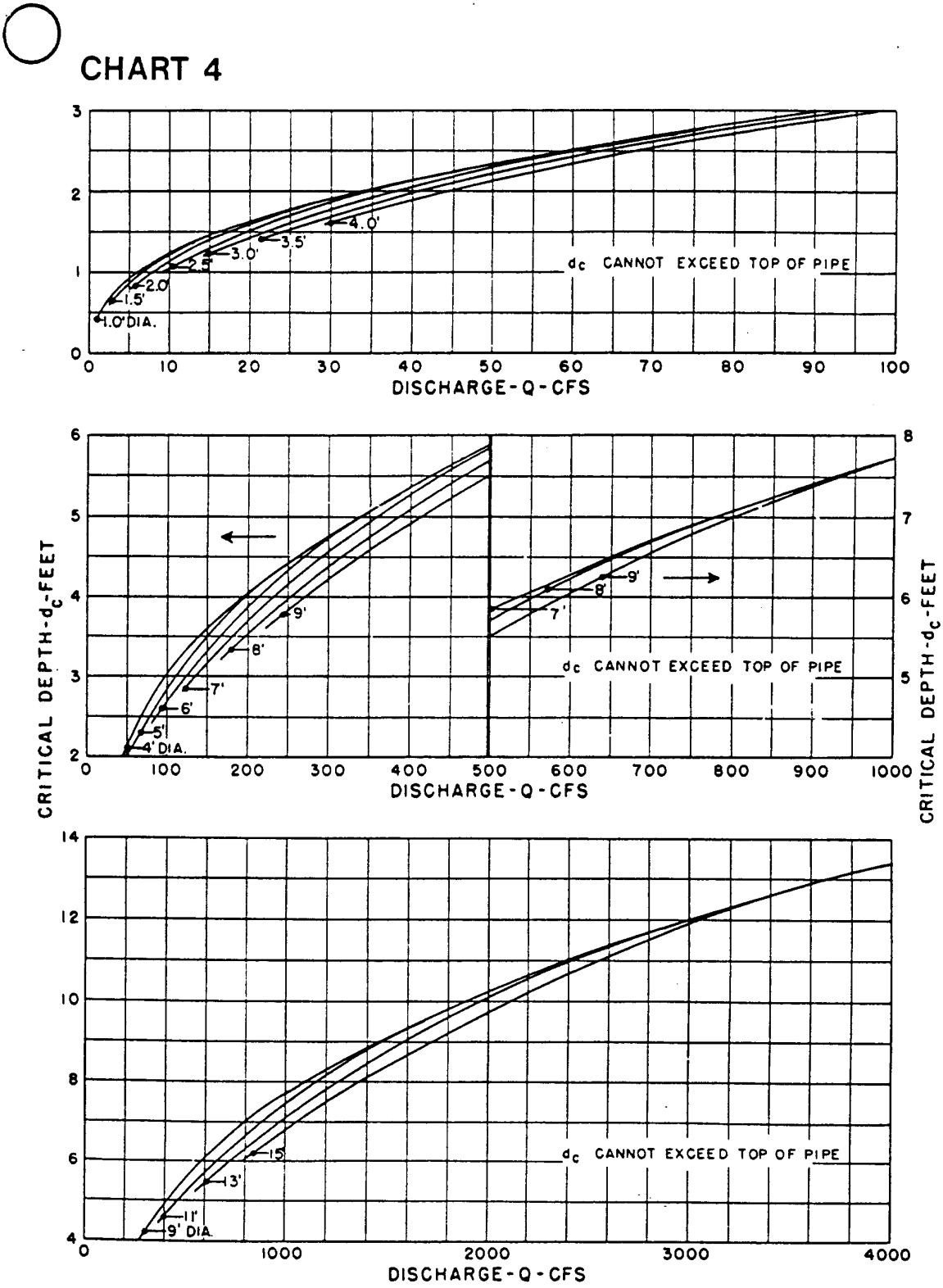


Figure 5-10: Critical Depth - Circular Pipe
Source: FHWA, HDS-5, 1985

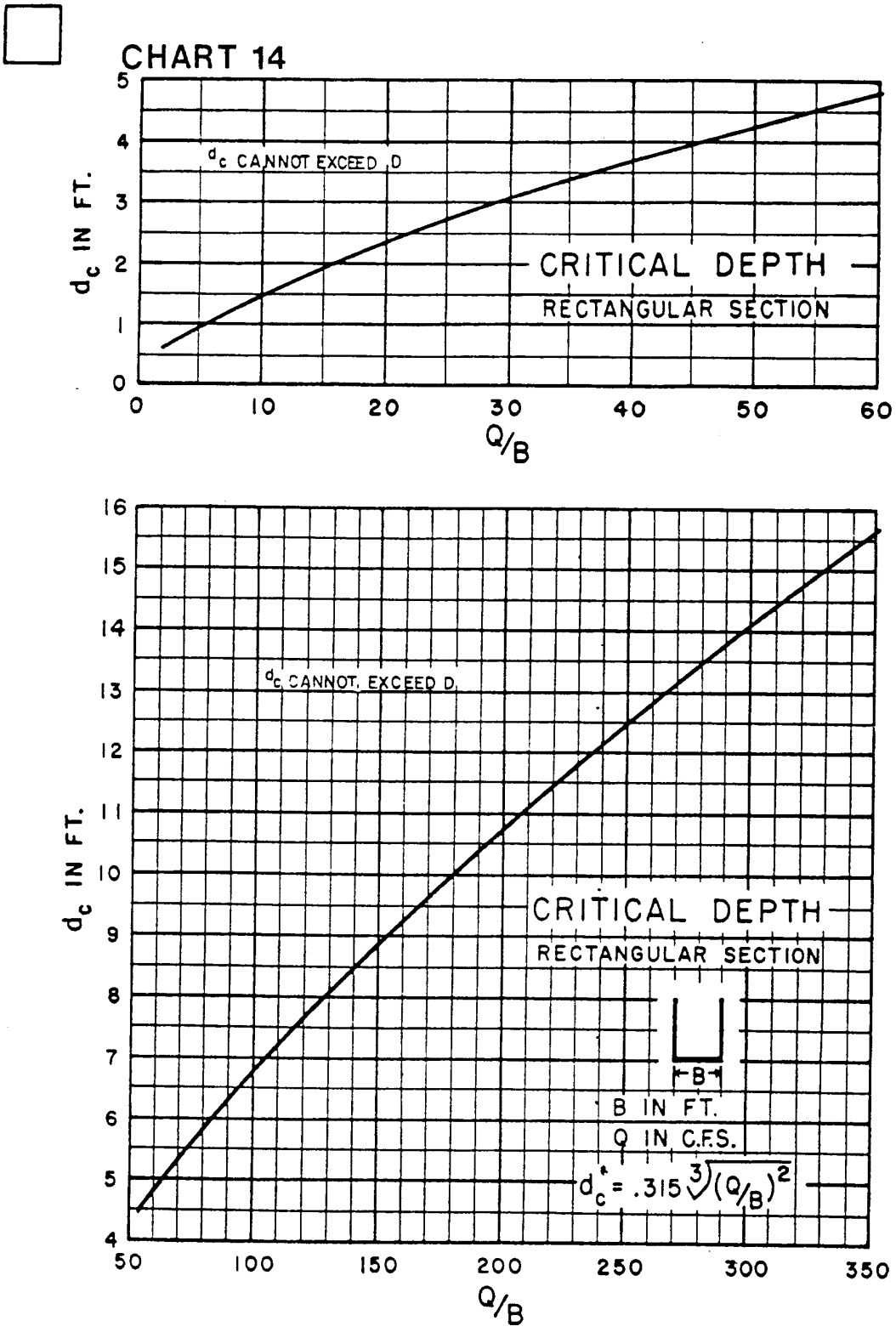


Figure 5-11: Critical Depth - Rectangular Section
Source: FHWA, HDS-5, 1985

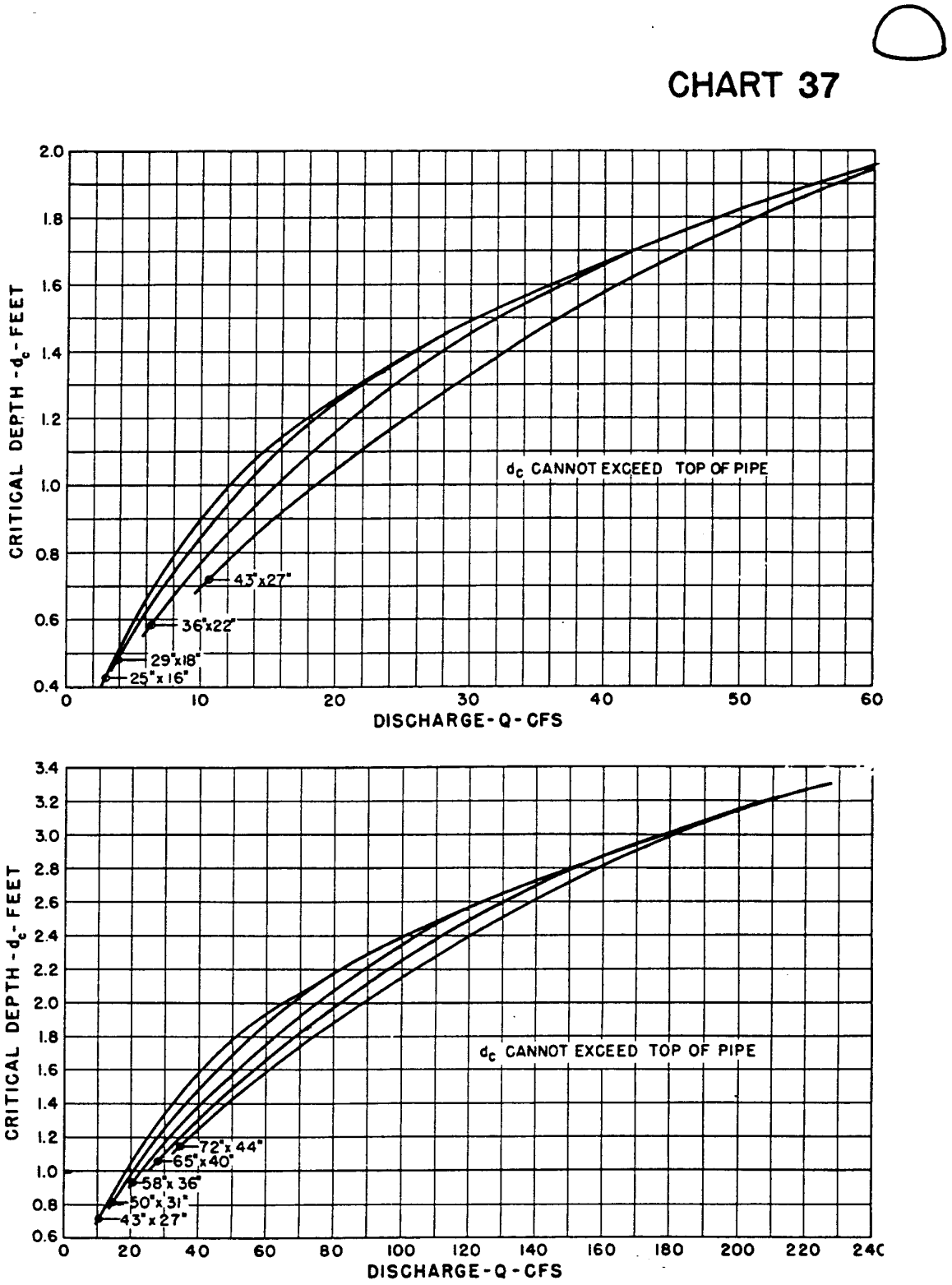


Figure 5-12: Critical Depth - Standard CMP Arch
Source: FHWA, HDS-5, 1985

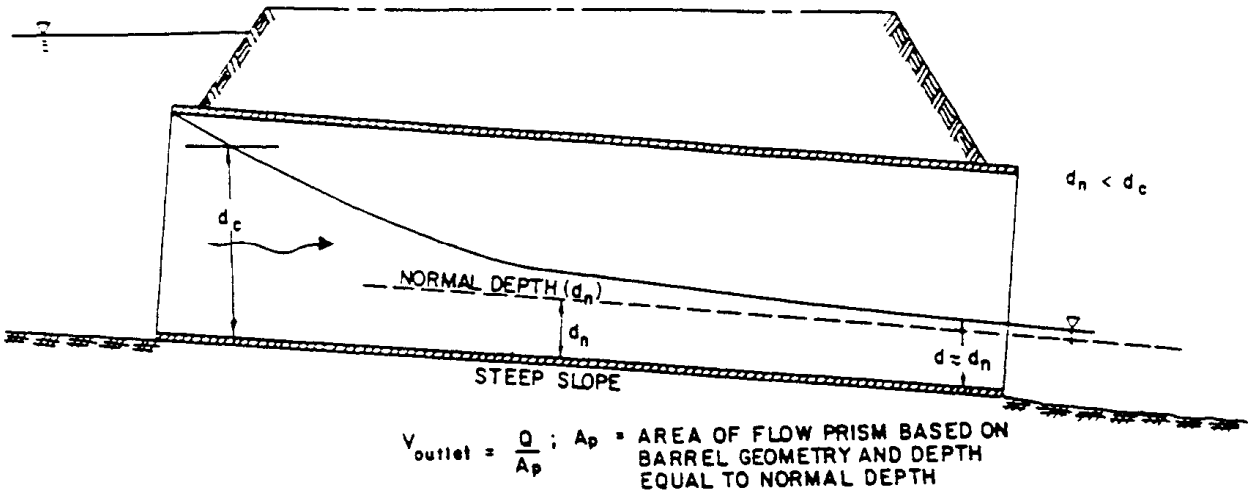


Figure 5-13a: Outlet Velocity - Inlet Control

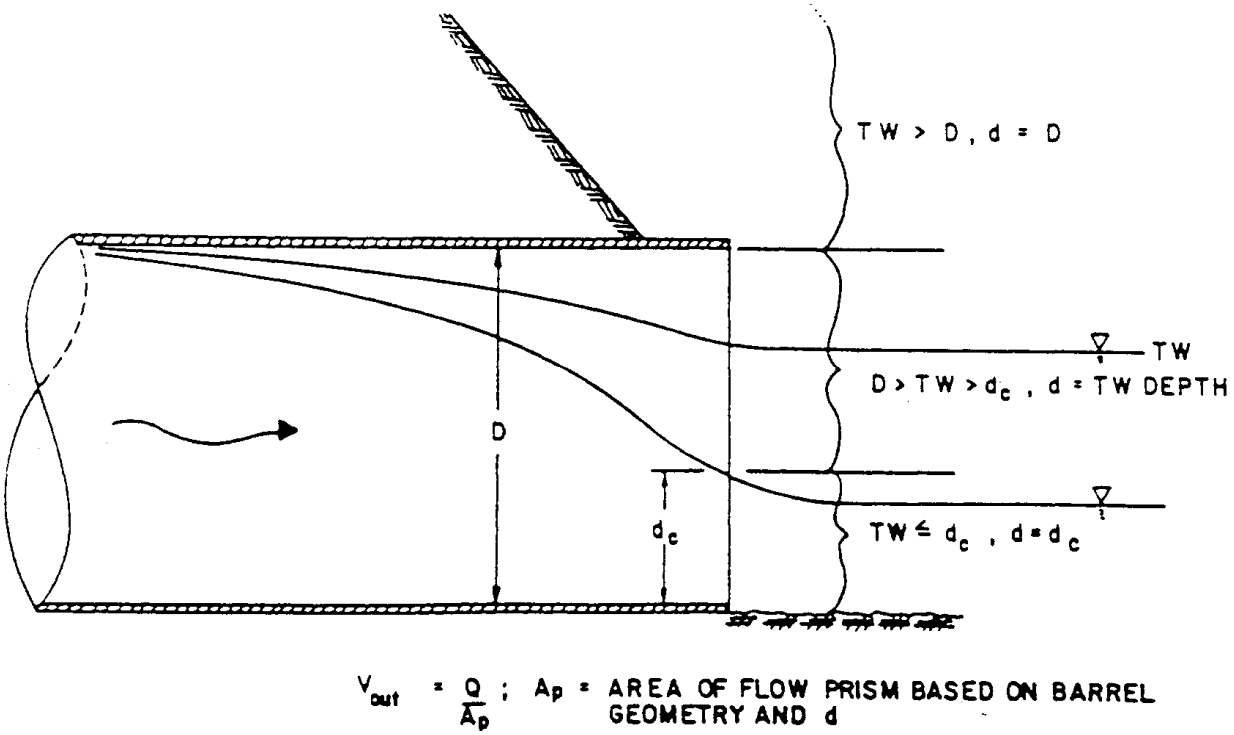


Figure 5-13b: Outlet Velocity - Outlet Control
Source: FHWA, HDS-5, 1985

5.4. BRIDGES

For the purposes of this manual, bridge is defined as:

- Structures that transport vehicular traffic over watercourses or other obstructions,
- Part of a stream crossing system that includes the approach roadway over the floodplain, relief openings, and the bridge structure, and
- Structures with a centerline span of twenty (20) feet or more.

5.4.1. General Policies

a. The final design selection shall consider the maximum backwater allowed by the NFIP/FEMA or local floodplain regulations unless exceeding the limit can be justified by special hydraulic conditions. Backwater shall not significantly increase flood damage to upstream property.

b. The final design shall not significantly alter the flow distribution in the floodplain and whenever possible, bridge structures should be designed so that there is little or no disturbance to the flow. Velocities through the structure shall not damage either the roadway facility or increase damages to adjacent property.

c. The "crest vertical curve profile" should be considered as the preferred roadway crossing profile when allowing for embankment overtopping at a lower discharge.

d. Degradation or aggregation of the watercourse as well as contraction and local scour shall be estimated, and appropriate positioning of the foundation, below the total scour depth if practicable, shall be included as part of the final design.

e. Bridges should be designed to minimize disruption of ecosystems and values unique to the floodplain and wash being crossed.

5.4.2. General Design Criteria

5.4.2.1. Hydraulic Analysis

Hydraulic analyses for both pre and post-bridge conditions shall be performed using step backwater computer models such as HEC-2 (U.S. Army Corps of Engineers, 1990), HEC-RAS (U.S. Army Corps of Engineers, 1995), or WSPRO (USDOT, FHWA, HY-7, 1988).

Recommended methodology for hydraulic analysis of bridge crossings can be found in *Hydraulics of Bridge Waterways,* (USDOT, FHWA, HDS-1, 1978).

5.4.2.2. Hydraulic Design

Risk Evaluation: The selection of hydraulic design criteria for determining the watercourse opening, road grade, scour potential, riprap and other features shall consider the potential impacts to:

- interruptions to traffic,
- adjacent property,
- the environment, and
- the infrastructure of the roadway.

The consideration of the potential impacts constitutes an assessment of risk for the specific site. The least total expected cost (LTEC) alternative should be developed in accordance with FHWA, HEC-17(3) where a need for this type of analysis is indicated by the risk assessment. This analysis provides a comparison between other alternatives developed in response to considerations such as environmental, regulatory, and political.

Design Floods: The design flood(s) for evaluation of backwater, clearance, flow distribution, and overtopping shall be established predicated on risk based assessment of local site conditions. They shall reflect consideration of traffic service, environmental impact, property damage, hazard to human life, and floodplain management requirements.

Backwater and Increases Over Existing Conditions: Designs shall conform to all applicable federal, state, and local floodplain regulations. The bridge structure shall not cause any significant increase in the existing water surface elevation.

Scour: Design for bridge foundation scour shall be for the design flood which generates the maximum scour depth. The design should use a geotechnical design factor of safety of 2.5. The resulting design should then be checked using the 500-year design discharge and a factor of safety of at least 1.0. Procedures for determining scour at bridges can be found in USDOT, FHWA, HEC-18, *Evaluating Scour at Bridges,* Edition 2, 1993.

Bridge piers, if necessary, must be oriented parallel to the direction of flow. Pier spacing and abutments should be designed to minimize flow disruption and potential scour.

Clearance: Where possible, a minimum freeboard of two (2) feet shall be provided between the approach design discharge water surface elevation and the low chord of the bridge. Structural design and clearance of the bridge structure shall also take into account passage of debris and ice impacting the bridge. When this two (2) foot clearance cannot be maintained, clearance shall be established by the engineer based on the type of watercourse and the level of protection desired, as approved by the Stormwater Manager.

Flow Distribution: The conveyance of the proposed crossing location shall be calculated to determine the flow distribution and to establish the location of bridge openings. The proposed structure shall not cause any significant change in the existing flow distribution. Relief openings in

the approach roadway embankment shall be investigated if there is more than a ten (10) percent redistribution of flow.

Deck Drainage: Improperly drained bridge decks can cause problems such as corrosion, icing, and hydroplaning. Whenever possible, bridge decks should be watertight and all deck drainage should be carried to the ends of the bridge. Drains at the ends should have adequate capacity to carry all bridge drainage. Gutter flow from roadways must be intercepted before it reaches the bridge. Zero gradients and sump vertical curves should be avoided on bridges.

Where it is necessary to intercept deck drainage at intermediate points along the bridge, the design of such interceptors shall conform to the procedures presented in Chapter 6.

CHAPTER 6: PAVEMENT DRAINAGE

Effective drainage of urban streets is essential to the maintenance of roadway service levels and traffic safety. Water on streets can interrupt traffic, reduce skid resistance, increase the potential for hydroplaning, limit visibility due to splash and spray, cause difficulty in steering a vehicle, and cause a nuisance and possible hazard to pedestrian traffic.

Street drainage requires consideration of surface drainage, gutter flow, and drainage inlet capacity. The design of these components is dependent upon the design frequency and the allowable spread of stormwater on the pavement surface. This chapter presents design criteria and procedures obtained from FHWA, HEC-22, *Urban Drainage Design Manual,* November 1996. Additional procedures and design guidelines not included in this chapter can be found FHWA, HEC-22.

6.1. POLICIES

a. Street drainage and roadways shall be designed so as to maintain the natural drainage patterns existing prior to development, whenever possible.

b. The street section shall be designed to convey local runoff only and shall not be used as major stormwater carriers for contributing watersheds.

c. Drainage facilities shall be installed to convey runoff under streets or street grades shall be set so diversion of runoff or ponding will not occur on adjacent properties.

d. Street slopes (longitudinal and transverse) and curb heights shall not be increased to create more carrying capacity for runoff. Curb overtopping is not permitted for the specified design storm.

e. New inverted crown public streets are prohibited.

f. Existing alleys shall not be used to convey runoff unless the entire alley is designed and constructed to convey runoff to the nearest downstream street.

g. Drainage facilities shall be placed to intercept runoff from sources outside the street section to avoid significant concentrated flows onto and over sidewalks or curb and gutter.

h. In all cases, street drainage shall be confined to the public right-of-way. Runoff which leaves the right-of-way shall do so in a controlled manner and shall be contained in appropriate right-of-way or drainage easement.

6.2. STREET AND GUTTER DRAINAGE

6.2.1. Design Frequency and Allowable Spread

For local curbed street sections, runoff from the 10-year design storm must be contained between the curbs of the street and the 100-year flow within the right-of-way.

For collector and arterial curbed street sections, at least one twelve (12) foot travel lane in each direction must remain free from flooding for the 10-year design storm and the 100-year flow within the right-of-way.

If either of the above two criteria are exceeded, storm drains facilities (see Chapter 7) will be required. In all instances, the 10-year design storm must be contained within the combined street gutter and storm drain system.

A check storm (e.g., 100-year) should be used any time runoff could cause unacceptable flooding during less frequent storm events. Drainage inlets should also be evaluated for the check storm when a series of inlets terminates at a sump vertical curve where ponding to hazardous depths could occur.

6.2.2. Longitudinal and Transverse Slope

The minimum longitudinal gradient for all public street types shall be no less than 0.5 percent for both curbed and rural street sections. Minimum grades can be maintained in flat terrain by use of a rolling or "sawtooth" profile, or by warping the cross slope to achieve rolling gutter profiles.

When local streets intersect arterial or collector streets, the grade of the arterial/collector street shall be continued uninterrupted, whenever possible. When collector and arterial streets intersect, the grade of the arterial street shall be maintained as much as possible.

Pavement cross-slope for new streets shall be a maximum of 2.0 percent on street sections with a central crown. Sheet flow across a street shall be kept to an absolute minimum. Median areas shall not be drained across travel lanes, except with raised, narrow medians. Shoulders must be sloped to drain away from the pavement per the City's Engineering Standard Details.

For drainage purposes, valley gutters are not permitted to cross arterial or collector street. Valley gutters may be used on local streets at intersections, when a storm drain is not required, and when approved by the Stormwater Manager. In cases where a valley gutter is not permitted or is inadequate, the water must be removed from the street to storm drains or other approved method(s).

To provide adequate drainage in sump vertical curves, a slope of 0.4 percent should be maintained within fifty (50) feet of each side of the low point of the curve, with a minimum slope of 0.3 percent. To accomplish this, the length of the curve divided by the algebraic difference in grades should be equal to or less than 167.

Pipe under-drains may be required where the possibility of ground water or surface water seepage to the subbase soil exists.

6.2.3. Gutter Flow

For the purposes of this section, a pavement gutter is defined as a section of pavement adjacent to the roadway which conveys runoff during a given storm event. It may include a portion or all of the travel lane. Gutters may have a straight cross-slope forming a triangular shape or may have a composite cross-slope where the gutter slope varies from the pavement cross-slope.

Manning's equation cannot be used to determine gutter capacity without modification because the hydraulic radius does not adequately describe the gutter cross-section. The following modified Manning's Equation should be used to evaluate theoretical gutter flow capacity:

$$\mathbf{Q = (0.56 / n)\ S_x^{1.67}\ S^{0.5}\ T^{2.67}} \qquad \mathbf{(6.1)}$$

where:
- Q = discharge, cfs
- n = Manning's roughness coefficient (see Table 6-1)
- S_x = pavement cross slope, ft/ft
- S = longitudinal cross slope, ft/ft
- T = width of flow or spread, ft

Utilizing $d = TS_x$, and $z = 1/S_x$, Equation 6.1 becomes:

$$\mathbf{Q = 0.56(z / n)\ S^{0.5}\ d^{2.67}} \qquad \mathbf{(6.2)}$$

Nomographs for solving Equation 6.1 for triangular and composite gutter sections are given in Figures 6-1 through 6-3. Table 6-1 provides recommended roughness coefficients for street or parking lot design. Consideration should also be given to actual flow conditions due to obstructions and discontinuity in the gutter flow caused by driveways, debris, sediment, parked cars, etc.

6.2.4. Curb and Gutter Terminations

Adequate erosion protection and conveyance measures are required where the curb and gutter section terminates to prevent undermining of the pavement/taper edge, prevent headcutting of roadway fill slopes, and prevent the gutter flow from entering private property. The gutter flow from the street section must be conveyed into a receiving channel, roadside swale, or other approved means. Concrete spillways or riprap protection shall be provided when velocities may cause headcutting at the curb termination or erode the receiving channel/swale.

6.2.5. Rural Street Drainage and Roadside Channels

Roadside ditches or channels for rural, uncurbed street sections shall be designed for the 25-year design storm. The runoff shall be contained within the roadside channels with the allowable water depth elevation below the roadway subgrade to avoid unnecessary saturation of the subgrade and/or aggregate base course shoulder. The minimum depth of a roadside channel shall be one (1) foot and shall be designed per the City's Engineering Standard Details.

The underlying soil conditions, depth of flows, flow velocities, and maintenance shall be considered in the roadside channel design. Long reaches of riprap lined roadside channels should be avoided, if possible, due to long term maintenance problems.

Trapezoidal cross-sections are permissible, however, the channel bottom shall be a minimum of four (4) feet wide for maintenance purposes.

Crown ditches or interceptor drains may be required at the top of the cut slope embankments with tributary drainage area above drains toward the cut and has a drainage path greater than forty (40) feet measured horizontally.

TABLE 6-1: MANNING'S 'n' FOR STREET AND PAVEMENT GUTTERS

TYPE OF GUTTER OR PAVEMENT	MANNINGS "n"
Asphalt Pavement:	
Smooth texture	0.013
Rough texture	0.016
Concrete Gutter, troweled finish	0.012
Concrete Gutter w/asphalt pavement:	
Smooth	0.013
Rough	0.015
Concrete pavement:	
float finish	0.014
broom finish	0.016
Brick or pavers	0.016
For gutters with small slope, where sediment, may accumulate increase above values of "n" by	0.002

Source: USDOT, FHWA, HDS-3, 1977

NOTE: A minimum value of 0.016 shall be used for all new paved street designs, regardless of theoretical values.

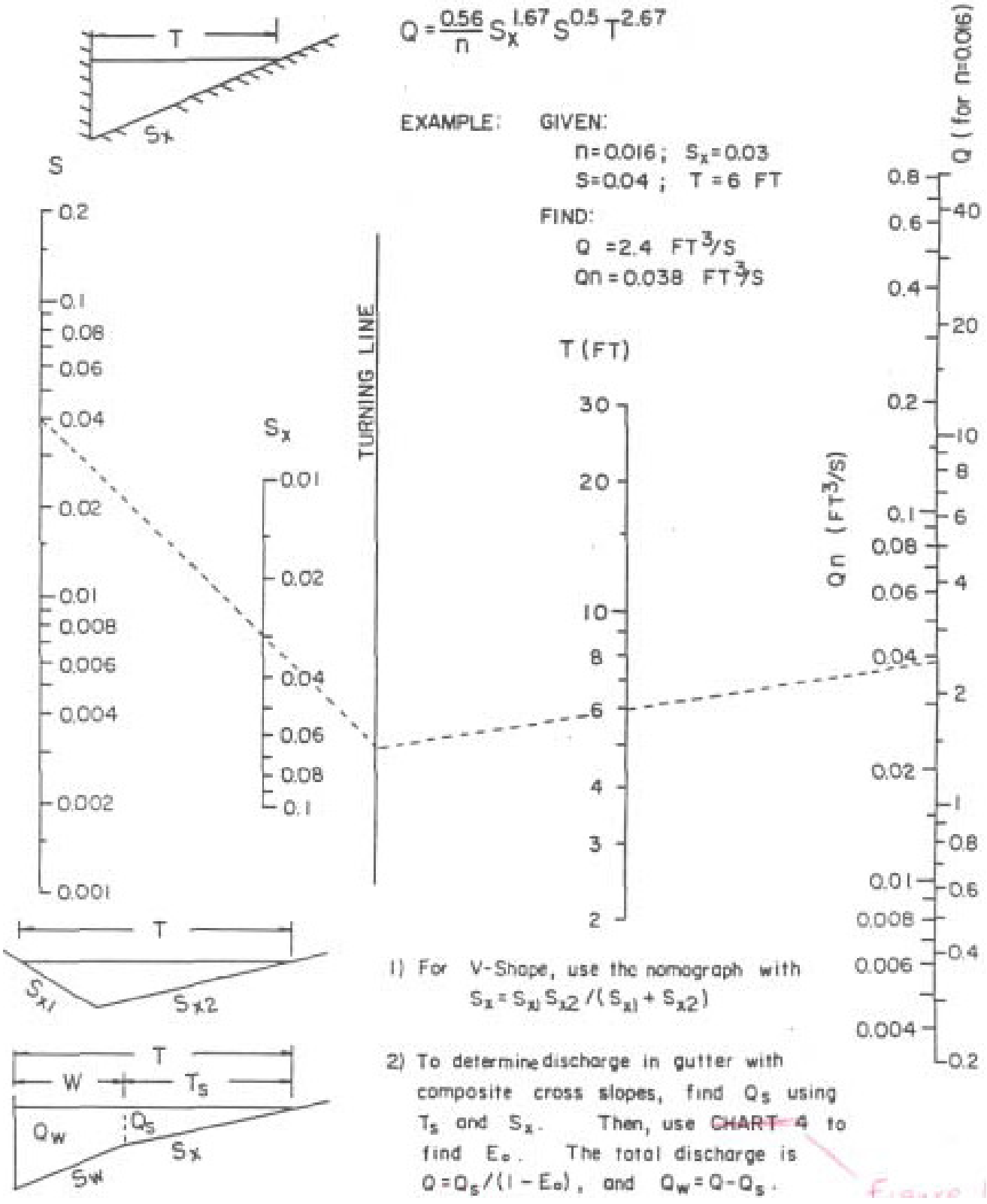


Figure 6-1: Flow In Triangular Gutter Sections
Source: FHWA, HEC-12, 1984

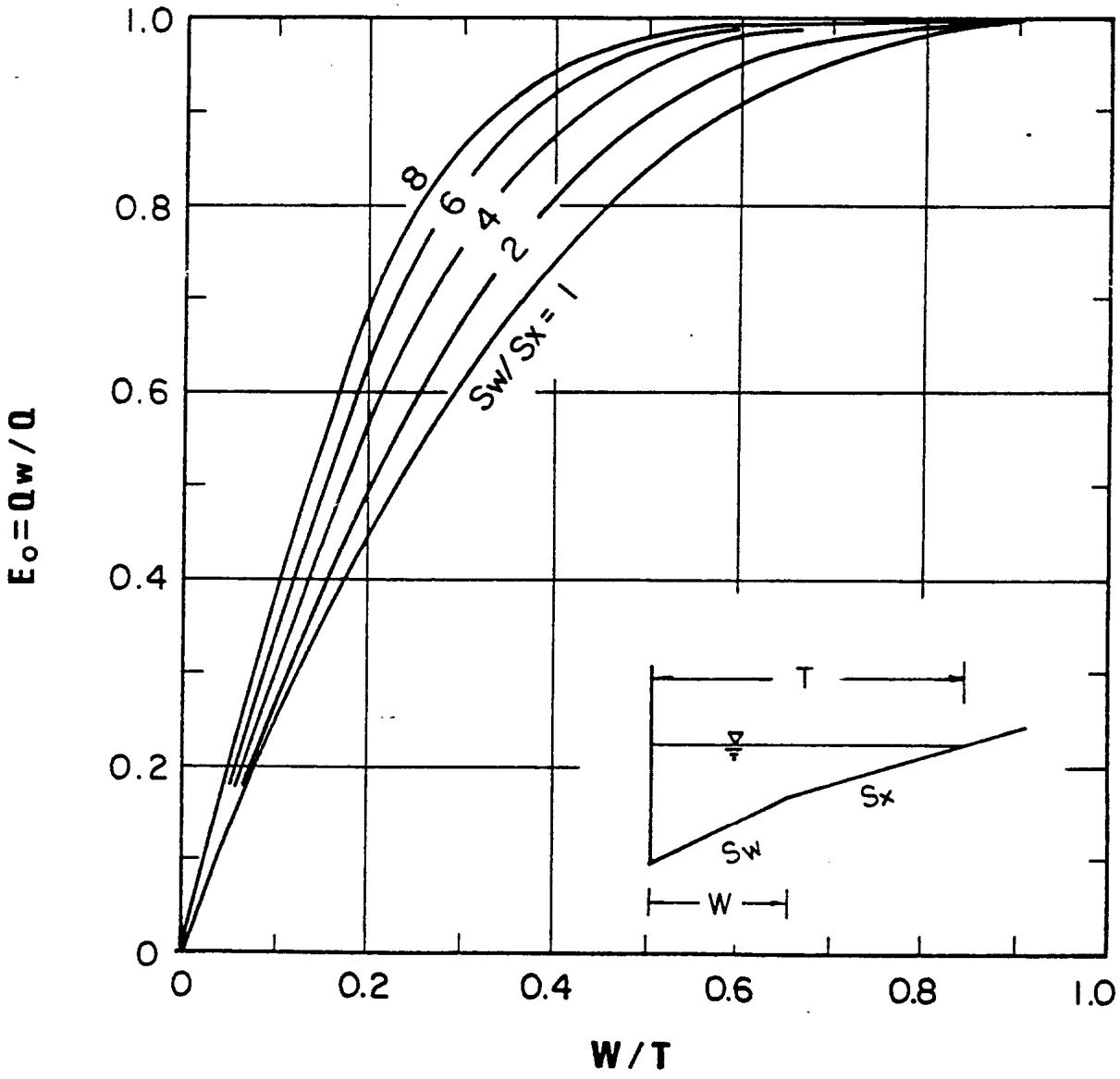


CHART 4

Figure 6-2: Ratio Of Frontal Flow To Total Gutter Flow
Source: FHWA, HEC-12, 1984

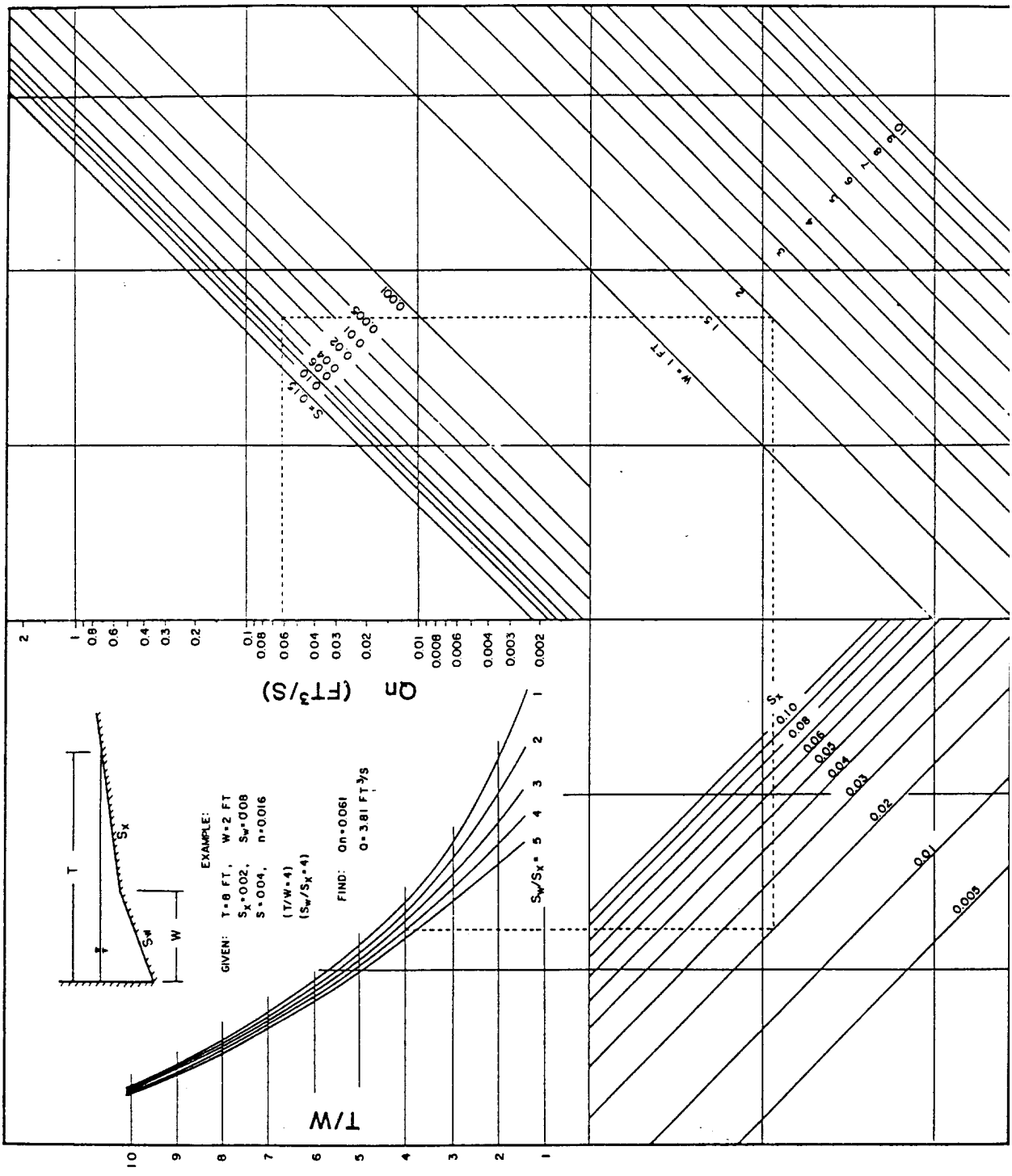


Figure 6-3: Flow In Composite Gutter Sections
Source: FHWA, HEC-12, 1984

6.3. DRAINAGE INLETS

Storm drain inlets (i.e., catch basins) are necessary to drain streets and convey runoff in excess of allowable pavement spread or flow depth criteria. Inlets are typically located in gutter sections, roadside channels, parking lots, or other sump locations. Inlet capacity is dependent upon the inlet geometry and the characteristics of the street and gutter flow. Inadequate inlet capacity and spacing may cause flooding on the roadway, private property, or result in a hazard to the traveling public.

6.3.1. Inlet Types

There are four classes of drainage inlets:

1. grate inlets,
2. curb-opening inlets,
3. combination inlets, and
4. slotted drains.

Grate inlets consist of a horizontal grated opening in the gutter, channel bottom, or other locations and may be placed either on a continuous grade or in a sump condition. Curb-opening inlets consist of a vertical opening in the curb face and are most effective on flat grades and in sumps. Combination inlets consist of both a curb-opening and a grate inlet placed in a side-by-side configuration or the curb-opening may be placed upstream of the grate (sweeper inlet). Slotted drains consist of an opening cut along the longitudinal axis of a conduit with bars perpendicular to the opening to maintain the slotted configuration. Figure 6-4 illustrates the four types of drainage inlets.

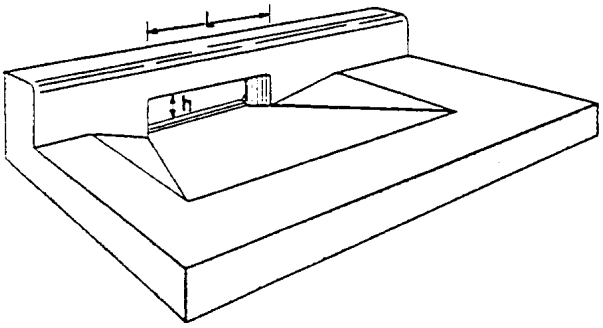
All catch basins shall be designed and constructed in accordance with current MAG Standard Details or other equivalent details as approved by the Stormwater Manager.

6.3.2. Allowable Spread and Flow Depth

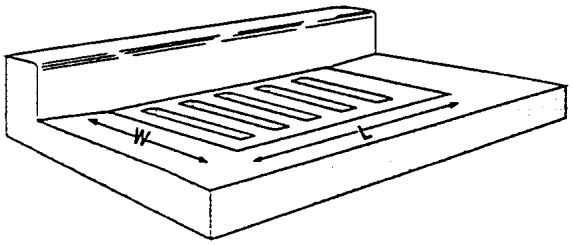
Inlet spacing must be designed to meet allowable spread limits (with carryover considered) and curb overtopping restrictions. It is recommended that inlet spacing not exceed 600 feet for collection of nuisance flows.

Catch basins and storm drains are required for collector and arterial streets when one twelve (12) foot travel lane in each direction cannot be maintained for the 10-year design storm. The allowable spread for streets with permanent parking lanes shall be limited to the parking lane width.

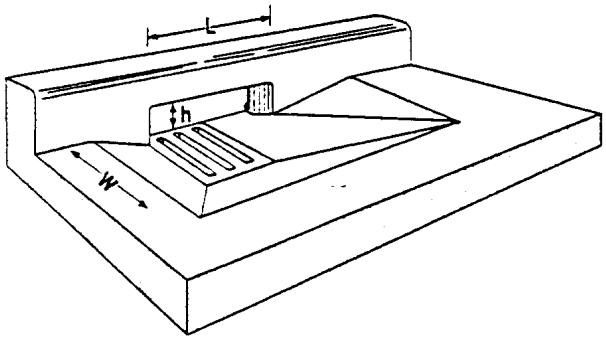
Storm drain inlets and storm drains are required for local streets when the curb is overtopped for the 10-year design storm.



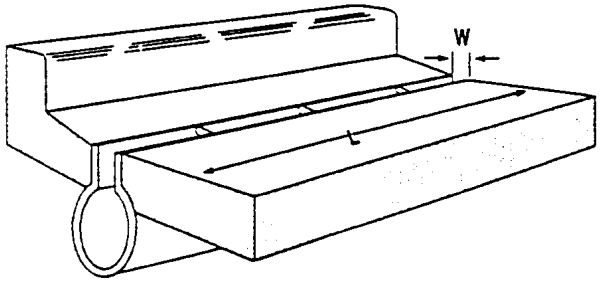
(a) Curb Opening Catch Basin Inlet



(b) Grated Catch Basin Inlet



(c) Combination Catch Basin Inlet



(d) Slotted Drain Catch Basin Inlet

Figure 6-4: Drainage Inlet Types

Inlets in all sump locations must be sized to prevent overtopping of the curb for local streets and maintain a twelve (12) foot travel lane free from accumulated runoff for collector and arterial streets. Caution should be used when placing an inlet at the end of a downhill cul-de-sac as this often allows excess water to bypass the inlet onto private property if the inlet becomes clogged.

6.3.3. Inlet Locations

One-hundred percent interception of the 10-year design storm is required for all inlets in sumps or other locations as required by the Stormwater Manager to prevent hazardous ponding conditions.

Flanking inlets may be required on new arterial street sump vertical curve locations to prevent hazardous ponding in the event the primary sump inlet is completely clogged (see Section 6.3.8).

Inlets shall be located such that concentrated flow or heavy sheet flow will not cross traffic lanes, whenever possible. Where pavement surfaces are warped (e.g., at cross streets or ramps) runoff shall be intercepted just before the change in cross slope, whenever possible. Inlets should be placed on arterial and collector streets upstream of locations where the pavement cross slope begins to superelevate to avoid concentrated flows crossing the roadway and reduce traffic hazards associated with icing.

Street runoff is not permitted to cross arterial streets at intersections, therefore inlets are required upgrade of pedestrian crossings and intersections, whenever possible. Consideration should also be given to avoid locating inlets within existing or proposed driveways locations, whenever possible.

Inlets shall be selected, sized and located to prevent silt and debris, carried in suspension, from being deposited on the traveled way where the longitudinal gradient is decreased.

6.3.3.1. Geometric Controls

The following information is typically required to determine locations of drainage inlets:

- plan sheet suitable for outlining drainage areas;
- road profiles;
- typical street cross-sections;
- grading cross-sections;
- superelevation diagrams; and
- contour maps.

Using the above information, geometric controls will determine a number of locations which require inlets with 100% interception, regardless of contributing drainage area, as identified below:

- Immediately upgrade of arterial intersections, if possible;
- At all sump locations in gutter grade;
- Immediately upgrade of bridges;
- Immediately upgrade of cross slope reversals, if possible;
- At the end of channels in cut sections; and

- Behind curbs, shoulders or sidewalks to drain low areas.

In addition to the areas identified above, runoff from areas draining towards the roadway shall be intercepted by roadside channels or inlets before it reaches the street. This applies to drainage from roadway cut slopes, side streets, and other areas outside of the roadway. In general, curbed street sections and pavement inlets are an inefficient means for handling extraneous drainage behind the curb.

6.3.4. Grate Inlets

Grate inlets may be utilized where clogging due to debris will not be a problem. Grate inlets generally lose capacity with increases in the longitudinal street grade, but to a lesser degree than do curb-opening inlets. Increasing the length of grate inlets does little to increase capacity, however, increasing the grate width greatly increases the capacity. Where street grades exceed three (3) percent, grate or combination inlets should be used instead of curb-opening inlets.

Where debris is anticipated to be a potential problem, consideration shall be given to debris handling efficiency ratings of the grate. Efficiency ratings and formulas for computing efficiencies for grates can be found in HEC-22 or inlet charts prepared by grate manufacturers. Table 6-2 outlines the results of debris handling efficiencies of several common grates. Curved vane and tilt bar grates typically have the highest debris handling efficiencies for weir flow conditions.

Grate inlets subject to vehicular traffic must have adequate load bearing capacity. All grated inlets must be bicycle safe. Where possible, curb opening inlets should be used if the street has a bike lane. Table 6-3 outlines rating efficiencies with respect to bicycle and pedestrian safety.

TABLE 6-2: GRATE DEBRIS HANDLING EFFICIENCIES

RANK	GRATE	Longitudinal Slope	
		(0.005)	(0.04)
1 (Best)	CV - 3-1/4 - 4-1/4	46	61
2	30 - 3-1/4 - 4	44	55
3	45 - 3-1/4 - 4	43	48
4	P - 1-7/8	32	32
5	P - 1-7/8 - 4	18	28
6	45 - 2-1/4 - 4	16	23
7	Reticuline	12	16
8	P - 1-1/8	9	20

Source: FHWA, HEC-22, 1996

TABLE 6-3: BICYCLE AND PEDESTRIAN SAFETY RANKINGS

Rank	Grate Style
1 (Best)	P - 1-7/8 - 4
2	Reticuline
3	P - 1-1/8
4	45 - 3-1/4 - 4
5	45 - 2-1/4 - 4
6	Curved Vane
7	30 - 3-1/4 - 4

Source: Burgi, 1978

6.3.4.1. Grate Inlets On Grade

A grate inlet on a continuous grade will intercept all of the frontal flow passing over the grate, unless the grate becomes clogged or splash-over occurs. Splash-over will occur if the velocity is high or the grate is short and only a portion of the frontal flow will be intercepted. The total capacity of a grated catch basin on grade is the sum of the frontal flow and the side flow, minus the splash-over flow.

The ratio of frontal flow to total gutter flow (E_o) for a straight cross-slope is expressed by:

$$\mathbf{E_o = Q_W/Q = 1 - (1 - W/T)^{2.67}} \qquad \mathbf{(6.3)}$$

where: Q_W = frontal flow at width W, cfs
Q = total gutter flow, cfs
W = width of grate, ft
T = total spread of water at the gutter, ft

Figure 6-2 provides a graphical solution of E_o for either straight cross-slopes or depressed gutter sections.

The ratio of side flow (Q_S) to total gutter flow is expressed as:

$$\mathbf{Q_S/Q = 1 - Q_W/Q = 1 - E_o} \qquad \mathbf{(6.4)}$$

The ratio of frontal flow intercepted to total frontal flow (R_f) is expressed by:

$$\mathbf{R_f = 1 - 0.09\,(V - V_O)} \qquad \mathbf{(6.5)}$$

where: V = velocity of flow in the gutter, ft/s (see Fig. 6-5)
V_O = gutter velocity where splash over first occurs, ft/s

This ratio is equivalent to the frontal flow interception efficiency. Figure 6-6 provides a graphical solution of Equation 6.5 which takes into account grate length, bar configuration, and gutter velocity at which splash-over occurs. The gutter velocity needed to use Figure 6-5 is the total gutter flow divided by the flow area.

The ratio of side flow intercepted to total side flow (R_s), or side flow interception efficiency is expressed by:

$$\mathbf{R_s = 1 / [1 + (0.15V^{1.8} / S_x L^{2.3})]} \qquad \mathbf{(6.6)}$$

where: L = length of the grate (ft) and the other terms are previously defined

Figure 6-7 provides a solution to Equation 6.6.

The efficiency of a grate (E) is expressed as:

$$\mathbf{E = R_f E_o + R_s(1 - E_o)} \qquad \mathbf{(6.7)}$$

The interception capacity of a grate inlet on a continuous grade is then equal to the efficiency of the grate (E) multiplied by the total gutter flow (Q):

$$\mathbf{Q_i = EQ = Q[R_f E_o + R_s(1 - E_o)]} \qquad \mathbf{(6.8)}$$

6.3.4.2. Grate Inlets In Sump

The capacity of grate inlets in a sump is dependent upon the open area of the grate and the ponding depth. The ability to pass debris is therefore critical. A grate inlet in a sag operates as a weir up to about 0.4 feet above the top of the grate, for a standard gutter inlet. When the depth of water exceeds about 1.4 feet, the grate begins to operate as an orifice. Between 0.4 feet and 1.4 feet, a transition from weir to orifice flow occurs. The use of combination or curb-opening catch basins is recommended for curbed street sump locations.

The capacity of a grate operating as a weir is expressed as:

$$\mathbf{Q_i = 3.0 P d^{1.5}} \qquad \mathbf{(6.9)}$$

where: Q_i = rate of discharge into the grate opening, cfs
P = perimeter of grate excluding bar widths and the side against the curb, ft
d = depth of water above the grate, ft

The capacity of a grate operating as an orifice is expressed as:

$$\mathbf{Q_i = 0.67 A (2gd)^{0.5}} \qquad \mathbf{(6.10)}$$

where: A = clear opening area of the grate, ft^2

g = 32.2 ft/s^2
d = depth of water above the grate, ft

Figure 6-8 provides a plot of Equations 6.9 and 6.10 for various grates.

The transition from weir (approx. 0.4 feet) and orifice (approx. 1.4 feet) results in an interception capacity less than that computed by either the weir or the orifice equations. Using Figure 6-7, this capacity can be approximated by drawing in a curve between the lines representing the perimeter and net area of the grate to be used.

Tilt Bar or curved vane grates are not recommended for grate inlets in a sump which operate as an orifice.

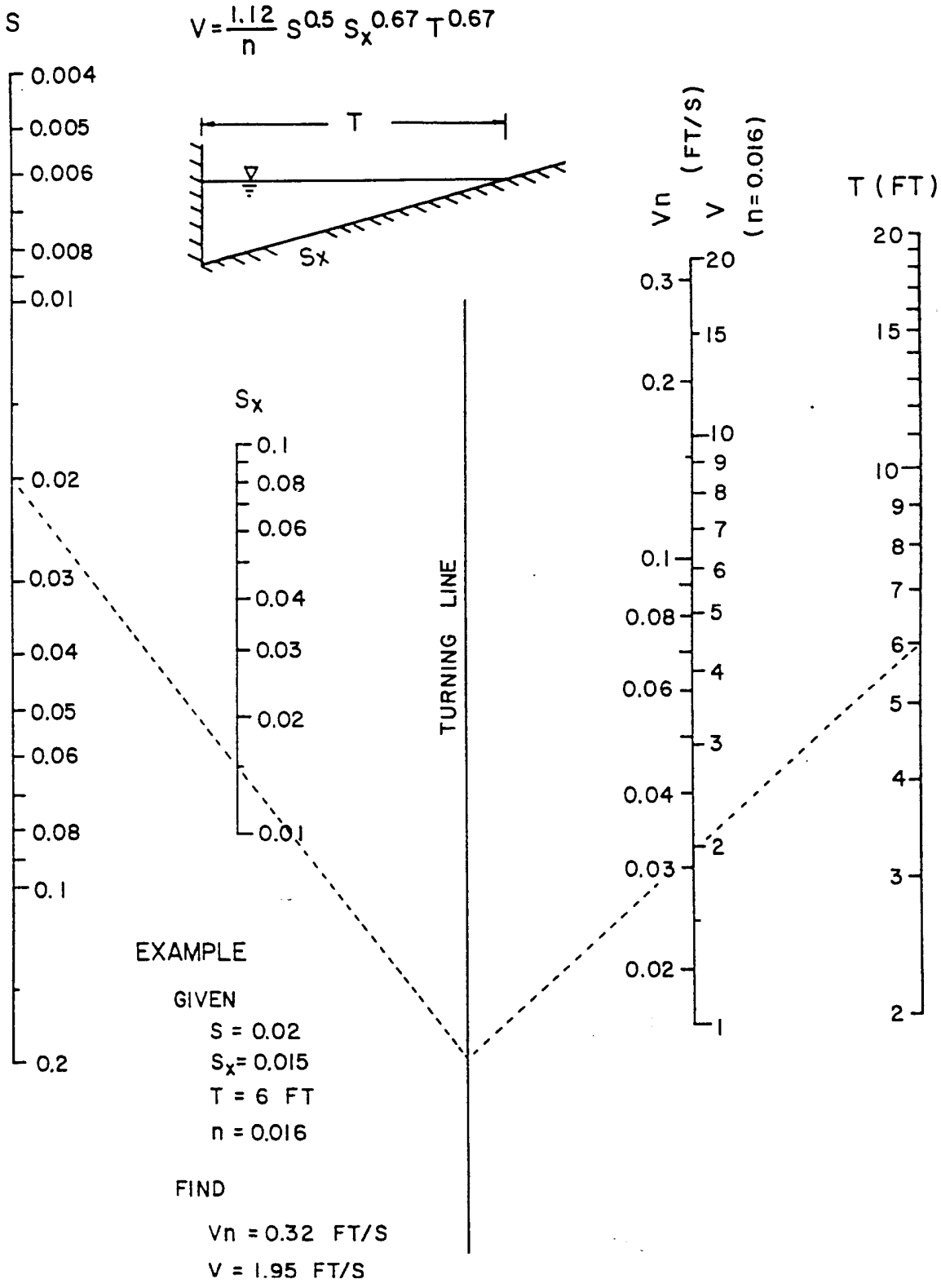


Figure 6-5: Velocity In Triangular Gutter Sections
Source: FHWA, HEC-12, 1984

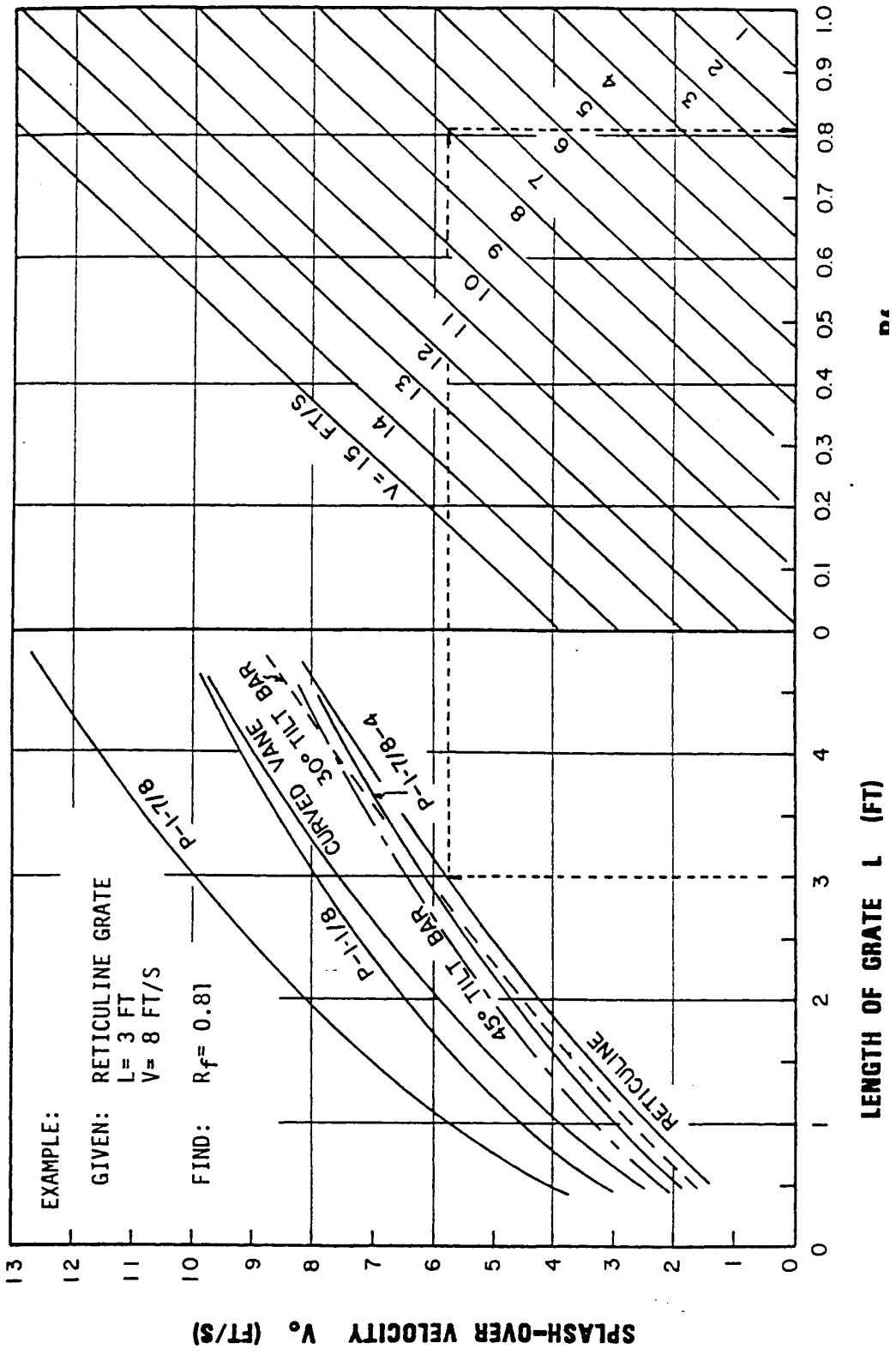


Figure 6-6: Grate Inlet Frontal Flow Interception Efficiency
Source: FHWA, HEC-12, 1984

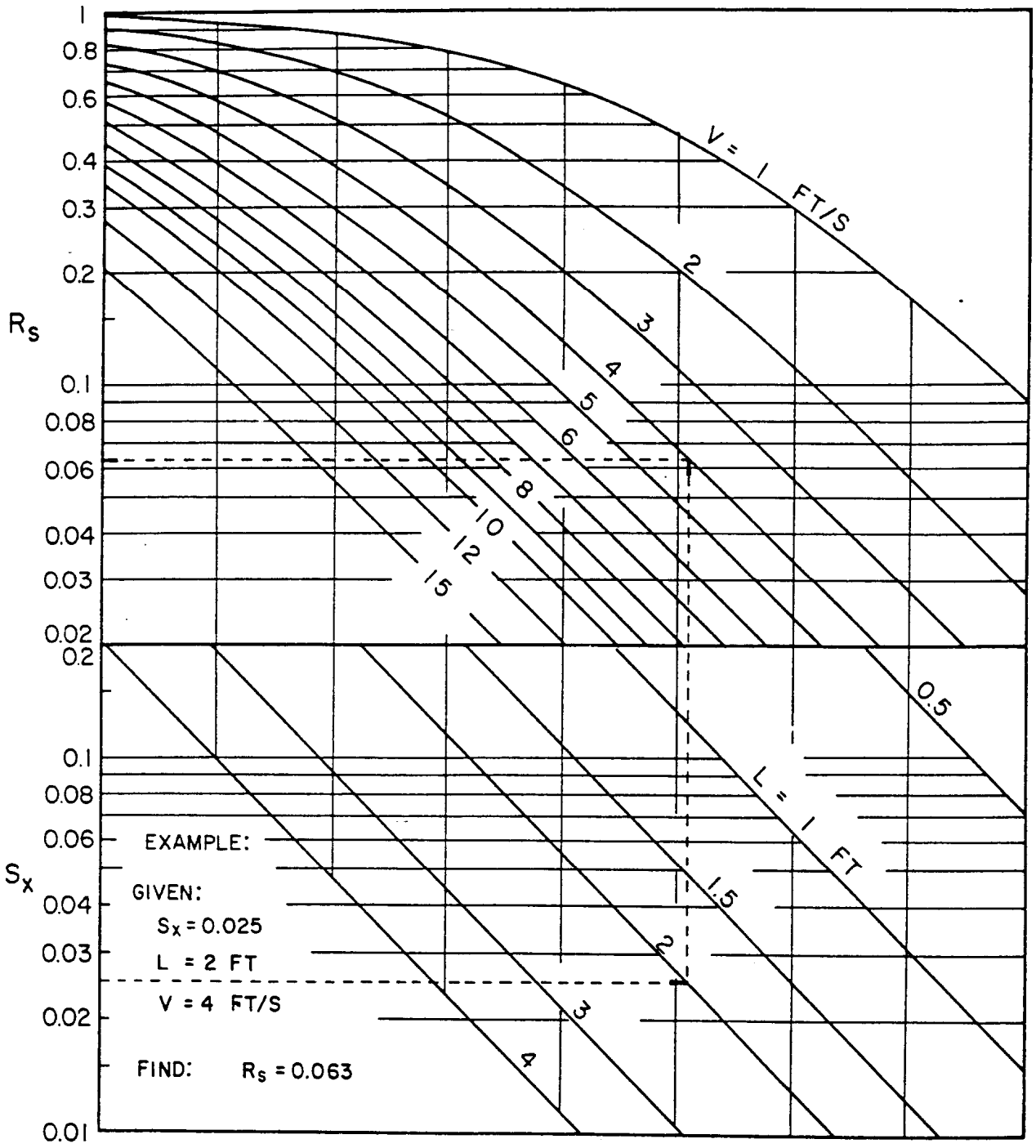


Figure 6-7: Grate Inlet Side Flow Interception Efficiency
Source: FHWA, HEC-12, 1984

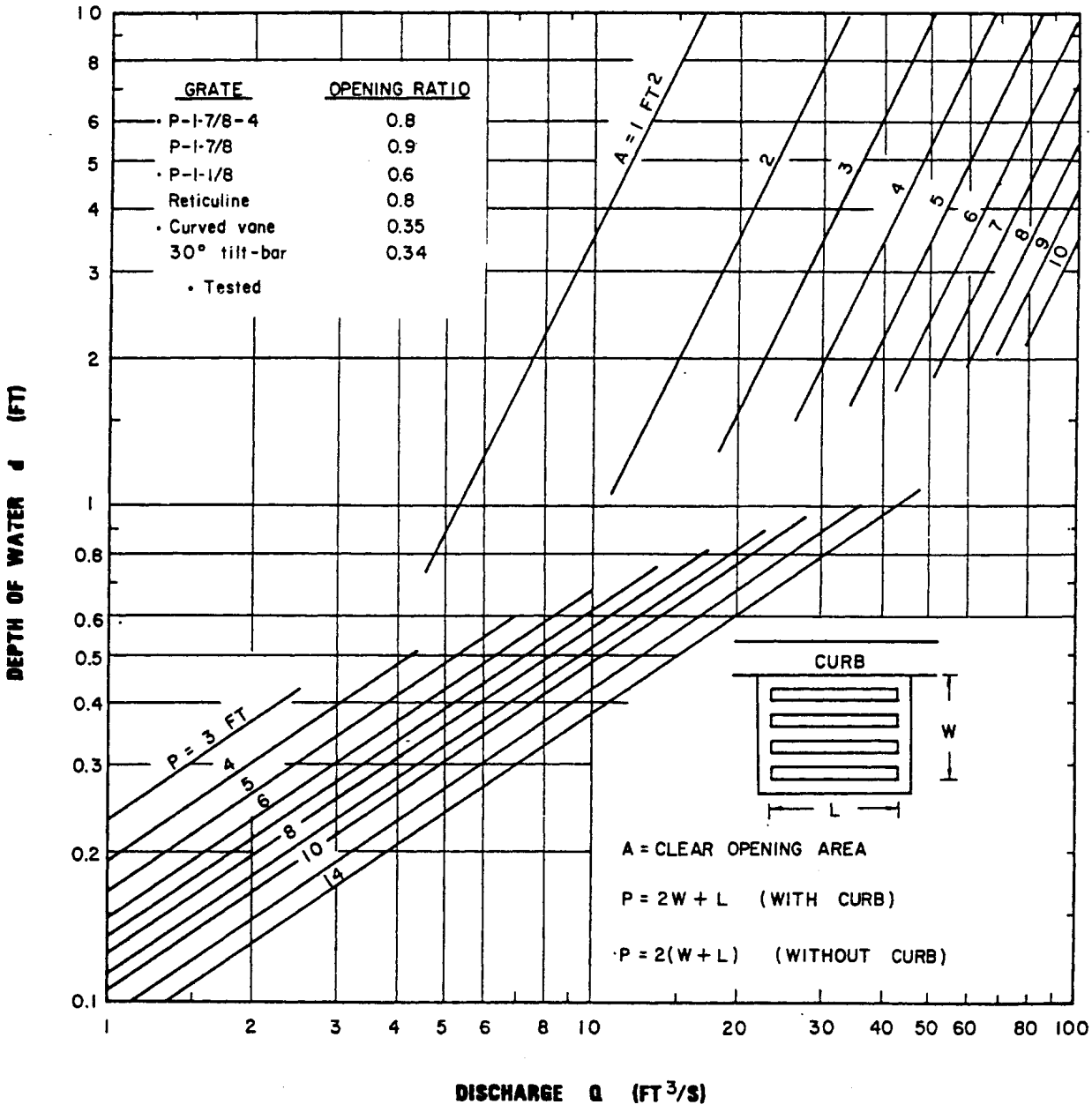


Figure 6-8: Grate Inlet Capacity In Sump Conditions
Source: FHWA, HEC-12, 1984

6.3.5. Curb Opening Inlets

Curb opening inlets are most effective on flatter slopes, in sump locations, with flows carrying significant amounts of debris, and where the flow depth at the curb is sufficient for the inlet to perform efficiently. The interception capacity of curb-opening inlets decreases as the longitudinal gutter grade increases.

Curb-opening inlets are recommended in curbed sump locations and on grades less than three (3.0) percent. In addition, curb-opening inlets less than five (5.0) feet in length should not be used on continuous grades due to inefficient interception. Curb-opening inlets on grade should also not be placed on the inside of a horizontal curve due to inefficient interception.

The curb opening shall not exceed six (6) inches in height, unless approval from the Stormwater Manager is obtained and the opening is equipped with cross bars for safety reasons.

6.3.5.1. Curb Opening Inlets on Grade

The length of a curb opening inlet for total interception of gutter flow on a pavement section with a straight cross slope (i.e., no gutter depression) is expressed in Equation 6.11.

$$\mathbf{L_T = 0.6\ Q^{0.42}\ S^{0.3}\ (1/nS_x)^{0.6}} \qquad \mathbf{(6.11)}$$

where: L_T = curb length required for 100% interception
S = longitudinal gutter slope, ft/ft
n = Manning's roughness coefficient
S_x = pavement cross slope, ft/ft

Figure 6-10 is a nomograph for the solution of Equation 6.11.

The efficiency of curb inlets shorter than the length required for total interception is expressed by:

$$\mathbf{E = 1 - (1 - L_i/L_T)^{1.8}} \qquad \mathbf{(6.12)}$$

where: E = efficiency, ratio of intercepted discharge to total discharge
L_i = curb inlet length, ft

Figure 6-11 provides a nomograph for the solution of Equation 6.12.

The length of an inlet required for total interception by a depressed curb inlet or curb inlets in depressed gutter sections can be found by use of an equivalent cross-slope (S_e) in place of S_x (in Equation 6.11), as expressed by:

$$\mathbf{S_e = S_x + S_w' E_o} \qquad \mathbf{(6.13)}$$

where: S_w' = the cross-slope of the gutter measured from the cross-slope of the

pavement, which equals (a/12W), ft/ft

E_o = the ratio of flow in the depressed section to the total gutter flow

The length of curb opening required for total interception can be significantly reduced by increasing the cross-slope or equivalent cross-slope. The equivalent cross-slope can be increased by use of a continuously depressed gutter or a locally depressed gutter section.

Using the equivalent cross slope (S_e), Equation 6.11 becomes:

$$\mathbf{L_T = 0.6\, Q^{0.42} S^{0.3} (1/nS_e)^{0.6}} \qquad \mathbf{(6.14)}$$

6.3.5.2. *Curb Opening Inlets In Sumps*

A curb opening inlet in a sump operates as a weir to depths equal to the curb opening height and as an orifice at depths greater than 1.4 times the opening height. At depths between 1.0 and 1.4 times the opening height, flow is in a transitional stage.

The equation for the interception capacity of a depressed curb opening inlet operating as a weir is:

$$\mathbf{Q_i = 2.3\, (L + 1.8W)\, d^{1.5}} \qquad \mathbf{(6.15)}$$

where:
- L = length of curb opening, ft
- W = width of depression, ft
- d = depth of water at curb measured from the normal cross slope gutter flowline, ft

Figure 6-12 provides a solution for Equation 6.15. The weir equation is applicable to depths at the curb approximately equal to the height of the opening plus the depth of the depression. Therefore, the limitation on the use of Equation 6.15 for a depressed curb opening is:

$$\mathbf{d \leq h + (a/12)} \qquad \mathbf{(6.16)}$$

The weir equation for curb opening inlets without a depression (i.e., W = 0) becomes:

$$\mathbf{Q_i = 3.0Ld^{1.5}} \qquad \mathbf{(6.17)}$$

Equation 6.17 is applicable to depths at the curb which are approximately equal to the height of the opening plus the depth of the depression (i.e. ,$d \leq h$).

Curb opening inlets operate as orifices at depths greater than approximately 1.4h and the capacity is then computed as:

$$\mathbf{Q_i = 0.67A\, (2gd_0)^{0.5}} \qquad \mathbf{(6.18)}$$

where:
- A = clear area of opening (h x L), ft^2

g = 32.2 ft/s²
d_0 = depth at lip of curb opening, ft
h = height of curb opening orifice, ft

Equation 6.18 is applicable to depressed and un-depressed curb inlets and the depth at the inlet includes any gutter depression. At a depth of 0.4 feet, the depressed curb opening inlet has about 70 percent more capacity than an undepressed inlet.

The height of the orifice in Equation 6.18 assumes a vertical opening. As shown in Figure 6-9, other orifice throat configurations can change the effective depth on the orifice and the dimension (d_i - h/2). A limited throat width could reduce the inlet capacity by causing the inlet to go into orifice flow at depths less than the height of the opening.

6.3.6. Combination Inlets

Combination inlets provide the advantages of both grate and curb opening inlets. Curb-openings are typically placed upstream of the grate and act as a "sweeper" or debris interceptor during the initial phases of the storm. Combination inlets in a sump location can also have a curb-opening on both sides of the grate or the curb opening can be equal in length to the grate.

For combination inlets on grade, the grate section shall be placed at the downstream end of the inlet structure and must also be bicycle and pedestrian safe.

6.3.6.1. Interception Capacities

The interception capacity of a combination inlet on a continuous grade consisting of a grate and curb-opening of equal length placed side-by-side is no greater than that of the grate alone. Therefore, the capacity is then determined by neglecting the curb opening.

A sweeper combination inlet on a continuous grade has the interception capacity equal to the sum of the grated catch basin and the portion of the curb opening inlet upstream of the grate.

The interception capacity of a combination inlet in a sump is essentially equal to that of the grate only for weir flow unless the grate becomes clogged. For orifice flow in a sump, the capacity is equal to the capacity of the grate plus the capacity of the curb opening.

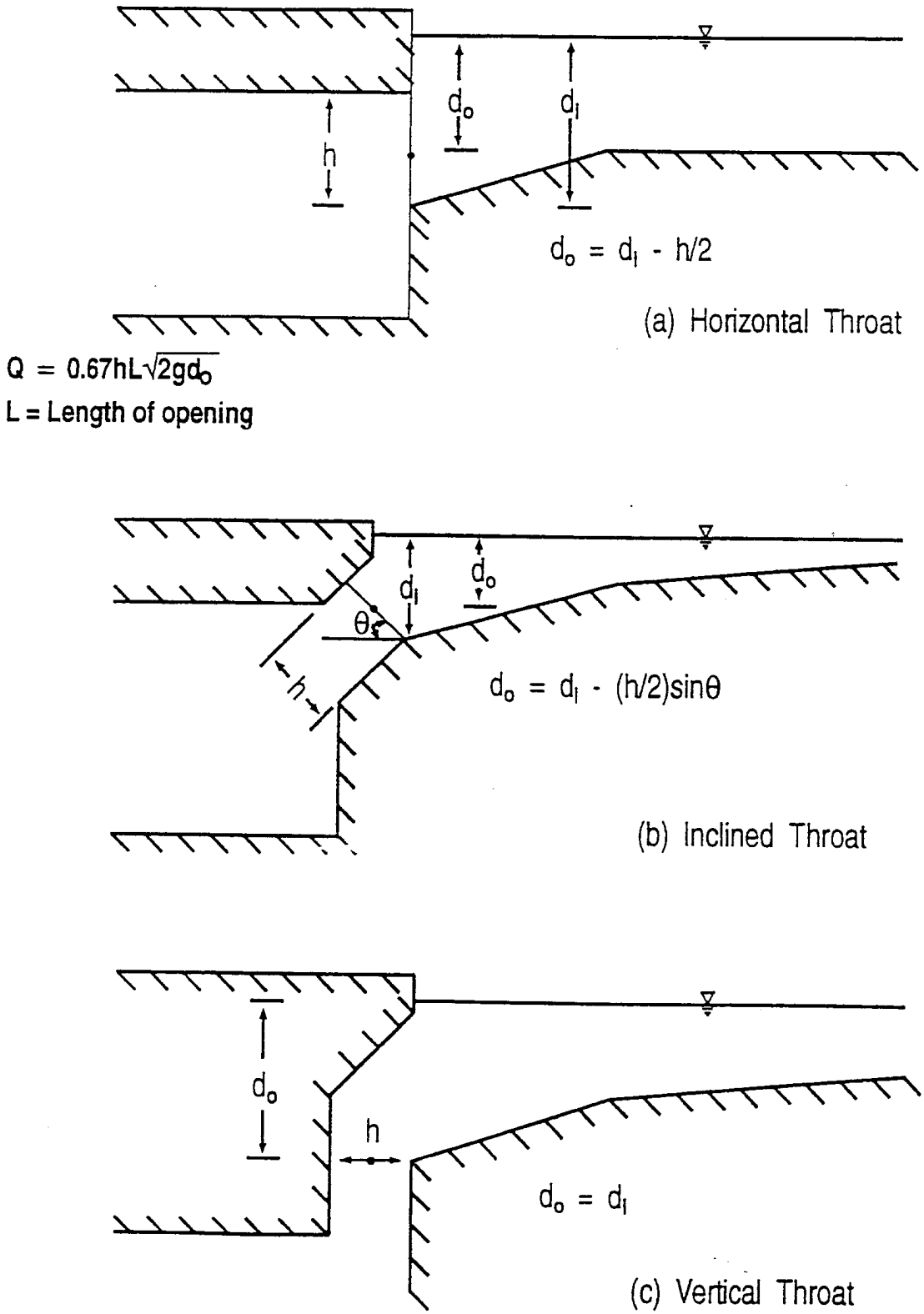


Figure 6-9: Curb Opening Catch Basin Inlets
Modified From: USDOT, FHWA, HEC-12, Fig. 21, 1984

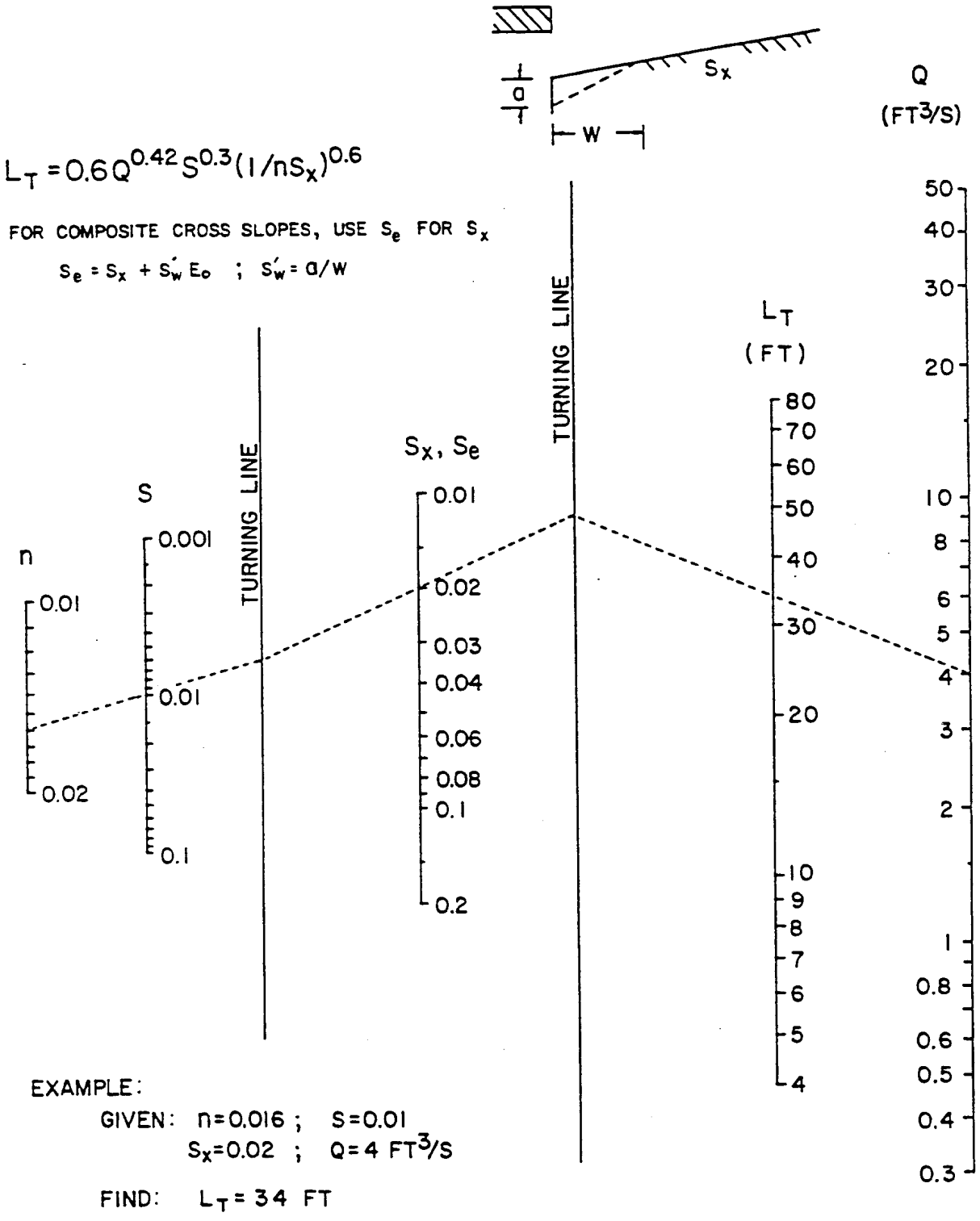


Figure 6-10: Curb-Opening And Slotted Drain Inlet Length For Total Interception
Source: FHWA, HEC-12, 1984

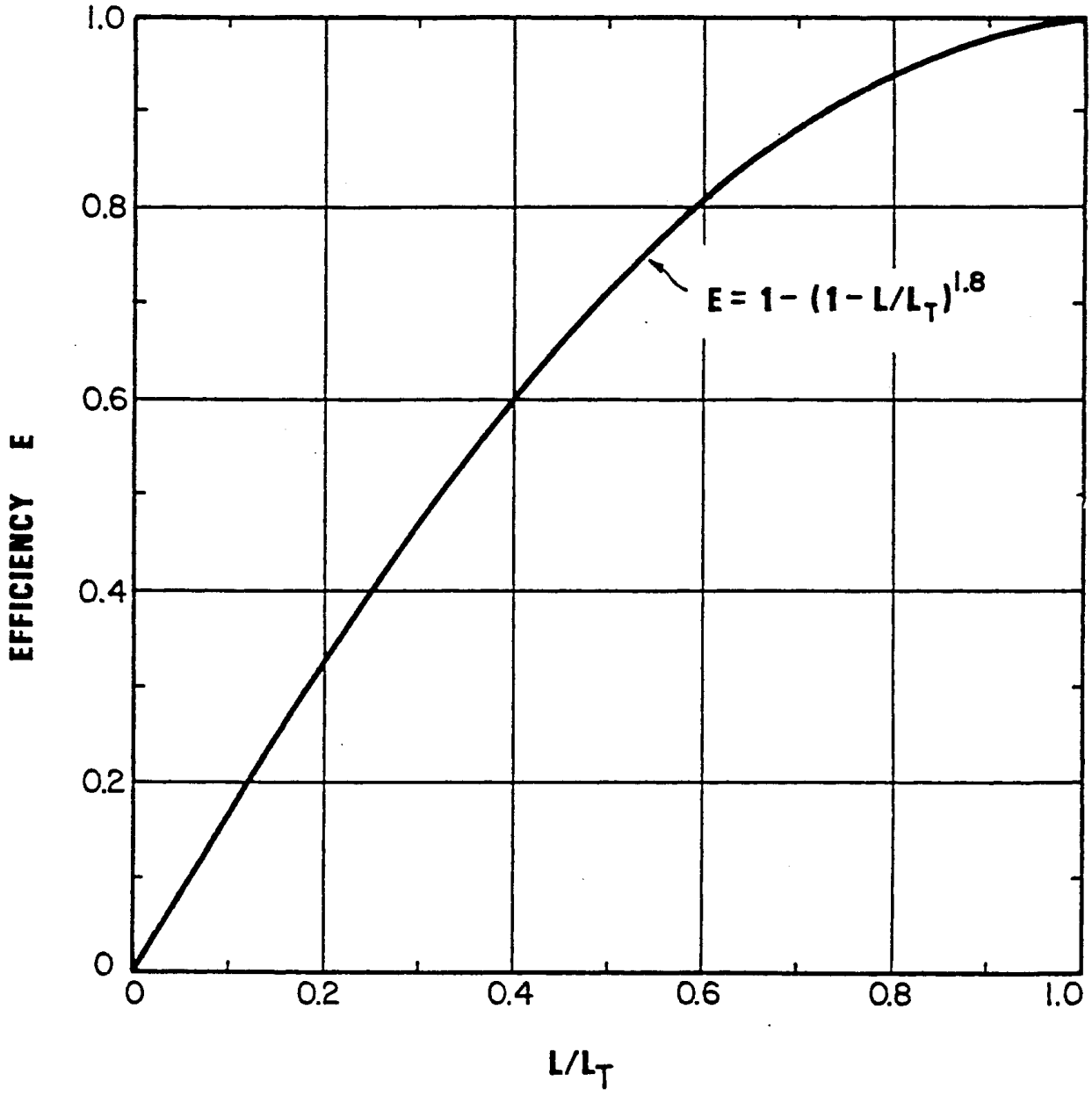


Figure 6-11: Curb-Opening and Slotted Drain Inlet Interception Efficiency
Source: FHWA, HEC-12, 1984

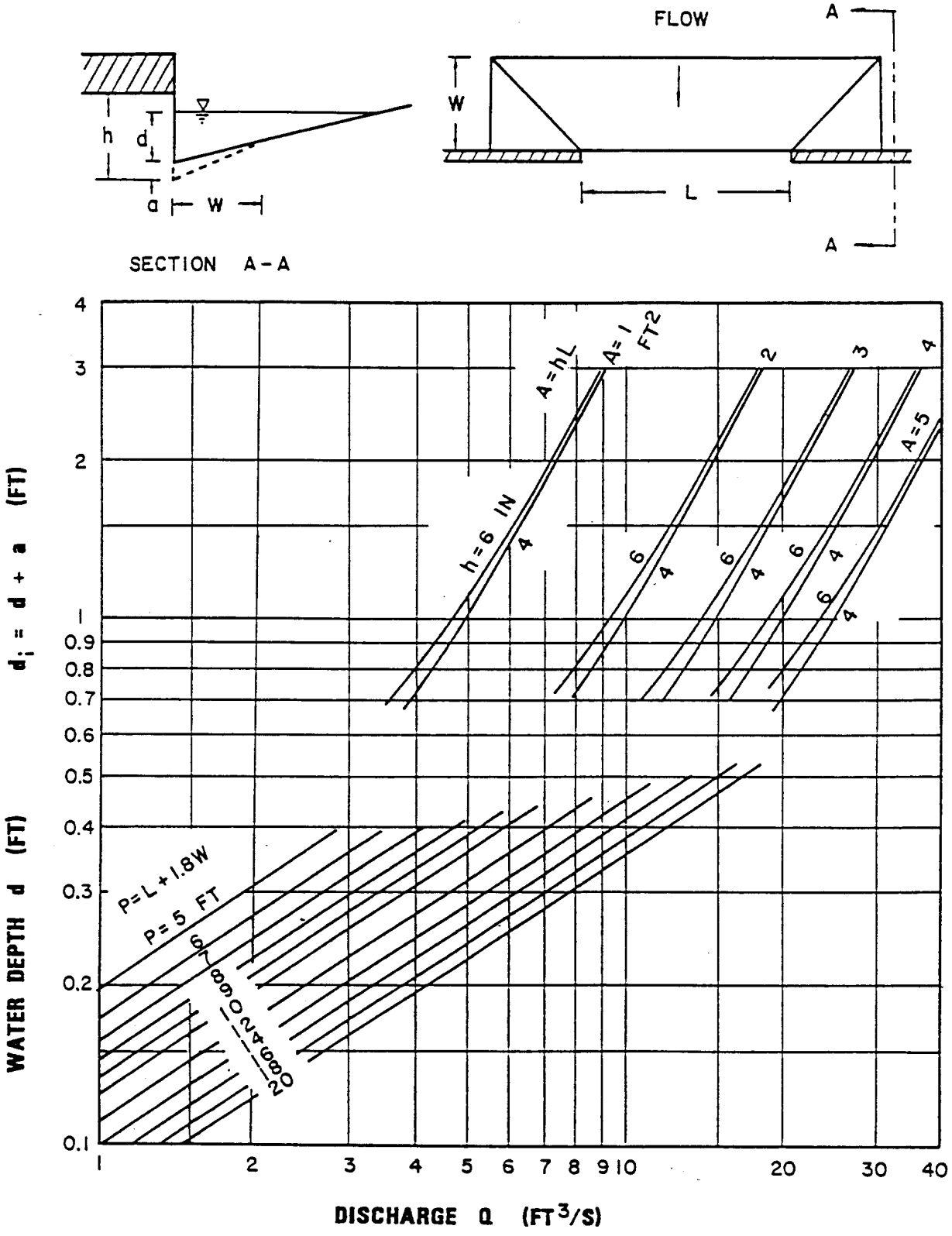


Figure 6-12: Depressed Curb-Opening Inlet Capacity In Sump Locations
Source: FHWA, HEC-12, 1984

6.3.7. Slotted Drain Inlets

Slotted drain inlets are only permitted for special circumstances, as approved by the Stormwater Manager, where standard drainage inlets will not suffice. Slotted drain inlets on a longitudinal grade function best when designed and constructed as a curb opening inlet and when debris is not a factor. Slotted inlets for public storm drains are not permitted in sump locations due to high clogging potential and sediment deposition problems in the pipe section.

Transverse slotted drains function best for shallow low velocity sheet flow (e.g. in parking lots) but are not recommended for more concentrated flow due to the small opening width and low splash over velocity threshold.

Slotted drain inlets, when used, shall be set in concrete for vehicular loading and to maintain constant grade. They should be accessible at both end of the pipe for maintenance/cleaning. This may be accomplished by extending the pipe ends beyond the area requiring the slotted drain.

6.3.8. Flanking Inlets

In addition to inlets required in sump locations, it is good engineering practice to place flanking inlets on each side of the low point when a depressed area has no outlet except through the storm drain system. The purpose of flanking inlets is to act as a relief for the inlet at the sump should it become clogged or if the design spread is exceeded.

Flanking inlets can be located so they will function before the allowable spread is exceeded at the sump and should be located so that they will capture all of the flow when the primary inlet at the sump is clogged.

If the flanking inlets are the same dimension as the primary inlet, each will intercept one-half of the design flow when they are located so that the depth of ponding at the flanking inlets is sixty-three percent (63%) of the depth of ponding at the low point. If the flanking inlets are not the same size as the primary inlet, it will be necessary to either develop a new factor or perform a trial and error solution using assumed depths with the weir equation to determine the capacity of the flanking inlet at the given depths.

Table 6-4 shows the spacing required for various depths at curb criteria and vertical curve lengths. The vertical curve length (K) is defined as:

$$\mathbf{K = L/(G_2 - G_1)} \qquad \mathbf{(6.19)}$$

where: L = the length of the vertical curve in feet,
G_1/G_2 = are the approach grades.

6.3.8.1. Flanking Inlet Location Example

Given: A 491.8 ft (L) sump vertical curve at an underpass on a 5-lane Type 1 roadway. Beginning and ending approach grades are -2.50% and +2.50% respectively. The spread at the design Q is not to exceed 10 ft.

Find: The location of the flanking inlets if located in relief of the inlet at the low point when it is clogged.

Solution: Step 1. Find the rate of vertical curvature, K.

$K = L/(S_{begin} - S_{end})$
$K = 491.8/(-2.50 - 2.50) = 98.4$ ft.

Step 2. Determine depth at design spread.

$d = S_x T = (0.02)(10.0 \text{ ft.})$
$d = 0.22$ ft.

Step 3. Determine the depth for the flanker inlets.

$d = 0.22 \text{ ft.}(0.63) = 0.14$ ft.

Step 4. For use with Table 6-4 or x; d = 0.22 - 0.14 = 0.07 ft.

Inlet spacing $= x = [200(0.07)98.4]^{0.5} = 37$ *feet.*

TABLE 6-4: DISTANCE TO FLANKING INLETS

	K (Feet)									
	20	30	40	50	70	90	110	130	160	167
d(ft)										
0.03	11	13	15	17	20	23	26	28	31	32
0.06	15	19	22	24	29	33	36	39	44	45
0.1	20	24	28	32	37	42	47	51	57	58
0.2	28	35	40	45	53	60	66	72	80	82
0.3	35	42	49	55	65	73	81	88	98	100
0.4	40	49	57	63	75	85	94	102	113	116
0.5	45	55	63	71	84	95	105	114	126	129
0.6	49	60	69	77	92	104	115	125	139	142
0.7	53	65	75	84	99	112	124	135	150	153
0.8	57	69	80	89	106	120	133	144	160	163

NOTES:

1) $x = (200dK)^{0.5}$, where x = distance from low point
2) d = depth at curb in feet (does not include sump depth)
3) Maximum k = 167

6.3.9. Inlet Clogging

The inlet reduction factors outlined in Table 6-5 shall be used to the increase the calculated inlet length or area to accommodate clogging from debris, pine needles, snow/ice, etc.

TABLE 6-5: INLET CLOGGING FACTORS

INLET TYPE	DESIGN CONDITION	CLOGGING FACTOR (%)
Grate	Sump	50
Grate	Continuous Grade	50
Curb Opening	Sump	20
Curb Opening	Continuous Grade	20
Combination, sweeper	Sump	35
Combination, equal length	Sump	50
Combination, equal length	Continuous Grade	50
Combination, sweeper	Continuous Grade	50 - grate; 20 - curb opening
Slotted Drain	Continuous Grade	20

6.4. INLET SPACING PROCEDURE ON CONTINUOUS GRADE

Allowable design spread is the governing criterion for locating storm drain inlets on a continuous grade. The interception of the upstream inlet will dictate the initial spread and as flow is contributed to the gutter section in the downstream direction, the spread increases. The next downstream inlet is located at the point where the actual spread equals the allowable spread. The spacing of the inlets is a function of the amount of upstream carryover flow, the intermediate tributary drainage area, and the gutter geometry.

After determining those locations where inlets are necessary as outlined in Section 6.3.3, inlet spacing can be computed by the following procedure and using the inlet computation sheet given in Figure 6-12:

Step 1 Complete the blanks at the top of the sheet to identify the job by project name, project #, street name, and designer's initials.

Step 2 Mark on the plan sheet(s) the location of inlets which are necessary for 100% interception as outlined in Section 6.3.3.

Step 3 Start at the high point, at one end of the job if possible, and work towards the low point. Begin at the next high point and work backwards toward the same low point.

Step 4 To begin the process, select a trial drainage area approximately 300 ft to 500 ft long below the high point and outline the area on the plan. Include any area which may drain over the curb, onto the street. Drainage from large areas behind the curb must be intercepted before it reaches the roadway.

Step 5 In Columns 1 & 2, record the proposed inlet by number and station. Identify the curb and gutter type in column 19 (remarks). A drawing of the street cross-section should be supplied.

Step 6 Compute the drainage area outlined in Step 4 and record in Column 3.

Step 7 A runoff coefficient of 0.90 will be used, enter in Column 4.

Step 8 Compute the time of concentration, T_c, for the first inlet and enter in Column 5. The minimum T_c is five minutes.

Step 9 Determine the rainfall intensity based on the time of concentration, T_c. Enter in Column 6.

Step 10 Compute the discharge in the gutter using $Q = CIA\ C_f$ and enter in Column 7.

Step 11 From the roadway profile, enter the longitudinal slope, S_L, at the inlet, into Column 8, taking into account any superelevation.

Step 12 From the street cross-section enter the cross slope, S_x, in Column 9 and the grate or gutter width, W, in Column 13.

Step 13 For the first inlet in the series, enter the value from Column 7 into Column 11, since there in no previous bypass flow. Also enter a 0 in Column 10 for the first inlet.

Step 14 Determine the spread, T, by using Equations 6.1 or Figure 6-1 and enter in Column 14. Also, determine the depth at the curb, d, by multiplying the spread by the appropriate cross-slope, and enter in Column 12. Compare the calculated spread to the allowable spread. Additionally, compare the depth at the curb with the actual curb height. If the calculated spread (Col. 14), is near the allowable spread and the computed depth is less than the curb height, continue on to Step 15. If not, expand or decrease the drainage area up to the first inlet to increase or decrease the spread as needed. Repeat Steps 6 through 14 as needed.

Step 15 Calculate W/T (Col. 13/Col. 14) and enter the value in Column 15.

Step 16 Select the inlet type and dimensions and enter in Column 16.

Step 17 Calculate the flow intercepted by the inlet (grate), Q_i, and enter in column 17. Approximately 75 percent of carryover flow should be intercepted for maximum design efficiency.

Step 18 Determine the bypass flow, Q_b, and enter in Column 18.

Step 19 Proceed to the next inlet downstream. The next downstream drainage area should be long and more or less of uniform width. Using an assumed time of concentration of five (5) minutes and a runoff coefficient of 0.90, compute the flow in the gutter and enter in Column 7. Using the drainage area from Step 5 which produces the allowable spread, divide this area by the average drainage area width to estimate the approximate length to next downstream inlet.

Step 20 Record the previous bypass value from Column 18 in Column 10. Determine the total gutter flow by adding Columns 7 and 10 and enter in Column 11.

Step 21 Determine the spread and depth at the curb as outlined in Step 14. Repeat Steps 18 through 21 until the spread and depth at the curb are within the design criteria.

Step 22 Select inlet type and enter in Column 16.

Step 23 Determine the intercepted flow by subtracting Column 17 from Column 11. This completes the spacing design for the inlet.

Step 24 Repeat Steps 19 through 23 for each subsequent inlet down to the low point.

INLET SPACING COMPUTATION SHEET

Date: _____ Street _____

Computed By: _____ Sheet ____ of ____

INLET		GUTTER DISCHARGE Design Frequency _____					GUTTER DISCHARGE Allowable Spread _____							INLET DISCHARGE			RMK
No.	Stat.	Drain. Area A	Run-off Coeff. C	Time of Conc. t_c	Rain. Inten. I	$Q = CIAC_f$	Long. Slope S_L	Cross Slope S_x or S_w	Prev. by-pass Flow	Total Gutter Flow	Depth d	Grate or Gutter Width W	Spread T	W/T	Inlet Type	Inter-cept Flow Q_i	by-pass Flow Q_b	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)

CHAPTER 7: STORM DRAINS

This chapter presents policies and criteria for the design and construction of public storm drain systems. Private storm drain systems should also be designed in accordance with this chapter to ensure continuity with public systems. Procedures for sizing storm drains and computing the energy losses and hydraulic grade line through a storm drain system are also presented.

Storm drains are generally that portion of a roadway drainage system that are designed to collect surface water through drainage inlets and convey the water through closed conduits to an outfall. The conduit system is comprised of different lengths, shapes, and sizes of storm drain pipes which are connected by appurtenant structures such as manholes, junctions, or other miscellaneous structures. A section of conduit connecting one inlet or appurtenant structure to another is termed a "segment". Storm drain system outfalls will typically be open channels, storm drain main lines, detention facilities, or other bodies of water.

7.1. POLICIES

a. All offsite runoff from whatever source must be taken into account in the design of a storm drain system if such runoff could affect the street that the storm drain is serving.

b. Storm drain systems serving collector and arterial streets must keep one twelve (12) foot lane of traffic open in each direction for the 10-year design storm and the 100-year storm within the right-of-way. Storm drain systems for local streets must keep the 10-year design flow between the curbs.

c. The minimum design frequency for all public storm drain facilities shall be the 10-year design storm. The 100-year design storm may govern in some downstream reaches of a system or for storm drains with larger contributing watersheds. In all cases, both design storms should be checked to determine which condition governs.

d. The minimum easement width for public storm drains thirty-six (36) inches in diameter or less shall be sixteen (16) feet. For multiple pipe installations or pipe diameter greater than 36 inches in diameter the easement width shall be the conduit width(s) plus eight (8) feet on each side of the conduit.

e. The minimum acceptable diameter for any public storm drain pipe is eighteen (18) inches or equivalent arch pipe. Main-line storm drains should be at least twenty-four (24) inches in diameter.

f. New storm drains and manholes shall not be located under existing or future curb and gutter or sidewalk, whenever possible.

g. When connecting into an existing storm drain system, the existing storm drain systems shall be analyzed to determine available capacity.

7.2. STORM DRAIN DESIGN CRITERIA

7.2.1. Design Velocity and Slope

In general, storm drain slopes and velocities should increase in the downstream direction progressively throughout the length of the system. The minimum allowable storm drain slope for any storm drain pipe shall be 0.5 percent or the slope which will produce a velocity of three (3) feet per second for the pipe flowing full, whichever is greater. Slopes less than 0.5% require special approval by the Stormwater Manager.

Desirable minimum velocity is five (5) feet per second, however all storm drains shall be designed such that the minimum self-cleaning velocity will be three (3) feet per second flowing full. This criteria results in a minimum flow velocity of two (2) feet per second at a flow depth equal to twenty-five (25) percent of the pipe diameter. The minimum slopes necessary to ensure a velocity of 3 ft/sec in storm drains can be calculated by Equation 7.1 below:

$$S = [(n\ V)^2] / [2.208\ R^{4/3}] \qquad (7.1)$$

where:
- S = the slope of the hydraulic grade line, ft/ft
- n = Manning's roughness coefficient
- V = the mean velocity (3 ft/sec)
- R = the hydraulic radius, ft.

The following relative flow conditions for different depths in a circular pipe should also be noted:

1. Peak flow occurs at 93 percent of the height of the pipe. This means that if a pipe is designed for full flow, the design will be slightly conservative.
2. The velocity in a pipe flowing half-full is the same as the velocity for full flow.
3. Flow velocities for flow depths greater than full flow are greater than velocities at full flow.
4. As the depth of flow drops below half-full, the flow velocity drops off rapidly.

7.2.2. Alignment

Storm drains shall be straight, with uniform slopes between manholes, whenever possible. Curved

storm drains may be permitted when long radius curves are necessary to conform to street layout, however, storm drains smaller than four (4) feet in diameter should not be designed with curves. Long radius bends are available from many suppliers and are preferred as a means of changing direction in storm drains four (4) foot in diameter or larger, unless a manhole is required. The radius of curvature specified should coincide with standard curves available in the type of material utilized. The minimum radius shall not be less than 100 feet.

7.2.3. Storm Drain Conduit Size

The minimum pipe diameter for public storm drains shall be eighteen (18) inches in diameter. The use of elliptical or arched pipe for storm drains is not recommended and must be approved by the Stormwater Manager prior to use. Storm drain pipe sizes shall increase in the downstream direction. Decreasing the pipe size in the downstream direction is not permitted even for flow on a steeper slope or pressure profiles.

7.2.4. Storm Drain Conduit Material Selection

Factors such as life expectancy, durability, physical strength, depth of cover, joint tightness, hydraulic performance, ease of handling, installation costs, and maintenance should all be considered in the selection of storm drain materials to maximize performance and cost effectiveness. First cost shall not be used as the determining factor.

Permissible pipe materials for public storm drain systems are:

1. Corrugated Metal Pipe (CMP) - 14 Ga., Annular, Aluminized Steel Type 2 per MAG Section 760.
2. CMP - 14 Ga., Helical Corrugated, Aluminized Steel Type 2 per MAG Section 760.
3. Rubber Gasket Reinforced Concrete Pipe (RGRCP) per Subsection 7.2.4.1.
4. Spiral Rib Metal Pipe (SRP) per Subsection 7.2.4.2.
5. High Density Polyethylene Pipe (HDPE) per Subsection 7.2.4.3.
6. Reinforced Concrete Box Culvert (RCB) per Subsection 4.2.2.2.

Standard CMP joints shall be either rivet lap joint construction (annular corrugations) or continuous lock or welded seam (helical corrugations) and wrapped with non-woven geotextile filter fabric or "O" ring gaskets.

All storm drain conduit shall be of sufficient structural strength to withstand AASHTO HS-20-44 loading at a minimum. Special designs may be required depending on loading requirements and depths of backfill.

7.2.4.1. Reinforced Concrete Pipe (RCP

The service life of most RCP can be 75 years or longer, depending on factors such as corrosion, abrasion, and freeze-thaw. RCP is available in diameters ranging from 18 - 144 inches and in typical manufactured lengths of 7.5 - 8 feet.

Non-reinforced concrete pipe is not permitted for public storm drain systems.
All RCP shall be a minimum of Class III under public roadways and shall be manufactured in accordance with the following standards:

- MAG Section 735 - Reinforced Concrete Pipe.
- ASTM C76 - Reinforced Concrete Culvert, Storm Drain and Sewer Pipe.
- ASTM C443 - Reinforced Low-Head Concrete Pressure Pipe.
- ASTM C443 - Joints for Circular Concrete Sewer and Culvert Pipe, Using Rubber Gaskets
- ASTM C665 - Reinforced Concrete D-Load Culvert, Storm Drain and Sewer Pipe.

Material standards for concrete aggregate, steel reinforcing, Portland cement, and gaskets are also referenced in the above specifications. RCP should be designed for each individual project. Indirect design is typically used and is presented in the Concrete Pipe Handbook (SAMM or 3EB) prepared by the American Concrete Pipe Association.

The maximum allowable velocity for RCP shall be 20 ft/sec. Velocities greater than 20 ft/sec. may require increases in the compressive strength of the concrete, increases in specific hardness of the concrete aggregate, increased the cover over the reinforcing steel, or providing plastic lining.

The minimum allowable cover for RCP shall be one (1) foot from top of pipe to top of subgrade. The maximum allowable cover for Class III RCP installed in clay soils shall be 11 feet for 18 - 42 inch RCP; 12 feet for 48 -78 inch RCP; and 13 feet for 84 - 144 inch RCP.

Joints for RCP shall be bell and spigot ends with O-ring rubber gaskets conforming to MAG Section 765 to provide a watertight joint.

7.2.4.2. Spiral Rib Steel Pipe (SRP

A service life of SRP can be 50 years or longer, depending on corrosion and abrasion conditions. Available manufactured diameters are typically 18 - 102 inches and in laying lengths of 4 - 40 feet.

The minimum pipe thickness shall be 14 gauge for pipe diameters of 18 - 60 inches and 12 gauge for pipe diameters of 60 - 72 inches. SRP with diameters greater than 72 inches will require structural design to determine adequate gauge thickness.

Materials for SRP shall meet the following standards:

- AASHTO M274 - Steel Sheet, Aluminum Coated (Type 2) for Corrugated Steel Pipe.
- ASTM A819 - Steel Sheet, Aluminum Coated (Type 2) for Storm Sewer and Drainage Pipe.

Pipe shall be manufactured in accordance with the following standards:

- AASHTO M36 - Corrugated Steel Pipe, Metallic-Coated, for Sewers and Drains.
- ASTM A760 - Corrugated Steel Pipe, Metallic-Coated, for Sewers and Drains.
- MAG Section 760 - Coating Corrugated Metal Pipe and Arches.

SRP shall be designed in accordance with the following standards:

- AASHTO Standard Specification for Highway Bridges, Section 12 - Soil-Corrugated Metal Structure Interaction Systems.
- ASTM A796 - Structural Design of Corrugated Steel Pipe, Pipe Arches, and Arches for Storm and Sanitary Sewers and Other Buried Structures.

The minimum allowable cover for SRP, from top of pipe to top of subgrade, shall be one (1) foot for 18 - 48 inch diameter pipe; 1.5 feet for 54 - 72 inch pipe; and two (2) feet for over 72 inch diameter pipe. The maximum allowable cover shall be 30 feet for pipe diameters of 18 - 54 inches; 28 feet for 60 inch pipe; 26 feet for 66-inch; 24 feet for 72-inch; and 22 feet for 78-inch or greater.

Joints for SRP shall be coupling bands conforming to AASHTO M36 with O-ring gaskets to produce a watertight joint. Coupling bands shall be a minimum of 10.5 inches wide and shall be made from aluminized steel of the same thickness as the pipe. Hardware for coupling bands shall conform to AASHTO M36 and rubber gaskets shall meet the requirements of AASHTO M198.

7.2.4.3. <u>High Density Polyethylene Pipe (HDPE</u>

A service life of HDPE can be as high as 75 years, depending on such factors as photo degradation, oxidative degradation, and slow crack growth under tensile stressing. However, HDPE conduit does not have a long history of use for storm drain, particularly in the Flagstaff area.

Parameters for use of HDPE for public storm drains are as follows:

1. Pipe diameters between 18 and 36 inches.
2. The minimum allowable cover for HDPE shall be two (2) feet or one (1) pipe diameter, whichever is greater, from top of pipe to top of subgrade.
3. The maximum allowable cover shall be ten (10) feet.

HDPE pipe shall meet the following standards:

- MAG Sections 601, 603, and 738.
- ASTM F-894.

HDPE pipe shall be designed so that deflections are limited to five (5) percent. Deflections should be determined using the Modified Iowa Deflection Formula.

Joints for HDPE shall be bell and spigot type joints and elastomeric gaskets to provide a watertight joint. Split couplings shall not be used. Joints shall meet AASHTO M294 standards. Mandril testing may be required at the discretion of the Stormwater Manager.

7.2.5. Separation Requirements

Installation and backfill requirements for public storm drains shall be in accordance with City of Flagstaff Engineering Design & Construction Standards.

Vertical and horizontal separation requirements for storm drain conduit to waterlines shall be the same as for sewer pipes per the City of Flagstaff Engineering Design and Construction Standards & Specifications.

The minimum clearance between storm drains and all other dry underground utilities shall be twelve (12) inches and shall cross at angles greater than forty-five (45) degrees, if possible. If 12 inches of separation cannot be maintained, one of the pipes must be encased in concrete.

Crossings of open channels may require concrete encasement to minimize damage to the pipe if adequate cover (24" minimum) cannot be obtained or scour is anticipated.

7.2.6. Storm Drain Outfalls

All storm drain systems will have an outfall where the flow is discharged into either a natural watercourse, artificial channel, another storm drain system, or other drainage facility. Several aspects of storm drain outlet design must be given consideration, including but not limited to the invert of the storm drain outlet, tailwater elevation(s), type of receiving watercourse, orientation of the outlet, and local scour.

If the outfall is a wash or stream, it may be necessary to consider the coincidental probability of two hydrologic events occurring at the same time. There may be instances where excessive tailwater causes flow to back up in the storm drain system and possibly cause surcharging out inlets and manholes. The invert of the storm drain outlet shall be a minimum of one (1) foot above the channel invert at the same point, whenever possible.

The tailwater depth at the storm drain outlet must be considered carefully for purposes of evaluating the hydraulic grade line. See Section 7.7.3 for guidance on determining the proper tailwater elevation.

Storm drains that discharge into open channels shall be provided with an appropriate headwall/wingwall. Projecting outlets are not permitted. The orientation of a storm drain outlet into a wash or channel should be positioned so the discharge is pointed in the downstream direction. This will reduce turbulence and the potential for local scour. If the outlet is perpendicular to the direction of flow in the receiving channel, erosion of the opposite channel bank must be considered and a channel bank lining of riprap or other appropriate material will be required. An energy dissipator may be required if outlet velocities warrant.

7.3. MANHOLES AND JUNCTION STRUCTURES

The primary function of a storm drain manhole is to provide access to the storm drain system for inspection and maintenance. Manholes also serve as flow junctions and can provide ventilation or pressure relief for the storm drain system. Catch basins can also serve as access holes and can be used instead of manholes in some cases to provide the benefit of extra stormwater interception.

7.3.1. Location and Spacing

Manhole location and spacing criteria has been developed primarily for storm drain maintenance requirements. At a minimum, manholes are required for the following locations:

1. At junctions where two or more storm drains converge, excepting laterals from adjacent catch basins,
2. at vertical deflections,
3. changes in pipe size, and
4. at horizontal alignment changes as outlined below:

PIPE DIAMETER (INCHES)	DEFLECTION
18 - 42	$\geq$ 22½ degrees
42 and up	$\geq$ 45 degrees

5. Manholes may also be required by the Stormwater Manager at other locations to facilitate maintenance.

Manholes at vertical deflections shall be at or as close as practical to the point of deflection, with allowance for manufactured bends. If the manhole is not at the point of deflection, it shall be located immediately upstream of the deflection.

In addition to the above criteria, manholes will be required at intermediate points along long runs of storm drain in accordance with the criteria outlined in Table 7-1.

TABLE 7-1: Manhole Spacing Criteria

PIPE DIAMETER (INCHES)	MAXIMUM DISTANCE (FEET)
18 - 24	300
27 - 36	400
42 and up	500

If possible, manholes shall not be located in traffic lanes. However, if it is not possible to avoid locating a manhole in a traffic lane, every effort shall be made to avoid locating it within a street intersection and/or the vehicle wheel path.

7.3.2. Manhole Configurations

Typical manhole configurations are illustrated in Figure 7-1. Storm drain manholes shall be constructed in accordance with current adopted MAG Standard Details. Where storm drains are too large (60" and up) to reasonably accommodate MAG concrete manhole structures, a vertical riser or prefabricated "tee" to the storm drain may be used with prior approval from the Stormwater Manager and special design considerations.

A pressure manhole shaft and pressure frame and cover is required whenever the design hydraulic grade line elevation at the manhole is within twelve (12) inches of the adjacent ground elevation.

To differentiate storm drain manholes from sewer or communication conduits, the manhole cover shall have the words "STORM DRAIN" cast into the top surface of the cover in accordance with MAG Standard Detail 424 lettering requirements.

Manhole depths shall be determined by the storm drain profile and surface topography. Common depths range from five (5) to thirteen (13) feet. Manholes which are shallower or deeper may require special design considerations. Deep manholes (greater than 12 feet) shall be five (5) feet in diameter and must be designed to withstand soil pressures. If a manhole will extend below the water table, it must also be designed to withstand hydrostatic pressure and/or seepage. Proper access steps or built-in ladders must be provided for manholes deeper than two (2.0) feet.

Manhole shafts shall be sixty (60) inches in diameter for storm drain pipes thirty-six (36) inches in diameter or greater.

7.3.3. Manhole Shaping

Figure 7-2 depicts several types of manhole shaping configurations which have been found to be efficient in reducing head losses at junctions and bends. Flow channels and benches (see Figure 7-1) may also be used to decrease losses and reduce unnecessary turbulence in the manhole. Benching should only be used when the hydraulic grade line is relatively flat and there is no appreciable head available. Typically, the slopes of a storm drain system do not require the use of benches to hold the hydraulic grade line in the correct place.

A minimum drop of 0.10 foot is required through all storm drain manholes. A drop of 0.3 feet is required for a manhole with two contributing laterals, if possible. Where a storm drain changes direction through a manhole without increasing in size, a drop of 0.4 feet is required, if possible. For pipes flowing full, the crown of the outlet pipe should be set below the crown of the inlet pipe by the amount of the loss in the manhole. This is referred to as "hanging the pipe on the hydraulic grade line".

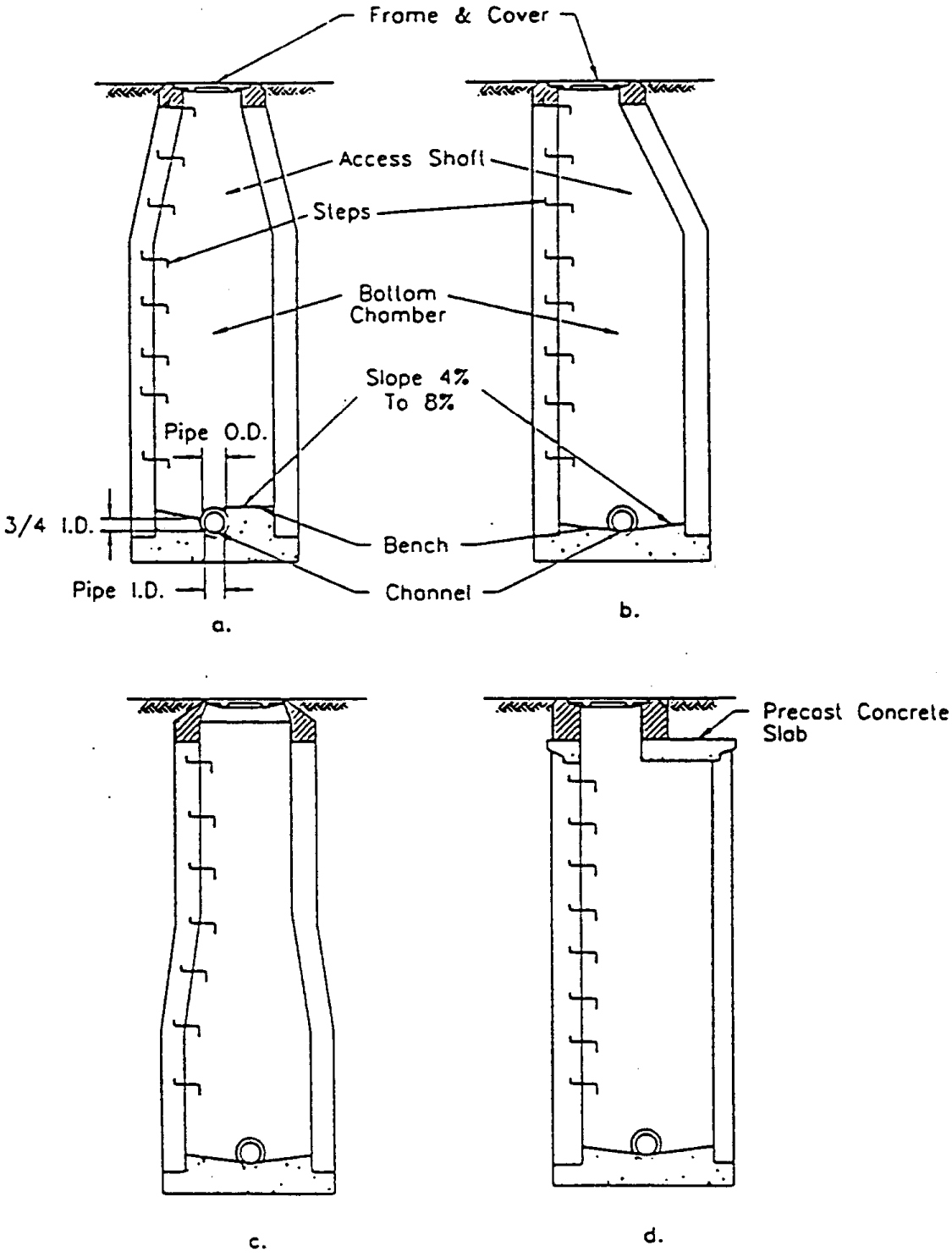


Figure 7-1: Typical Manhole Configurations

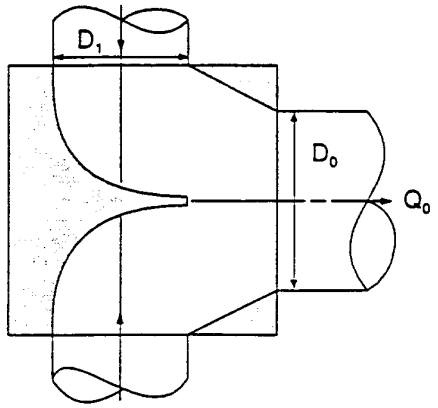
If possible, laterals entering a manhole shall not be aligned opposite one another. A deflection or lateral offset may be required to achieve this. Lateral inflow pipes entering a main line storm drain (without a manhole) shall not be aligned opposite each other, but should be separated laterally by at least two lateral pipe diameters.

7.4. MAINTENANCE CONSIDERATIONS

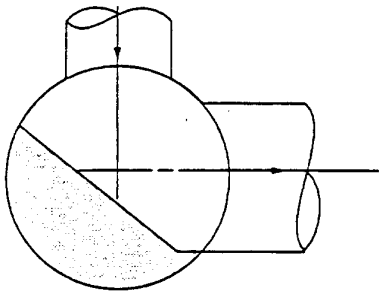
It is essential that maintenance be considered during both the design and construction of storm drain systems. Common maintenance problems associated with storm drains include debris, sedimentation, scour, piping, roadway or embankment settlement, and structural damage to the conduit. The likelihood of scour and abrasion inside the conduit should also be considered during design. Access for inspection and maintenance of storm drains as well as drainage inlets must also be considered.

Clearing accumulated debris and sediment from storm drain and inlets is a routine maintenance requirement for any facility owner, however this problem is often overlooked during construction and adequate sediment/erosion control precautions should be undertaken.

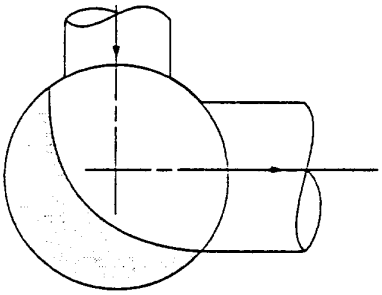
Piping, roadway or embankment settlement, and structural damage problems, when they occur, are usually attributed to poor construction practices and can be avoided through proper design, installation specifications, and inspections.



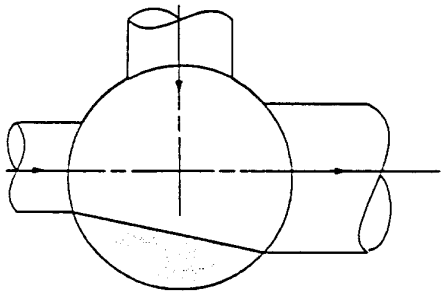
Directly opposed lateral with deflector (head losses are still excessive with this method, but are significantly less than when no deflector exists.)



Bend with straight deflector



Bend with curved deflector



Inline upstream main and 90° lateral with deflector

Figure 7-2: Efficient Manhole Shaping Configurations
Source: University of Missouri

7.5. STORM DRAIN HYDRAULICS

The design procedures presented in this section assume that flow within each storm drain segment is steady and uniform, meaning that the discharge and depth of flow in each segment are assumed to be constant with respect to time. The average velocity throughout each segment is also considered to be constant.

In actual storm drain systems, the flow at each inlet is variable and flow conditions are not truly steady or uniform. However, since the usual hydrologic methods used in storm drain design are based on computed peak discharges at the beginning of each segment, it is a conservative practice to design using the steady uniform flow assumption.

7.5.1. Open Channel vs. Pressure Flow

There are two design conditions for designing storm drains under the steady uniform flow assumption: (1) open channel or gravity flow, and (2) pressure flow.

For ordinary conditions, all public storm drains systems shall be designed and sized based on the assumption that they will flow full or practically full under the design discharge and will not be placed under a pressure head. This is a conservative approach since the peak flow actually occurs at 93% of full flow. Due to pipe size constraints, particularly at the upper end of a system, full flow design may not always be possible and open channel flow will occur.

7.5.1.1. Open Channel Flow

For open channel flow to occur, the storm drain must be sized so that the water surface within the pipe remains open to atmospheric pressure and the flow energy is derived from the flow velocity, depth, and elevation.

Designing a storm drainage system for open channel flow may result in conduit sizes larger than those of pressure flow. However, this design practice provides a factor of safety by providing additional flow capacity for increases in flow above the design discharge. This factor of safety is often desirable since the methods of peak discharge estimation are not exact, and once in place, storm drains are costly to upsize and replace.

7.5.1.2. Pressure Flow

Pressure flow design requires that the flow in the storm drain be at a pressure greater than atmospheric. The flow energy is also derived from flow velocity, depth, and elevation, however the pressure head will be above the top of the conduit and will not equal the depth of flow in the conduit. Under pressure flow, the pressure head rises to the level represented by the hydraulic grade line (see Section 7.7), which is the level to which water would rise in a vertical tube (e.g., manhole) at any

point along the storm drain.
There are situations where pressure flow design is desirable. For example, it may be necessary to use an existing system which must be placed under pressure flow to accommodate the proposed design flows. In some cases, the large grade changes typical in the Flagstaff area will create pressure flow situations. When pressure flow is justified, the design hydraulic grade line must be a minimum of twelve (12) inches below the finished grade, gutter flowline elevation, or grate invert elevation at inlets, whichever is lower, when all energy losses are considered. Caution should be taken to ensure that the pressure within the pipe does not exceed the manufacturer's maximum safe limits for joints and seals.

7.5.2. Hydraulic Capacity

The hydraulic capacity of storm drain conduit with circular cross sections flowing full can be computed with Manning's Equation as follows:

$$\mathbf{V = [1.486\ R^{2/3}\ S^{1/2}] / n} \qquad \mathbf{(7.2)}$$

where:
- V = mean velocity of flow, ft/s
- R = hydraulic radius (area/wetted perimeter)
- S = slope of the hydraulic grade line, ft/ft
- n = Manning's roughness coefficient

In terms of discharge, the above equation then becomes:

$$\mathbf{Q = [1.486\ A\ R^{2/3}\ S^{1/2}]\ n} \qquad \mathbf{(7.3)}$$

where:
- Q = rate of flow, cfs
- A = cross sectional area of flow, ft^2

For a conduit flowing full, the above equations become:

$$\mathbf{V = [0.590\ D^{2/3}\ S^{1/2}] / n} \qquad \mathbf{(7.4)}$$

$$\mathbf{Q = [0.463\ D^{8/3}\ S^{1/2}] / n} \qquad \mathbf{(7.5)}$$

where:
- D = diameter of the pipe, ft

Manning's Equation can also be written to determine friction losses for storm drain pipes as:

$$\mathbf{H_f = [2.87\ n^2\ V^2\ L] / [S^{4/3}]} \qquad \mathbf{(7.6)}$$

and,

$$H_f = [29\ n^2\ L\ V^2] / [R^{4/3}\ (2g)] \quad (7.7)$$

where: H_f = total head loss due to friction, ft (refer to Section 7.7.2)
L = length of pipe, ft, and
All other terms are as previously defined.

7.5.2.1. Roughness Coefficient

Manning's "n" values for closed conduit storm drains can be found in Tables 5-3 or 5-4 located in Chapter 5. These values are typically for new pipe based on laboratory testing. Therefore, it is recommended that the Manning's roughness coefficient used for storm drain design reflect the "aged" condition of the storm drain material or actual field conditions since in reality, sediments, dirt, debris, anti-skid materials, leaves, pine needles, and other materials are deposited into storm drain systems and deposit there.

7.5.2.2. Storm Drain Shape

The shape of a storm drain pipe also influences its capacity. For most applications, circular conduit will be utilized, however a significant increase in capacity can be realized by using an alternate shape. Table 7-2 provides a listing of the increase in capacity which can be achieved using alternate conduit shapes that have the same height as the original shape, but have a different cross sectional area. Although alternate shapes are typically more expensive than circular ones, their use can be justified in some cases based on their increased capacity or to provide required cover.

TABLE 7-2: ALTERNATE CONDUIT SHAPE CAPACITY INCREASES

	Area (% Increase)	Conveyance (% Increase)
Circular	--	--
Oval	63	87
Arch	57	78
Box (B = D)	27	27
Box (B = 2D)	154	208

Source: FHWA, HEC-22, 1996

7.6. STORM DRAIN DESIGN - RATIONAL METHOD

This section presents a simplified method of estimating the discharges required to size a storm drain system using the Rational Method. This method can only estimate the peak discharges for small areas which cannot be hydrologically routed.

The total design of a storm drain system is typically divided into the following operations:

1. Determination of inlet location and spacing as outlined in Chapter 6.
2. Preparation of a plan layout and profile of the storm drainage system.
3. Determining the contributing drainage area(s) and resultant peak discharge(s).
4. Computing the hydraulic capacity and hydraulic gradient of the storm drain system.

The three basic guidelines recommended to follow in laying out a storm drain profile are:

1. Keep the storm drain as close to the surface as minimum cover requirements and/or hydraulic design requirements allow to minimize excavation costs.
2. Design the system for full flow conditions. "Hang" the crown of the pipe on the hydraulic gradient for design conditions.
3. Design the system at the uppermost inlet and proceed downstream.

7.6.1. Time of Concentration and Discharge

The design discharge at any point in a storm drain system is not the sum of the flow rates of all inlets above the point of interest and will generally be less than this cumulative total.

In using the Rational Method for storm drain design, the time of concentration becomes very influential in determining the design discharge. The time of concentration is defined as the time required for water to travel from the hydraulically most distant point in the total contributing watershed to the design point. This typically consists of two components: (1) the time for overland and gutter flow to reach the inlet, and (2) the time to flow through the storm drain system to the next point of interest. The flow path having the longest time of concentration to the point of interest in the storm drain system will usually define the duration used in selecting the rainfall intensity used in the Rational Equation.

There are exceptions, however, to this application of the Rational Method. For example, a smaller, highly impervious subarea within a larger drainage area may have an independent discharge higher than that of the total drainage area. This is typically due to the higher C value and higher intensity associated with the short time of concentration and can occur when a highly impervious area exists at the most downstream portion of the total drainage area and the total drainage area flows through the lower impervious area. When this situation occurs, two separate calculations should be made and the largest value of discharge is used:

1. Calculate the runoff from the total drainage area with its weighted C value and intensity associated with the longest time of concentration.

2. Calculate the runoff from only the smaller impervious area using a higher C value and higher intensity associated with the shorter time of concentration.

7.6.2. Storm Drain Sizing Procedure

The actual storm drain design can be accomplished by the following procedure and using the Storm Drain Computation Sheet provided in Figure 7-3. This procedure assumes that each storm drain segment will be initially designed under a full flow condition.

Step 1. Prepare a working plan layout and profile of the proposed storm drain system which establishes the following:

a. location of storm drains,
b. direction of flow,
c. location of manholes or other structures,
d. numbering of all structures and storm drain segments, and
e. location of existing and proposed utilities (e.g., water, sewer, gas, electric, cable, etc.)

Step 2. Determine the following hydrologic parameters for the tributary drainage areas for each inlet on the storm drain system:

a. drainage areas,
b. runoff coefficients, and
c. travel time.

Step 3. Using the information generated in Steps 1 and 2, complete the following information on the design form for each segment of pipe starting at the upstream most storm drain segment:

a. Enter the FROM and TO stations in Columns 1 and 2.
b. Enter the length of the pipe segment in Col. 3 (LENGTH).
c. Enter the incremental drainage area in Col. 4 (INC. D.A.).

The incremental drainage is that area tributary to the inlet at the upstream end of the storm drain segment under consideration.

d. Enter runoff coefficient (C) in Col. 6 using the appropriate frequency factor

(1.1 for 25-year or 1.25 for 100-year).

This is the runoff coefficient for the drainage area tributary to the inlet at the upstream end of the storm drain segment under consideration. Refer to Section 3.1.6 for appropriate C values.

e. Compute and enter the inlet time of concentration in Col. 9 (T_c INLET).

This is the time required for water to travel from the hydrologically most distant point of the drainage area to the inlet of the upstream end of the storm drain segment under consideration.

f. Compute and enter system time of concentration in Col. 10 (T_c SYSTEM).

This is the time for water to travel from the most remote point in the storm drain system to the upstream end on the storm drain segment under consideration. For the beginning of the storm drain system this will be the same as the value in Col. 9. For all other pipe segments this value is computed by adding the SYSTEM T_c in Col. 10 to the SEGMENT TIME in Col. 17 from the previous segment to get the system T_c at the upstream end of the section under consideration.

Step 4. Using the information from Step 3, compute the following:

a. Add the incremental area in Col. 4 (INC. D.A.) to the previous section's total area and enter this value in Col. 5 (TOTAL D.A.).

b. Multiply the value in Col. 4 (INC. D.A.) by the runoff coefficient (C) in Col. 6 and enter the product, DA, in Col. 7 ("INC","AREA X "C")

c. Add the value in Col. 7 to the value in Col. 8 ("TOTAL", "AREA" X "C") for the previous storm drain segment and put this value in Col. 8.

d. Using the larger of the two T_c's in Col. 9 and 10, determine the rainfall intensity and place this value in Col. 11 (RAIN "I").

e. Calculate the discharge as the product of Columns 8 and 11. Enter this value in Col. 12 ("Q").

f. Size the pipe using the criteria presented in Section 7.5.2 to convey the discharge by varying the slope and pipe size as necessary. The storm drain should be sized as close as possible to full gravity flow with a minimum pipe

diameter of 18". Enter pipe size in Col. 13 (PIPE DIA.).

g. Enter the pipe slope determined in Step 4f in Col. 21.

h. Place the full flow capacity of the pipe in Col. 14.

i. Compute the full flow and design flow velocities in the pipe and place these values in Columns 15 and 16, respectively.

j. Calculate the travel time in the pipe segment by dividing the pipe length in Col. 3 by the design flow velocity in Col. 16. Enter this value in Col. 17.

k. Calculate the approximate crown drop at the structure to off-set the potential structure energy losses using Equation 7.12 or 7.13. Enter this value in Col. 20.

l. Compute the pipe inverts at the upper (U/S) and lower (D/S) ends of this segment of pipe, including any pipe size changes that occurred along this segment.

Step 5. Repeat Steps 3 and 4 for all pipe segments to the storm drain outlet.

Step 6. Check the design by calculating the hydraulic grade line as described in Section 7.7.

STORM DRAIN COMPUTATION SHEET

Date: _____ Street/Storm Drain Line _____

Computed By: _____ Sheet _____ of _____

STATION						"AREA" X "C"		TIME OF CONCENTRATION						VELOCITY				INVERT ELEVATION			
FROM	TO	PIPE LENGTH (ft)	INC. D.A. (ac)	TOTAL D.A. (ac)	"C" VALUE	INC. (ac)	TOTAL (ac)	T_c INLET (min)	T_c SYSTEM (min)	RAIN "I"	"Q" (ft^3/S)	PIPE DIA. (ft)	CAP. FULL (ft^3/S)	FULL (ft/s)	DESIGN (ft/s)	SEG. TIME (min)	U/S INVERT	D/S INVERT	CROWN DROP (ft)	SLOPE (ft/ft)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)

7.7. HYDRAULIC GRADE LINE EVALUATION

The final step in designing a storm drain system is to check the hydraulic grade line (HGL) to determine if the design is adequate. The HGL is used by the designer in determining the acceptability of a proposed storm drain design by establishing the elevation to which water will rise in manholes and inlets when the system is operating under the design discharge and condition.
The "isolated pipe" approach of storm drain design is not acceptable for determining the hydraulic grade line on multiple inlet, multiple pipe storm drain systems. This simplified approach entails breaking the storm drain system into isolated pipes that are not connected through loss producing structures such as manholes or junction boxes and applying Manning's formula to determine the flow depth in each segment. Although this approach may be suitable for a single inlet, single pipe system, it can lead to false results and undesirable consequences on longer storm drain systems, therefore running the hydraulic grade line computations through the system is required.

Hydraulic grade line computations are based on the Bernoulli equation and can be expressed as:

$$V_1^2/2g + D_{hg1} + S_oL = V_2^2/2g + D_{hg2} + S_fL + H_m \quad \textbf{(7.8)}$$

The terms used in Equation 7.16 are defined in Figure 7.4b. The minor losses (H_m), in feet, are included in Equation 7.16 due to their importance in computing the HGL. The HGL is equal to the total energy grade line minus the velocity head ($V^2/2g$) at any point along the storm drain.

In general terms, the HGL is calculated by starting with the controlling tailwater elevation (see Section 7.7.3) at the storm drain outfall. From that elevation, calculations proceed upstream from junction to junction or manhole to manhole. At the lower end of the of each junction, the pipe friction losses from the downstream section (expressed in feet of loss) are added to the downstream HGL elevation. At the upstream end of each junction, the minor losses through the junction are added. If the transition is to a ditch section, the losses added are the entrance losses to the pipe system.

A manual procedure for computing the hydraulic grade line is presented in Section 7.7.4. Computer programs are readily used to design and analyze storm drain systems, however, these programs may utilize different methods to determine the energy losses than those presented in this chapter. The designer should review the methods used by computer programs and have the program approved by the Stormwater Manager prior to use.

The maximum hydraulic gradient shall not produce a velocity that exceeds 20 feet per second.

7.7.1. Open Channel Flow

For true open channel flow conditions, the HGL is a line representing the free water surface elevation at any point. The pipe and friction slopes for storm drains are assumed to be equal. Therefore, it is

not necessary to compute a hydraulic grade line for these storm drains if the soffits of connecting pipes of unequal size are set at the same elevation, and if minor head losses along the storm drain are minimal. The HGL should then be set equal to the normal flow depth in the pipe(s). Figure 7-4a defines the relationships of open channel flow in a closed circular conduit.

7.7.2. Energy Losses

All typical energy losses shall be accounted for, as applicable, in all storm drain designs. Energy (head) is required to overcome the changes in momentum or turbulence caused by losses at inlets, outlets, pipe bends, transitions, junctions, and manholes. It is necessary to estimate all energy losses through storm drain pipes and junctions prior to computing the hydraulic grade line. These typical energy losses are outlined below and are summarized in Figure 7-5.

7.7.2.1. Pipe Friction Losses

Pipe friction or boundary shear loss is typically the major head loss in a storm drain system and can be estimated by Equation 7.8:

$$\mathbf{H_f = S_f L} \qquad \textbf{(7.9)}$$

where: H_f = friction loss, ft
S_f = friction slope, ft/ft
L = length of pipe, ft.

The friction slope is also the slope of the hydraulic gradient for a particular pipe segment and is defined as:

$$\mathbf{S_f = [Qn / (1.486\ A\ R^{2/3})]^2} \qquad \textbf{(7.10)}$$

where: R = hydraulic radius

7.7.2.2. Entrance Losses

The following equation is used to determine entrance losses for beginning flows:

$$\mathbf{H_e = K_e\ (V^2 / 2g)} \qquad \textbf{(7.11)}$$

where: K_e = 0.50, assuming square-edge

7.7.2.3. Outlet Losses

The outlet loss from a storm drain is a function of the change in velocity at the pipe outlet. For

sudden expansion such as at an endwall, the outlet loss is:

$$\mathbf{H_O = 1.0\ [(V_O^2/2g) - (V_d^2/2g)]} \qquad \mathbf{(7.12)}$$

where: V_O = average outlet velocity, and
V_d = channel velocity downstream of the outlet.

When the outlet is fully submerged, as in a reservoir, $V_d = 0$ and the outlet loss is equal to one times the velocity head. For partially full flow where the pipe outlets in a channel with moving water in the same direction as the outlet water, the outlet loss may be reduced to virtually zero.

7.7.2.4. Junction and Transition Losses

Junctions: A pipe junction is a connection of a lateral pipe to a larger mainline without the use of a manhole or other structure. The loss for a pipe junction (H_l) can be determined as follows:

$$\mathbf{H_j = (V_2^2/2g) - (V_1^2/2g) - [(A_3V_3^2 / A_2g)]} \qquad \mathbf{(7.13)}$$

Figure 7-6(A) depicts this type of junction.

For instances where the mainline pipe diameter increases immediately downstream of the junction, the loss can be determined by:

$$\mathbf{HG = [2 / (A_1 + A_2)]\ [(Q_2V_2 - Q_1V_1 - Q_3V_3Cos\Theta) / g]} \qquad \mathbf{(7.14)}$$

Figure 7-6(B) depicts this type of junction.

Transitions: Transition loss (H_t) for an expansion where flow velocities decrease in the downstream direction can be determined by:

$$\mathbf{H_t = 0.2\ [(V_1^2 / 2g) - (V_2^2 / 2g)]} \qquad \mathbf{(7.15)}$$

Figure 7-6(C) depicts this type of junction.

{PRIVATE }7.7.2.5 Manhole Losses{tc \l 4 "7.7.2.5 Manhole Losses"}

Straight Through Manhole: For manholes with no change in either pipe size or discharge, the loss can be determined by:

$$\mathbf{H_{mhs} = 0.05\ (V^2 / 2g)} \qquad \mathbf{(7.16)}$$

where: V = velocity of outlet pipe

Manhole with a Bend: For manholes with a bend where the flow changes direction and there is no change in pipe size or discharge, the loss can be determined by:

$$\mathbf{H_{mhb} = K_{mhb} (V^2 / 2g)} \qquad \mathbf{(7.17)}$$

where: K_{mhb} is determined using Figure 7-7.

In cases where the inflow pipe invert is above the water level in the manhole, the outflow pipe will function as a culvert, and the manhole loss and the manhole HGL must be computed using procedures presented in Chapter 5. If the outflow pipe is flowing full or partially full under outlet control, the manhole loss (due to flow contraction into the outflow pipe) can be determined by setting K in Equation 7.17 equal to K_e as defined in Table 5-1. If the outflow pipe is flowing under inlet control, the water depth in the manhole can be determined using the inlet control nomographs given in Chapter 5.

7.7.2.5. Bend Losses

For bends in a storm drain pipe not occurring in a manhole or other junction structure, the minor loss can be determined by:

$$\mathbf{H_b = K_b (V^2 / 2g)} \qquad \mathbf{(7.18)}$$

The bend loss coefficient, K_b, is dependent upon the angle and sharpness of the bend. Figure 7-7 can be used to determine K_b for angles not exceeding 90 degrees.

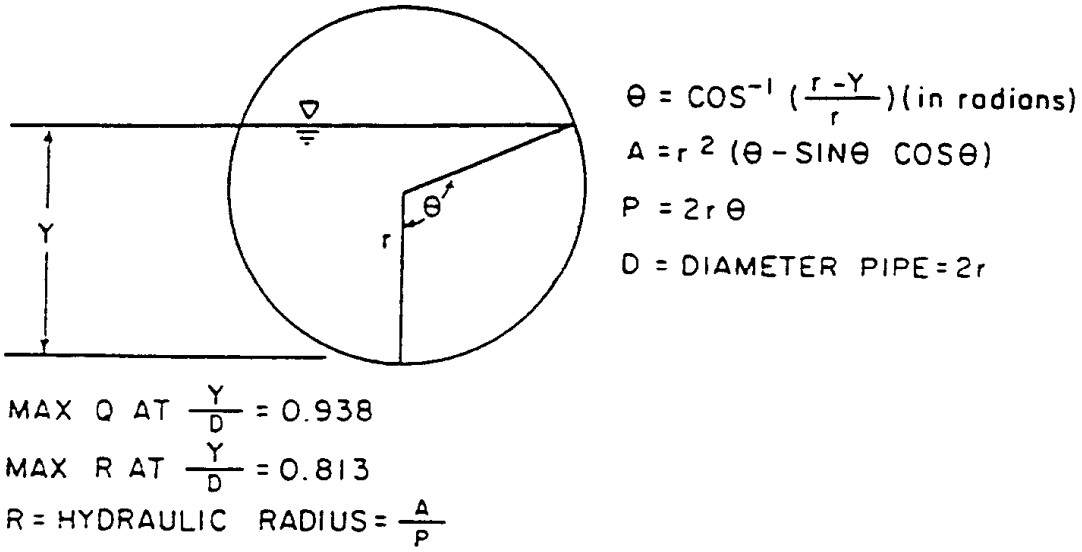


Figure 7-4a: Hydraulic Terms for Circular Conduit

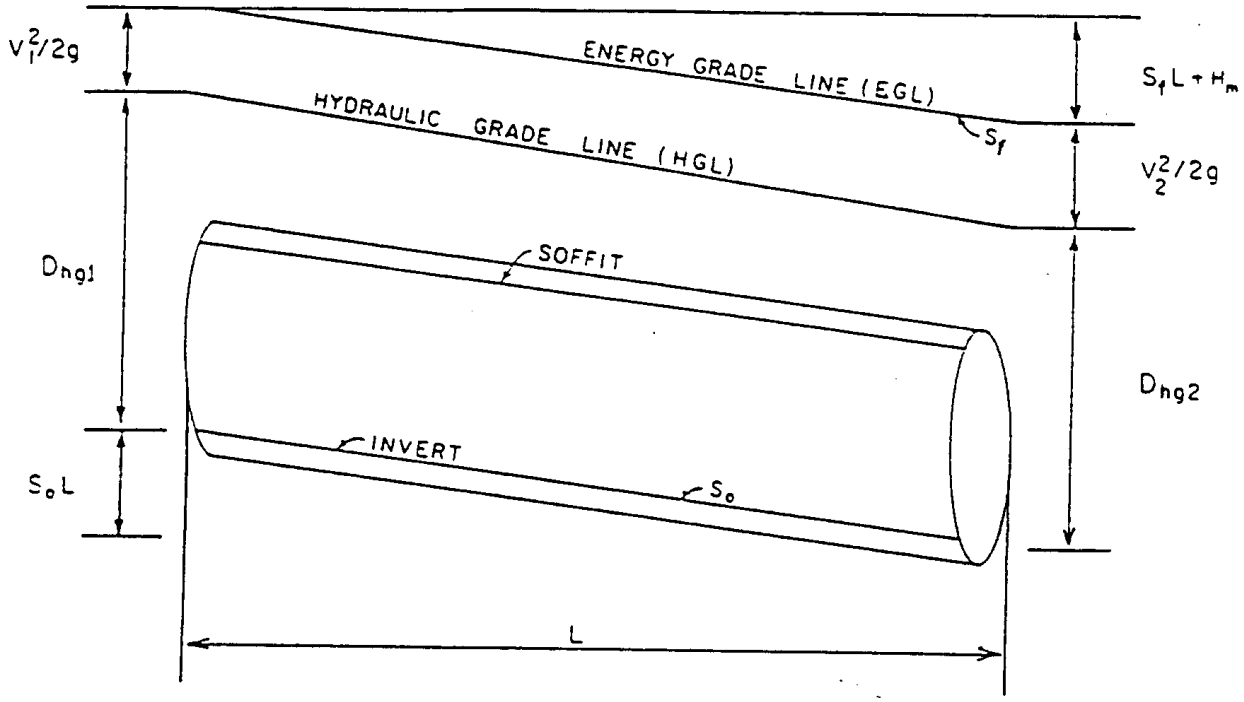


Figure 7-4b: Head Loss Terms for Storm Drains

SUMMARY OF ENERGY LOSSES



$$H_{tm} = \frac{V^2}{2g}$$

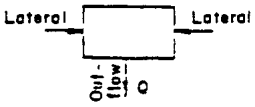
TERMINAL JUNCTION LOSSES
(at beginning of run)

Where g = gravitational constant, 32.2 feet per second per second.



$$H_e = 0.5\,\frac{V^2}{2g}$$

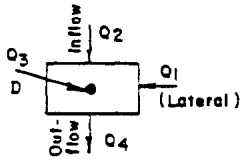
ENTRANCE LOSSES
(for structure at end of run)
Assuming square - edge



$$H_{j1} = \frac{V^2}{2g}(\text{Outflow})$$

JUNCTION LOSSES

Use only where flows are identical to above, otherwise use H_{j2} Equation.



$$H_{j2} = \frac{Q_4V_4^2 - Q_1V_1^2 - Q_2V_2^2 + KQ_1V_1^2}{2gQ_4}$$

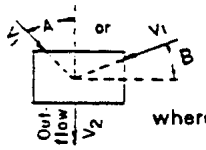
JUNCTION LOSSES
(After FHWA)

Total losses to include H_{j2} plus losses for changes in direction of less than 90° (H_b).

Where K = Bend loss factor

Q_3 = Vertical dropped-in flow from an inlet

V_3 = Assumed to be zero



where B = 90 - A

$$H_b = \frac{KV_1^2}{2g}$$

BEND LOSSES
(changes in direction of flow)

Where K	Degree of Turn (A) in Junction
0.19	15
0.35	30
0.47	45
0.56	60
0.64	75
0.70	90

FRICTION LOSS (H_f)

$$H_f = S_f \times L$$

Where H_f = friction head
S_f = friction slope
L = length of conduit

$$S_f = \left(\frac{Qn}{1.486\,AR^{\frac{2}{3}}}\right)^2$$

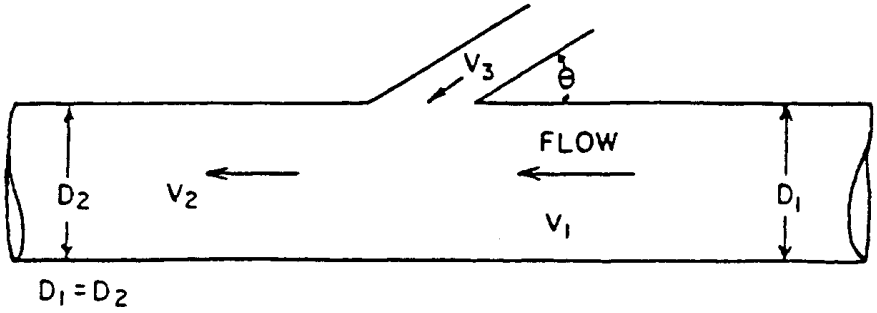
Where Q = discharge of conduit
n = Mannings coefficient of roughness (use 0.013 for R.C. Pipes)
A = area of conduit
R = hydraulic radius of conduit ($D/4$ for round pipe)

TOTAL ENERGY LOSSES AT EACH JUNCTION

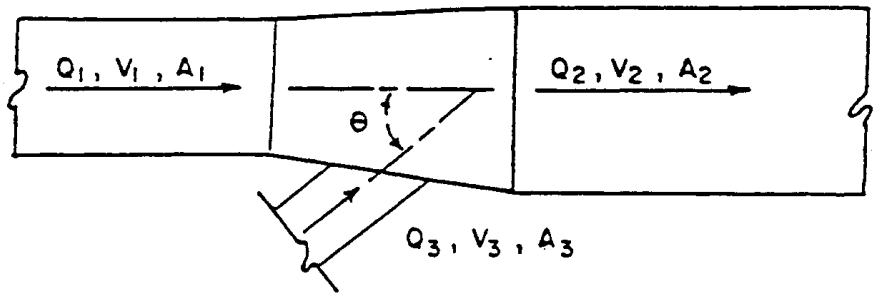
$$H_T = H_{tm} + He + (H_{j1} \text{ or } H_{j2}) + H_b + H_f$$

Figure 7-5 Summary of Energy Losses

A JUNCTION



B JUNCTION



C TRANSITION

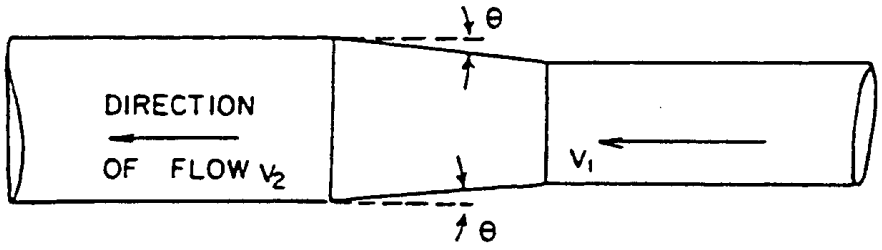


Figure 7-6 Junction and Transition Loss Configurations
Source: City of Tucson Drainage Standards Manual (1989)

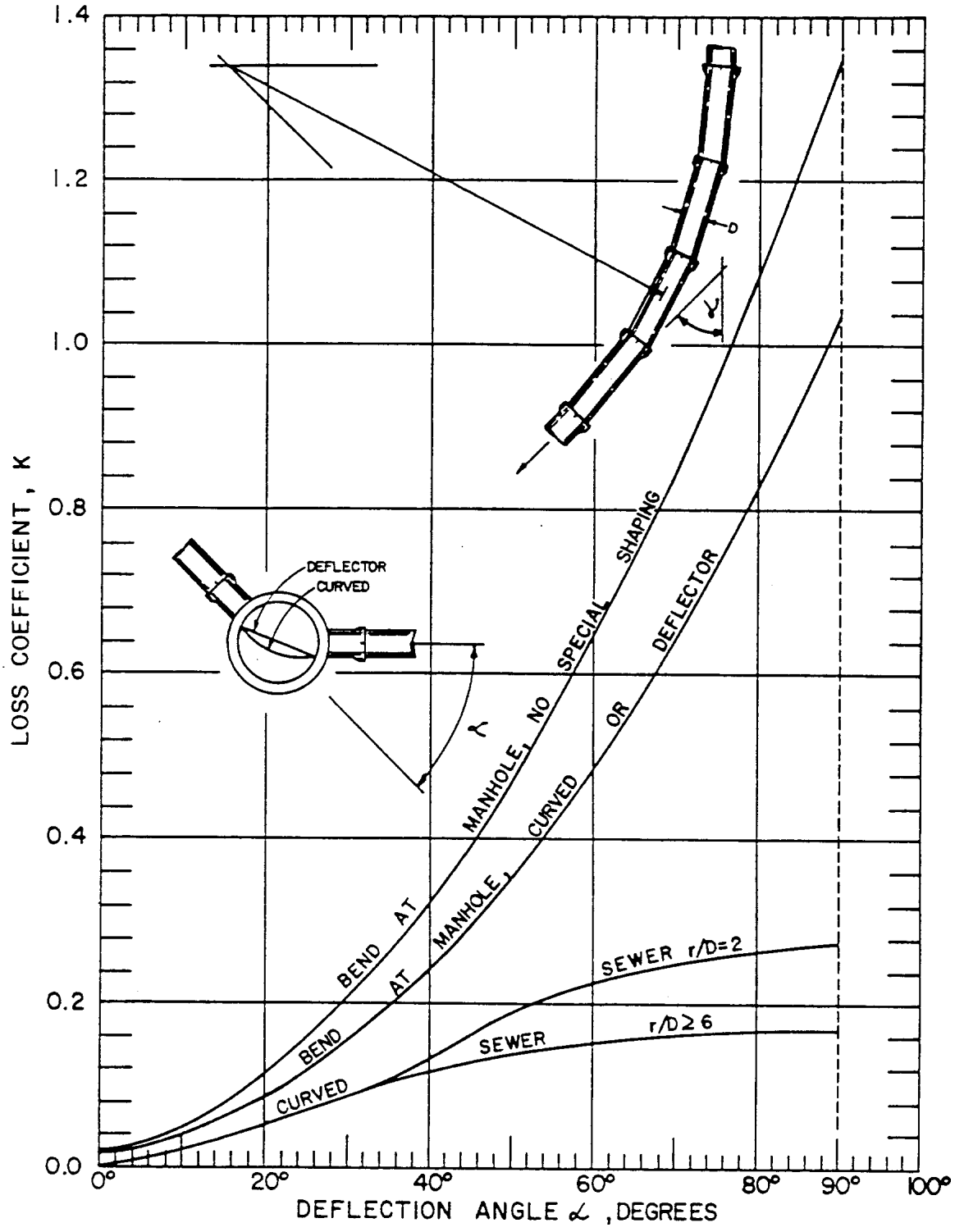


Figure 7-7 Manhole/Bend Headloss Coefficient

7.7.3. Controlling Water Surface Elevation

For most applications, the controlling water surface elevation or tailwater will either be above the crown of the outlet or can be considered to be between the crown and critical depth at the outlet. The tailwater may also occur between critical depth and the invert of the outlet and be a free outfall. The controlling tailwater for purposes of computing the hydraulic grade line shall be determined by one of the following criteria:

1. If the receiving body of water is a detention basin or lake, the tailwater shall either be the normal high water elevation in the lake or the high water elevation in the detention basin for the same design storm as that of the storm drain.

2. If the outfall is a wash, stream, or other open channel, the controlling tailwater shall be the water surface elevation in the channel for the same design storm as that of the storm drain or $(d_c + D)/2$, whichever is greater (where: d_c = critical depth and D = pipe diameter).

3. If the outfall is another storm drain, the controlling elevation shall be the highest hydraulic grade line elevation of the receiving storm drain immediately upstream or downstream of the junction for the same design storm.

4. For low tailwater conditions (TW depth $\leq$ D/3), the controlling tailwater shall be $(d_c + D)/2$ plus the invert of the outlet.

7.7.4. Hydraulic Grade Line Evaluation Procedure

This section provides a step-by-step procedure for manual computation of the hydraulic grade line (HGL) using a junction loss methodology. It is recommended that the designer perform and understand this procedure and the energy losses which can occur in a storm drain system to better interpret output from computer generated storm drain designs or analysis. Figure 7-8 illustrates proper and improper use of energy losses in developing a hypothetical storm drain system under pressure flow.

Most storm drain systems are designed to function in a subcritical flow regime where pipe and junction losses are summed to compute the upstream HGL level(s). If supercritical flow occurs, pipe and manhole losses are not carried upstream. Under supercritical flow, the designer should proceed to the next upstream pipe segment to determine its flow regime and continue the process until the storm drain returns to a subcritical flow regime.

The following HGL computation procedure for an outlet control utilizes the computation table given in Figure 7-9:

Step 1. Enter the station for the junction immediately upstream of the outflow pipe in Col. 1. The HGL computations begin at the outfall and are worked upstream taking each junction into consideration.

Step 2. Enter the outlet controlling water surface elevation based on the criteria given in Section 7.4.1.

Step 3. Enter the diameter of the outflow pipe (D_O) in Col. 3.

Step 4. Enter the design discharge (Q_O) for the outflow pipe in Col. 4.

Step 5. Enter the length of the outflow pipe (L_O) in Col. 5.

Step 6. Using Equation 7.9, compute and enter the friction slope (S_f) in ft/ft of the outflow pipe in Col. 6. This assumes full flow conditions.

Step 7. Multiply the friction slope (S_f) in Col. 6 by the length (L_O) in Col. 5 and enter the friction loss (H_f) in Col. 7. On curved alignments, calculate curve losses by using $H_C = 0.002(\phi)(V^2/2g)$, where ϕ = angle of curvature in degrees and add to the friction loss.

Step 8. Enter the velocity (V_O) of the outflow pipe in Col. 8.

Step 9. Enter the contraction loss (H_O) using $H_O = [0.25(V_o^2)] / 2g$ in Col. 9.

Step 10. Enter the design discharge (Q_i) for each pipe flowing into the junction in Col. 10. Neglect lateral pipes with inflows of less than ten percent of the mainline flow. Inflow must be adjusted to the mainline outflow duration time before a comparison is made.

Step 11. Enter the velocity of inflow (V_i) for each pipe flowing into the junction in Col. 11 (for exception, see Step 10).

Step 12. Enter the product of Q_i and V_i (Col. 10 and 11) for each inflowing pipe in Col. 12. When several pipes inflow into a junction, the line producing the greatest Q_iV_i value is the line which will produce the greatest expansion loss (H_i).

Step 13. Enter the controlling expansion loss (H_i) using $H_i = [0.35 (V_i^2) / 2g]$ in Col. 13.

Step 14. Enter the skew angle of each inflowing pipe to the outflow pipe in Col. 14 (for exception in Step 10).

Step 15. Enter the greatest bend loss (H_B) using $H_B = [K(V_i^2) / 2g$, where K = the bend loss coefficient from Figure 7-7 corresponding to the various angles of skew of the inflowing pipes.

Step 16. Enter in Col. 16 the total head loss (H_T) by summing the values in Col's. 9 (H_O), 13 (H_i), and 15 (H_B).

Step 17 If the junction incorporates adjusted surface inflow of ten percent or more of the mainline outflow (i.e. drop inlet), increase H_T by 30 percent and enter the adjusted H_T in Col. 17.

Step 18. If the junction incorporates partial diameter inlet shaping, such as standard manholes, reduce the value of H_T by 50 percent and enter the adjusted value in Col. 18.

Step 19. Enter in Col. 19 the FINAL H (the sum of H_f and $H_{T\ adjusted}$).

Step 20. Enter in Col. 20 the sum of the elevation in Col. 2 and the FINAL H in Col. 19. This elevation is the potential water surface elevation for the junction under design conditions.

Step 21. Enter in Col. 21 the rim elevation, ground, top of grate, or gutter flow line, which ever is lowest, of the junction under consideration in Col. 20. If the potential HGL is within one foot of the rim, ground, or gutter elevation, adjustments are needed in the system to reduce the elevation of the HGL.

Step 22. Repeat the procedure starting with Step 1 for the next upstream junction.

7.7.4.1. *Lateral Connections*

A connecting lateral from a catch basin will act independently of the main line if the crown elevation of the lateral line, at the catch basin, is above the HGL or crown elevation of the main line, whichever is greater, by the amount of the friction loss (see Equation 7.8). The hydraulic gradient of the connecting lateral pipe is tied into the crown of the main line storm drain (or HGL if under pressure flow). The friction losses are then added to the crown (or HGL) elevation to determine the hydraulic gradient for the lateral.

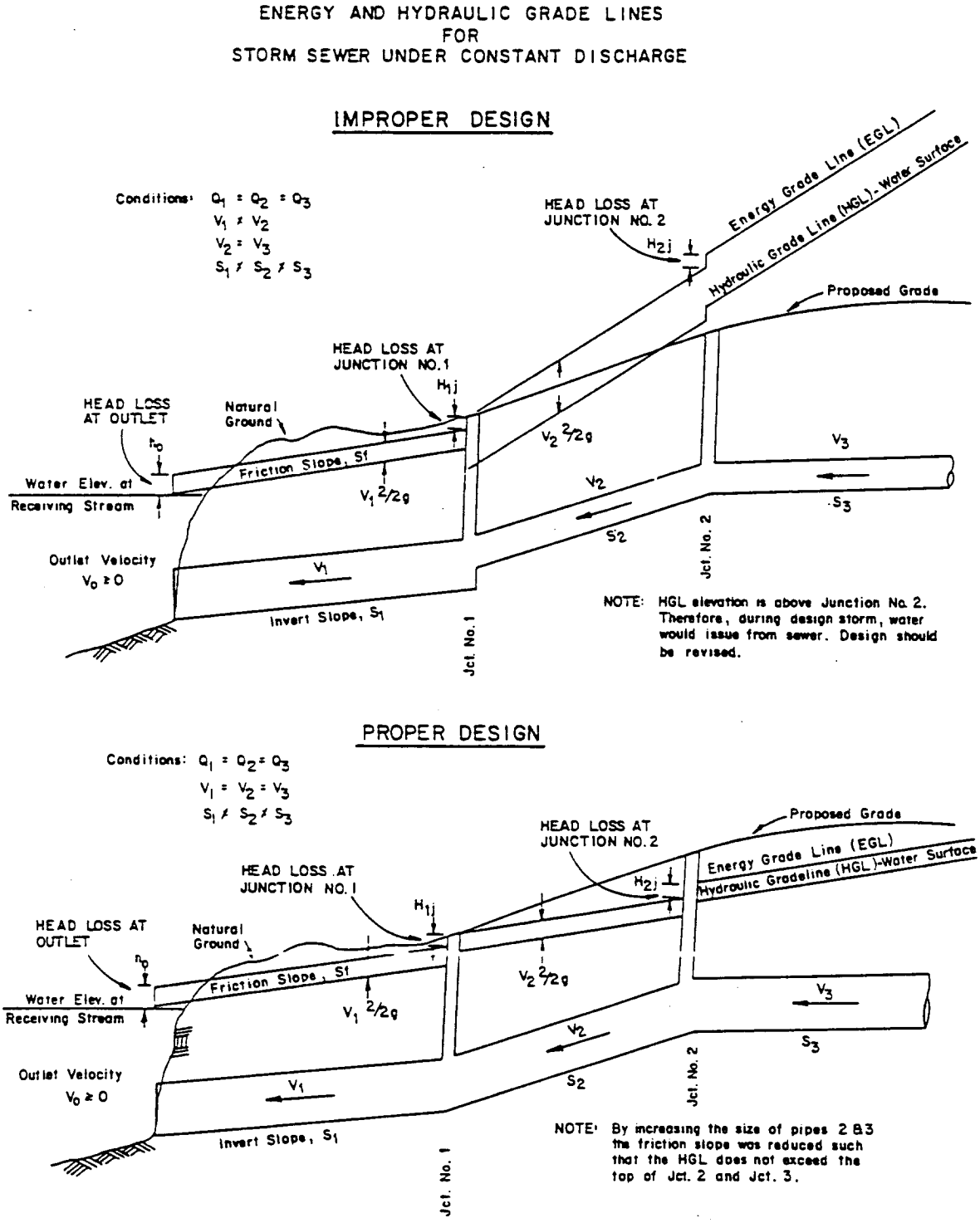


Figure 7-8: Use of Energy Losses In Developing A Storm Drain System
Source: AASHTO Model Drainage Manual

HYDRAULIC GRADE LINE COMPUTATION SHEET							Date: _____ Street/Storm Drain Line _____ Computed By: _____ Sheet _____ of _____													
							JUNCTION LOSS													
Sta.	OUTFALL WSE	D_o	Q_o	L_o	S_f	H_f	V_o	H_o	Q_i	V_i	$Q_i V_i$	H_i	Angle	H_B	H_T	$1.3H_T$	$0.5H_T$	FINAL H	WSE @ JUNC.	RIM ELEV.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)

Figure 7-9: Hydraulic Grade Line Computation Sheet

CHAPTER 8: STORAGE AND DETENTION FACILITIES

Urbanization and other land development activities, including construction of roads, changes natural pervious areas into impervious, altered surfaces. In addition, natural drainage systems are often replaced by lined channels, storm drains, and curbed streets. The result of such activities is an increase in the volume of runoff, peak discharge rates, erosion, and non-point source pollution due to the reduction in infiltration and natural vegetation.

In the absence of regional detention facilities and due to inadequate downstream capacities of existing streets, storm drain systems or channels, local on-site or sub-regional detention facilities are necessary to attenuate the increased runoff caused by development. Detention facilities can also serve a dual purpose by improving the quality of stormwater discharges. The temporary storage of stormwater runoff can reduce the extent of downstream flooding, soil erosion, sedimentation, and surface water pollution. Detention facilities can also be used to reduce the costs associated with large storm drain systems.

8.1. POLICIES

a. Stormwater detention is required for all new subdivisions, commercial and industrial developments, re-development of non-conforming sites (i.e., existing developed sites that do not have detention that have been razed and vacant for greater than six months), and other developments greater than 1/4 acre in size.

b. Detention requirements may be waived by the Stormwater Manager for the following:

   1. Single-family residential structure or lot (i.e., not associated with a new subdivision).
   2. Residential subdivisions with lot areas $\geq$ 1 acre in area, if it can be shown that such a waiver will not result in any adverse downstream effects, nor create any disturbance to the existing drainage patterns both within and adjacent to the subdivision.
   3. Developments less than 1/4 acre or increases in impervious area of $\leq$ 5,000 square feet. It must be demonstrated to the satisfaction of the Stormwater Manager that there will be no increase in the potential for damages to adjacent properties and adequate off-site or downstream drainage capacity is available.

c. Detention facility storage volume shall be adequate to attenuate the post-development peak discharge rates to pre-development discharge rates for the 2, 10, and 100-year design storms. Reservoir routing calculations must be used to demonstrate that the

storage volume is adequate.

d. Detention facility outlet structure release rates shall be less than the pre-development peak runoff rates for the 2, 10, and 100-year storm events, with emergency overflow provisions. Design calculations are required to demonstrate that developed runoff from the 2, 10, and 100-year design storms are controlled.

e. The total combined post-development discharge from a development cannot exceed the total pre-development peak discharge for the 2, 10, and 100-year storms. Drainage flows of all frequencies shall enter and depart the property to be developed in substantially the same manner as under the pre-developed condition.

f. The same methodology shall be used for both pre-development and post-development analyses. The detention analysis shall be limited to the area of development only. Contributing drainage areas shall be analyzed separately for purposes of estimating the runoff which must be accepted and conveyed through the site.

g. The use of pavement parking lot storage as the primary detention facility is not permitted unless other sites or detention alternatives are not available.

h. Roof-top detention storage is not permitted for meeting City of Flagstaff detention requirements.

i. Individual on-lot storage systems within single family residential developments is not permitted for meeting City of Flagstaff detention requirements.

j. Developments which are phased shall prepare a master stormwater detention plan for the entire development. The master stormwater detention plan must either be implemented with the first phase, if possible, or detention must stand alone for each phase. Interim temporary detention facilities may be required for phasing.

k. The point or points at which a pre-development watercourse enters and leaves a site shall remain substantially the same after the property has been altered for the development. Drainage in general, including sheet flow, should leave the site as it did in the pre-developed condition. Developers must coordinate with downstream properties if the drainage exiting their property is to be changed (e.g., pre-development flow was sheet flow and the post-development discharge is a detention outlet pipe or point discharge).

l. Discharges from detention facilities shall be designed to enter established downstream drainage systems (e.g., drainage channels, natural watercourses, public streets, or storm drain systems) whenever possible. If flows are to be concentrated or

ponded on the upstream or downstream side of the site, either a recorded drainage easement or written permission must be obtained from the affected property owner(s) prior to issuance of grading or building permits. Discharge velocities shall be reduced or dissipated to provide non-erosive flows and reduce damages to downstream properties.

m. The City of Flagstaff shall only accept large-scale regional detention basins for operation and maintenance. The City shall not accept small-scale, local on-site detention basins for operation, maintenance, or liability.

n. Maintenance of local on-site detention facilities shall be the responsibility of the property owner or homeowner's association. The City shall reserve the right to periodically inspect any detention facilities to verify that regular maintenance activities are being performed. Final Plats; Covenants, Conditions, and Restrictions (CC&R's); and/or Development Plans shall include a special note stating that (1) the owner(s) shall be solely responsible for the operation, maintenance, and liability for all detention facilities; and, (2) the City of Flagstaff may periodically inspect said detention facilities to verify that regular maintenance activities are being performed adequately.

o. The City of Flagstaff Parks and Recreation Division must review and approve proposed stormwater detention facilities designed within designated public areas or parks. Review and approval from the Parks and Recreation Commission may also be required.

p. No part of a private detention basin shall be constructed in a public right-of-way or public utility easement.

q. Site designs which consolidate detention areas into a limited number of larger facilities are preferred over designs which utilize a large number of small facilities. Designs which will demand considerable maintenance, will be difficult to maintain and access, or utilize numerous small facilities will not be permitted if other alternatives are physically possible.

8.2. SUBDIVISION REQUIREMENTS

All new subdivisions are required to provide detention for the entire subdivision, including the respective one-half of all abutting streets to the subdivision. Two or more subdivisions may join together to provide a common detention facility.

Preliminary Plat submittals shall be accompanied by a preliminary drainage report in accordance with Section 2.1.2 of this manual.

All Final Plat submittals require a final drainage report, in accordance with Chapter 2 of this manual, which technically demonstrates compliance with City of Flagstaff Floodplain Management Regulations, Stormwater Management requirements, and the drainage policies and design criteria set forth in this manual. This report must be submitted with the subdivision improvement plans and must be accepted prior to recording the final plat.

All subdivisions proposals (including proposals for manufactured home parks) greater than 50 lots or 5 acres, whichever is the lesser, located in FEMA designated Unnumbered Zone A areas must provide base flood elevation and floodway delineation data.

All subdivision proposals within riverine environments with a contributing watershed of 1/4 square mile or more must provide base flood elevation and floodway data in accordance with the criteria set forth on Arizona Department of Water Resources State Standards or other methods approved by the Stormwater Manager.

All final plats within FEMA or a City of Flagstaff designated 100-year floodplain must show the 100-year base flood elevations, floodplain/floodway limits, finish floor elevations a minimum of one (1) foot above the BFE, and appropriate erosion hazard setbacks.

8.3. DETENTION VOLUME ESTIMATION

8.3.1. Estimating Required Volume

The final design of any detention facility requires three items: 1) an inflow hydrograph, 2) a stage vs. storage curve, and 3) a stage vs. discharge curve. However, before the stage-storage and stage-discharge curves can be developed, a preliminary estimate of the required storage volume and the configuration of the detention facility are required. Reservoir-routing computations are then made to determine if the estimated storage volume is adequate and will provide the desired outflow hydrograph(s).

8.3.1.1. Triangular Hydrograph Method

A preliminary estimate of the storage volume required for peak flow attenuation can be estimated from a simplified design procedure that replaces the actual inflow and outflow hydrographs with standard triangular shapes. This method should not be applied if the hydrographs cannot be approximated by a triangular shape since this would introduce additional errors of the preliminary estimate of the required storage. This method will generally yield detention volumes that are low, but will provide a starting point for reservoir routing. The estimated storage volume is the area between the pre- and post-development hydrographs and can be expressed as:

$$V_s = 0.5\ T_i\ (Q_i - Q_o) \qquad (8.1)$$

where: V_s = storage volume estimate, ft^3
T_i = duration of storage facility inflow, seconds
Q_i = peak inflow rate, cfs
Q_o = peak outflow rate, cfs

Any consistent units may be used for Equation 8.1.

The duration of basin inflow should be derived from the estimated inflow hydrograph.

8.3.1.2. Modified Rational Method

The Modified Rational Method is permissible, but should be used with caution and limited to highly impervious developments under five (5) acres for normal detention design. For extended detention times, methods that can account for longer storms and actual rainfall distributions should be used.

For Modified Rational Method analysis, the duration of the storm shall be that which yields the highest storage requirement. The Modified Rational Graphical Hydrograph Method generally yields more realistic values when compared to fully routed applications. This method requires an iteration process to determine the duration that yields the greatest volume requirement.

The Modified Rational Graphical Hydrograph Method equation is:

$$\mathbf{V = 60\ [C_f CiAt - R(t_d+t_c)/2]} \qquad \mathbf{(8.2)}$$

where: V = the required volume of the pond, cubic feet
C = the post-development runoff coefficient
C_f = the antecedent precipitation factor
i = the rainfall intensity for t, in/hr
R = the allowable release rate, cfs
t_d = the storm duration to maximize the volume, min.
t_c = the post-development time of concentration, min.
A = drainage area, acres

8.3.2. Reservoir Routing

Proper detention facility design requires reservoir-routing to ensure the detention volume is adequate, determine the high water elevation(s), check for overtopping, and determine peak outflows. The most common method of routing an inflow hydrograph through a detention facility and determining the outflow hydrograph is the Storage Indication Method or the Modified Puls Method. This procedure requires an inflow hydrograph, a stage-discharge curve, and a stage-storage curve. This

section will not present a procedure to perform reservoir-routing. It is recommended that the design engineer utilize commonly available computer programs.

8.3.3. Detention Design Procedure

A generalized procedure for designing detention facilities is presented below:

Step 1. Compute the inflow hydrographs for runoff from the 2, 10, and 100-year design storms using the procedures outlined in Chapter 3. Both pre and post-development hydrographs are required.

Step 2. Perform preliminary detention volume requirements for the hydrographs from Step 1 as outlined in Section 8.3.1 or other approved methods. If the storage requirements are satisfied for runoff from the 2, 10, and 100-year design storms, runoff from other intermediate storms are assumed to be controlled.

Step 3. Determine the physical dimensions necessary to hold the estimated volume from Step 2. The maximum storage requirement calculated from Step 2 should be used.

Step 4. Size the outlet structure(s). The estimated peak stage will occur for the estimated volume from Step 2. The outlet structure should be sized to convey the allowable discharge at this stage.

Step 5. Perform reservoir-routing calculations using inflow hydrographs from Step 1 to check the preliminary design. If the routed post-development peak discharges for the 2, 10, and 100-year design storms exceed the pre-development peak discharges, or if the peak stage varies significantly from the estimated peak stage from Step 4, then revise the estimated volume and return to Step 3.

Step 6. Design emergency overflow from runoff for the post-development 100-year peak discharge.

Step 7. Evaluate the downstream effects of detention primary outflow and overflow to ensure that the routed hydrographs and discharges do not cause downstream erosion and/or flooding problems.

Step 8. Evaluate the control structure outlet velocities and provide adequate local scour protection or energy dissipation if the velocity will have adverse downstream effects.

This procedure may involve numerous reservoir routing calculations to obtain the desired results. Generally, the 100-year design storm will determine the size of the basin and the 2-year design storm will determine the minimum size of the outlet structure(s). Typically, the 2-year outlet structure is

sized and the depth of the storage when the 2-year storm is routed through the basin then normally becomes the elevation of the invert or weir for the 10 and/or 100-year storm outlet.

8.4. DETENTION FACILITY DESIGN

8.4.1. General Design Criteria

Detention facilities which incorporate basins below grade or embankments shall be designed and constructed as permanent drainage structures which are protected from long term erosion and are as maintenance free as possible. Detention basins and related facilities should be designed to minimize the following typical problems:

- weed growth,
- grass and vegetation maintenance,
- sedimentation control,
- bank deterioration,
- standing water or soggy surfaces,
- mosquito control,
- blockage of outlet structures,
- litter accumulation, and
- maintenance of fences and perimeter plantings.

No detention or retention facility shall retain standing water longer than thirty-six (36) hours unless the facility has been designed and constructed as a permanent body of water with appropriate health, safety, and water quality measures for such a body of water.

Basin inlet and outlet structures may be at or below grade or a combination of both. Drainage crossings or culverts shall be provided whenever runoff entering or exiting a basin crosses pedestrian paths or sidewalks.

Riprap aprons or other energy dissipating measures should be used at all inflow points (side slope and basin floor) to reduce velocities and encourage sedimentation.

Low flow channels are required on the bottom of basins which serve as multi-use areas and are recommended on all basins. Low flow channels should be designed with a minimum longitudinal slope of 0.5 percent. Concrete lined low flow channels can be designed with a minimum longitudinal slope of 0.2 percent.

If any portion of a detention basin is a retaining wall, design information for determining factors of safety against sliding and overturning is required. Provisions shall also be incorporated to prevent seepage through and under the retaining wall.

All detention facilities shall be incorporated into the Landscaping Plans.

All detention facilities will be reviewed for compliance with this manual and other applicable criteria.

The order of preference for detention facility design shall be:

1. The use of underground detention for all or part of the detention volume requirement.

2. The use of natural land-formed basins.

4. The use of structures, such as retaining walls or weir walls not to exceed four (4) feet in height that blend with the natural or built surroundings. Materials shall be limited to materials such as brick, native stone, rusticated masonry block, or form-lined colored concrete to blend with the natural or built surroundings.

8.4.2. Location and Configuration

In general, open detention facilities located adjacent to streets or buildings are discouraged. It is recommended to locate open basins in areas away from pedestrian traffic and public view, if possible. The use of underground detention is encouraged.

Detention basin configuration(s) shall be designed with surrounding land use, site land use, topography, unique site features, vegetation, visibility from adjoining streets or properties, and City of Flagstaff Land Development Code resource protection constraints taken into consideration.

Curvilinear or irregular shapes are required for open surface basins, whenever possible. The designer should vary the shape and side slopes of the basin and maximize the linear footage of the perimeter. Curvilinear contours at areas immediately adjacent to walls or structures is encouraged. Figure 8-1 illustrates a configuration concept.

The basin shape or floor should have a minimum length to width dimension of 4:1. Designs that incorporate basins in series with two or more stages or terraces are encouraged.

Slope and Depth Criteria

In general, basins should be kept to depths of three (3) feet or less with side slopes of 4H:1V or flatter. The following minimum slope and depth criteria are required for multi-use basins and basins that have unrestricted access:

a. A maximum of 2H:1V for protected side slopes and 3H:1V for unprotected side slopes where depths of ponding are less than three feet.

b. A maximum of 4:1 for side slopes where depths of ponding exceed three (3) feet.
c. Basins greater than six (6) feet in depth will require a benched configuration with bench widths at least three (3) times the height of the slope above it with a minimum width of six (6) feet.
d. Basins containing human activity areas shall incorporate access slopes of 8H:1V or flatter (12H:1V for ADA compliance) into the design for ingress and egress.

A minimum freeboard of 0.5 foot above the 100-year high water elevation is recommended for all detention facilities. Freeboard may include adjacent parking lot areas.

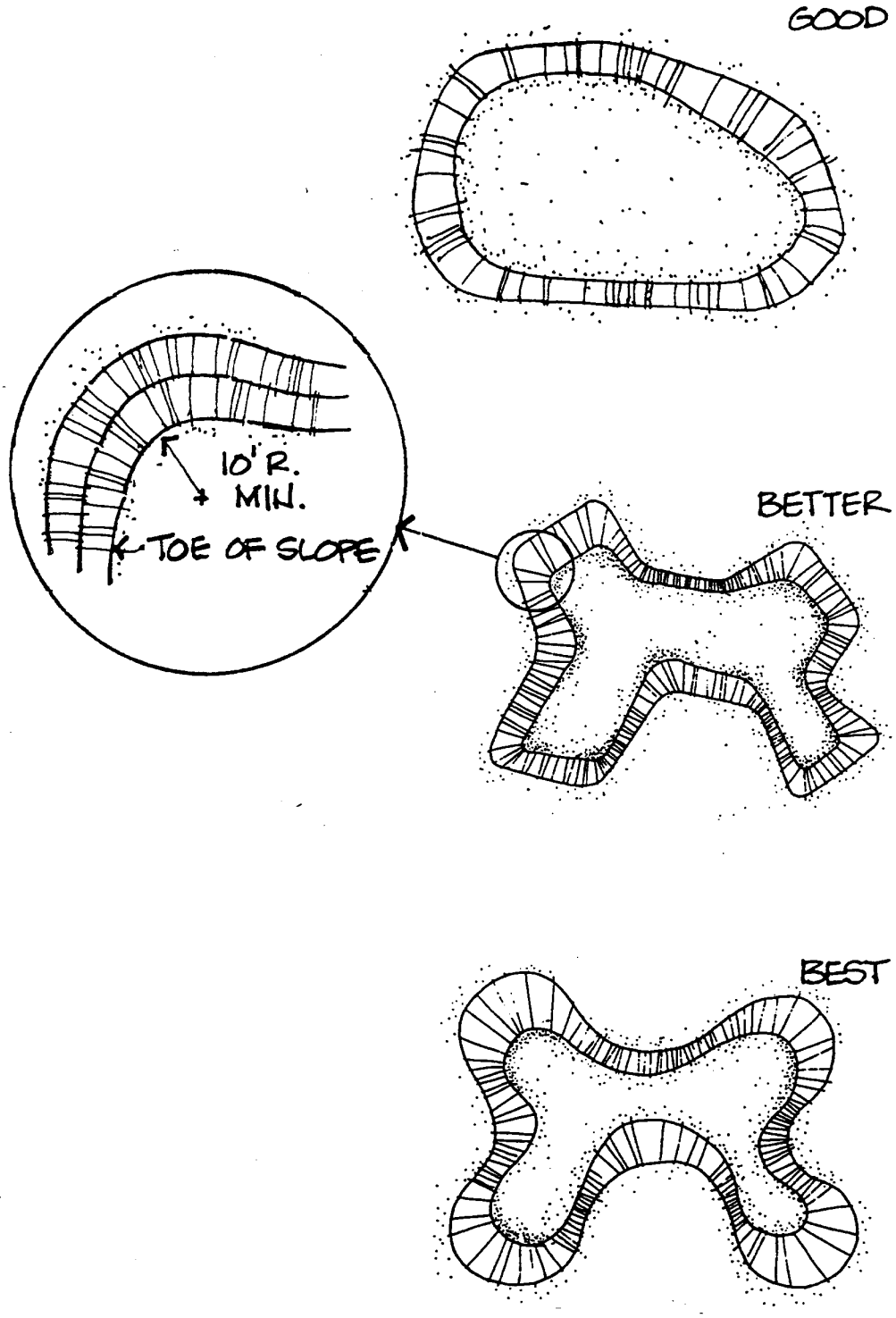


Figure 8-1: Detention Basin Configuration

The basin floor should be graded to drain toward the basin outlet. The minimum recommended slope is 0.2 percent. A meandering low flow channel across the basin bottom is recommended to accommodate frequent flows and prevent standing water.

8.4.3. Landscaping and Surface Treatment

All detention basins shall include appropriate surface treatment and erosion control measures including but not limited to landscaping, seeding, grass or sod, rock, gravel, or any combination thereof. Regardless of basin side slopes, seeding of the basin to promote vegetation shall be considered in the design to prevent rill and gully erosion.

Detention basin side slopes, embankments, and periphery shall be landscaped to mitigate and accentuate the basin. A minimum of two (2) plant units (as defined in the LDC) shall be required for every 100 feet of the perimeter of the basin, as measured at the top of the basin, in addition to LDC on-lot landscaping requirements. Underground facilities will not require landscaping.

Trees, shrubs, and other native vegetation may be used on basin side slopes and periphery. Most landscaping, except for grass/sod, should not be placed on the basin floor and shall not be planted in flow channels. Any landscaping placed on the basin floor shall not have a density such that it interferes with the stormwater storage function of the basin or regular maintenance activities. For basins located adjacent to streets, landscaping density shall be increased along the street frontage be screen the basin from the street.

The basin floor (if not using sod) and side slopes shall be seeded with a mix of native grasses (5 pounds/bOO square feet) . Prior to seeding, the ground surface must be scarified and cultivated to a depth of six (6) inches, and cleared of all debris and large stones (greater than 1-inch in any dimension). After clearing, grubbing, and cultivation, an organic fertilizer should be applied as specified by the landscape designer. An average of ten (10) pounds of fertilizer/bOO square feet is the desired treatment. When existing soil is unsuitable for growing native grass, incorporation of topsoil is recommended. A temporary irrigation system shall be installed to assist in the establishment of the seed and any other plant material shown on the landscaping plan.

Detention basins intended to accommodate passive or active recreation on the floor of the basin (e.g., playgrounds or sports fields) shall use turf grass on the basin floor. Prior to seeding or sodding, native material on the basin floor must be over-excavated to a depth of six (6) inches and planted with topsoil. A permanent irrigation system must be installed to maintain the turf grass.

Use of decomposed granite or small gradation rock shall be limited to basin side slopes of 3H:1V or flatter and is not recommended for use on basin floors, in flow channels, or at the basin inlets and outlets. Use of bio-mass filter landscaping treatment on basin floors is encouraged.

Over-excavation will be required to account for any volume displacement from landscaping islands,

boulders, sod, or rock riprap placement within the basin and shall be noted on the Grading & Drainage and Landscape Plans.

8.4.4. Outlet Structures

Due to multi-frequency detention requirements, multi-stage outlet structures may be necessary in the design of many detention facilities. The outlet structure(s) should be designed to ensure complete basin drainage and can take the form of drop inlets, culverts, weirs, orifices, or any combination thereof. The use of weirs is encouraged. Figure 8-2 illustrates typical outlet structure configurations. Outlet structures that require manual operation to properly function are not permitted.
Outlet structures for detention basins shall be sized based on hydrologic reservoir-routing calculations and stage-discharge relationships. Inlet control should not always be assumed on detention facility outlet pipes, therefore outlet pipes should be evaluated using the FHWA, HDS-5 procedures outlined in Chapter 5.

Outlets structures shall be constructed such that they are physically opposite and the longest distance from the inlet structure(s), whenever possible. The distance between outlet structures and inflow points should be maximized to lengthen flow paths and detention times and provide effective settling of pollutants and sediment.

Metal outlet pipes projecting from a basin side slope or embankment are not permitted. Appropriate headwalls, commercial end sections, mitered sloped concrete protection, etc. are required for all outlet structures that incorporate only a pipe/culvert as the primary outlet structure.

The minimum recommended outlet culvert size for detention facilities is twelve (12) inches. Orifice plates are permitted provided the orifice plate is permanent, tamper-proof, and connects to a 12-inch minimum diameter outlet pipe. Outlet structures incorporating orifice plates shall include a trash rack to minimize clogging. Figure 8-3 illustrates a recommended method of orifice plate construction.

Outlet pipes less than twelve (12) inches in diameter may require adequate sediment and debris collection measures to be incorporated into the basin design to minimize clogging. Outlet structures shall not be oversized to account for debris blockage or clogging. Sediment traps should also be incorporated into the design of all multi-use detention facilities. Figure 8-4 illustrates a sediment trap concept.

Outlet pipes which present a hazard to children (e.g., outlet pipe connects directly to a large storm drain system) should be equipped with a bar/grate configuration in accordance with the Uniform Building Code safety requirements to prevent entrance of children into the outlet opening.

Local scour at culvert outlets as well as long term degradation downstream of the facility must be considered in the overall basin design. Erosion control measures such as energy dissipators, cut-off

walls, riprap aprons or basins, and rock lined channels shall be provided to reduce outlet velocities and allow flows to return to natural conditions, to as great an extent as possible, prior to exiting onto the downstream property.

8.4.5. Detention Embankments

It is recommended that detention facilities be constructed with the storage volume located entirely below the natural ground or finished grade adjacent to the facility. Use of detention embankments or berms is discouraged due to the potential for downstream flood hazard in the event of failure, however, the following criteria must be incorporated into the detention embankment design, at a minimum:

a. Vegetated embankments shall be less than twenty (20) feet in height and shall have side slopes no steeper than 3:1 (horizontal:vertical). Embankments protected with riprap or other approved erosion control measure shall be no steeper than 2:1.
b. A geotechnical engineering study and slope stability analysis is required for embankments exceeding ten (10) feet in height or for embankment slopes exceeding those given above. It is recommended that ADWR, *Guidelines for the Design and Construction of Small, Low Hazard Potential Embankment Dams*, be utilized for design criteria.
c. Top width of the embankment shall be a minimum of 1/2 the height of the embankment.
d. Design of spillways shall also incorporate adequate erosion control and energy dissipating measures to ensure the stability of the embankment. The use of concrete spillways is preferred.
e. Seepage through the embankment and piping, particularly along the outside of the primary outlet conduit and spillway wall, must also be considered in the design of the embankment. Soil used for detention embankments should have a relatively low permeability after placement and shall be compacted to a minimum of 95%.

A minimum of one (1) foot of freeboard above the spillway elevation is required for public detention facilities that incorporate an embankment. The spillway elevation should be set equal to or above the 100-year water surface elevation.

Overflow or spiliway structures utilizing riprap protection shall incorporate an anchored biomass filter under and over the riprap layer. This shall then be covered with at least six (6) inches of topsoil and seeded with native grasses as described in Subsection 8.4.4 and this manual.

The use of concrete spillways is preferred for embankments exceeding ten (10) feet in height or when embankment stability could be compromised during overflow.

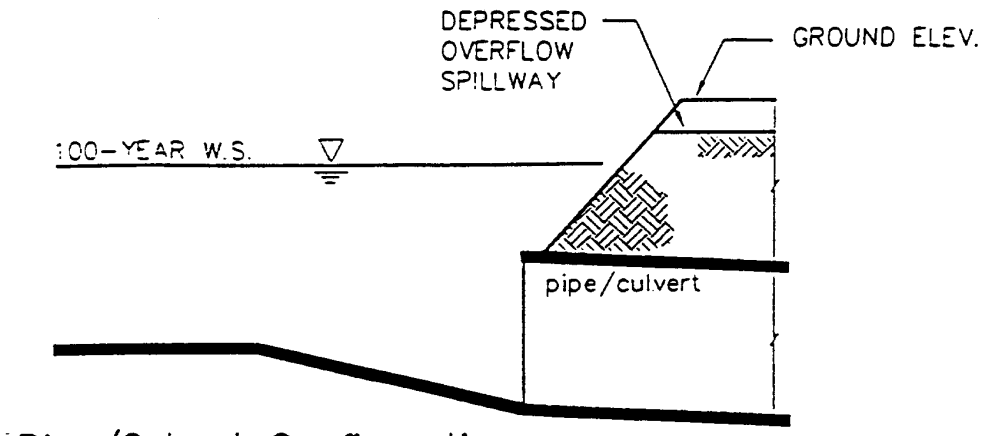
Public roadway fill sections may be used for detention public detention basins only. Special design

considerations must be given to the stability of the fill slopes, seepage and piping, protection from erosion, overtopping, adequate drainage easements, and limits of ponding. All public roadway fill sections used as detention embankments or acting as a dam shall be designed in accordance with ADWR Dam Safety criteria.

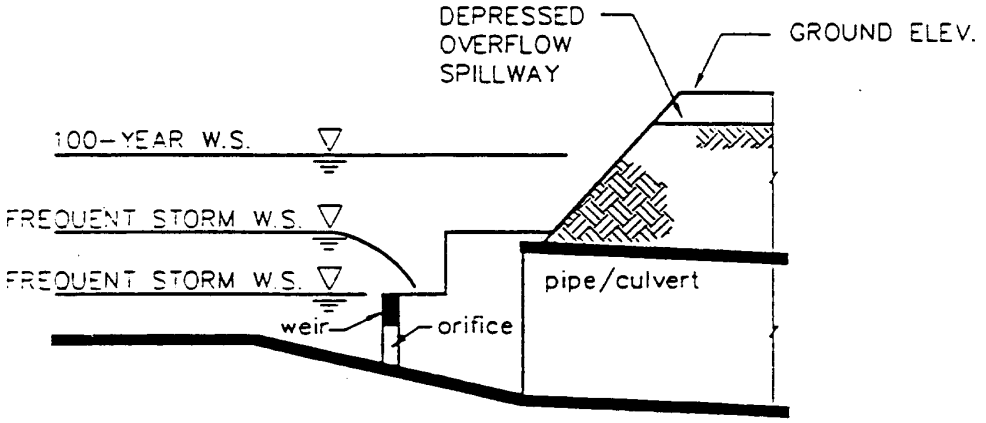
8.4.5.1. *Emergency Overflow*

All detention facilities shall incorporate provisions for emergency overflow for instances where the primary outlet structure fails or storm events greater than the design capacity occur. The overflow shall be designed to pass the post-development 100-year peak discharge at a minimum. Design criteria shall incorporate the protection of the basin and the method of discharge. The overflow must be conveyed downstream in the same manner as it would have under pre-development, historic conditions.

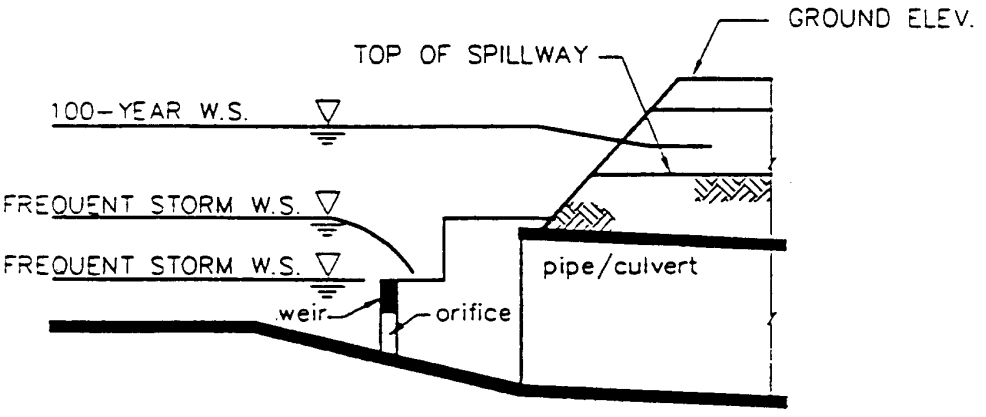
Spillways for detention facilities that employ embankments must be designed to protect the embankment side slopes, particularly on the downstream side. It is recommended that the spillway be located to direct flow around the embankment on or through natural ground, as illustrated in Figure 8-5, versus placing the spillway directly over the primary outlet structure. The safety of downstream persons, properties, and consequences of embankment failure should be considered and evaluated.



Pipe/Culvert Configuration



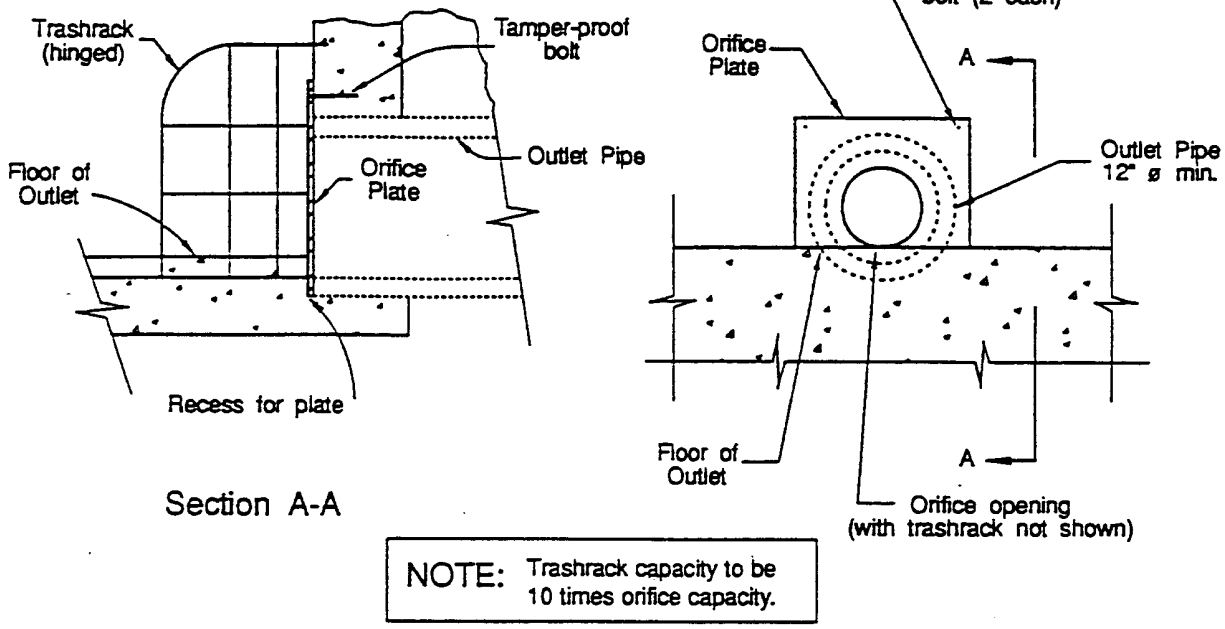
Orifice – Weir – Pipe/Culvert Configuration



Orifice – Weir – Pipe/Culvert – Spillway Configuration

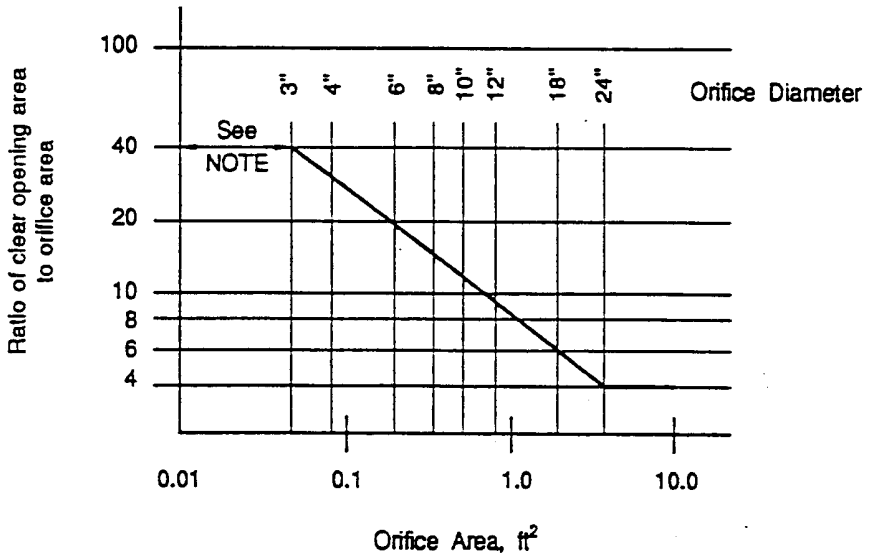
Figure 8-2: Detention Basin Outlet Structure Examples
Source: Pima County Dept. of Transportation and Flood Control District

(a) Orifice Plate Details



NOTE: Trashrack capacity to be 10 times orifice capacity.

(b) Trashrack Area Requirements



NOTE: For orifice diameter less than 3", use a minimum clear opening of 2 ft².

Figure 8-3: Orifice Plate Detail
Source: FCDMC Drainage Design Manual, Vol. II, 1996

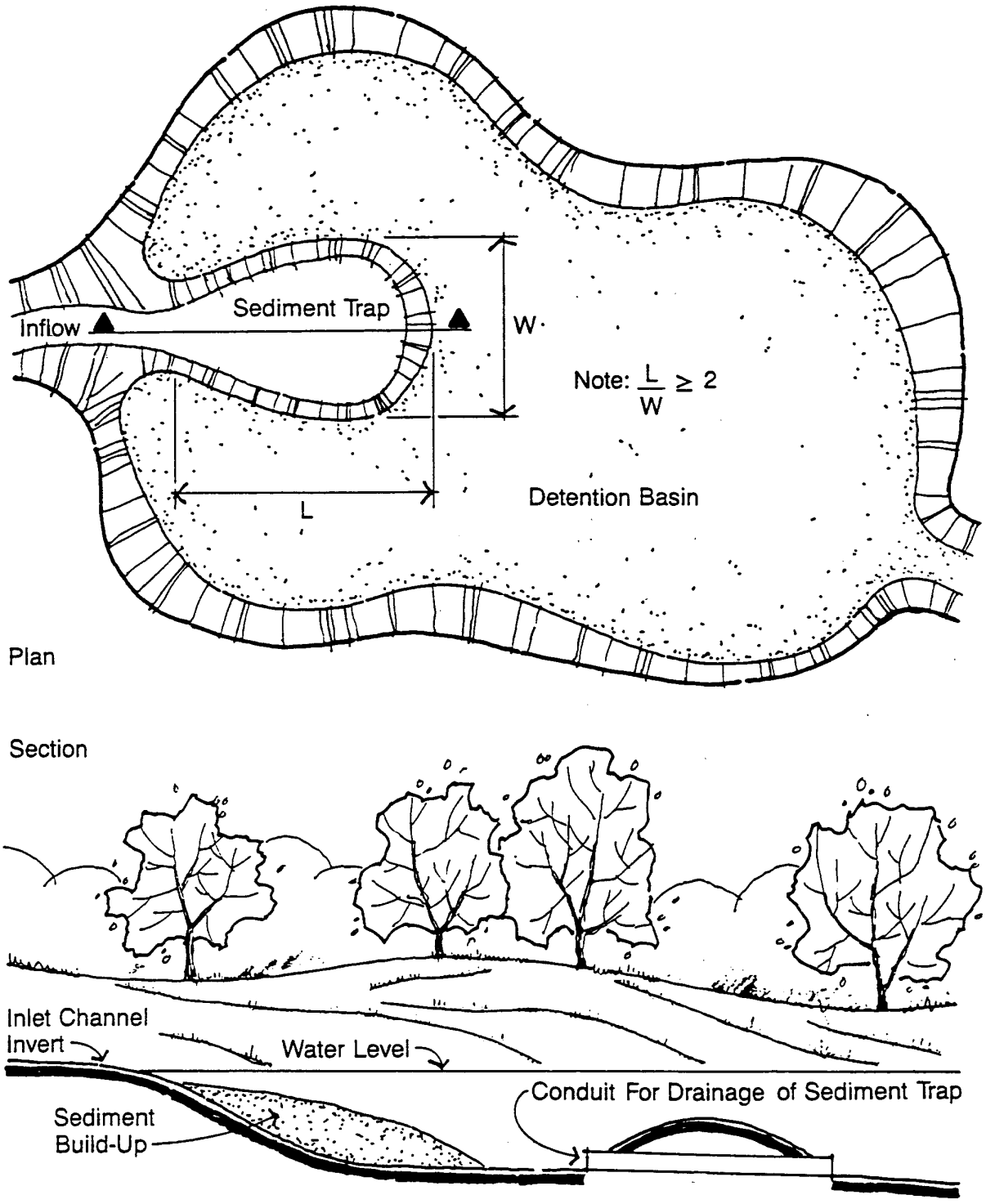
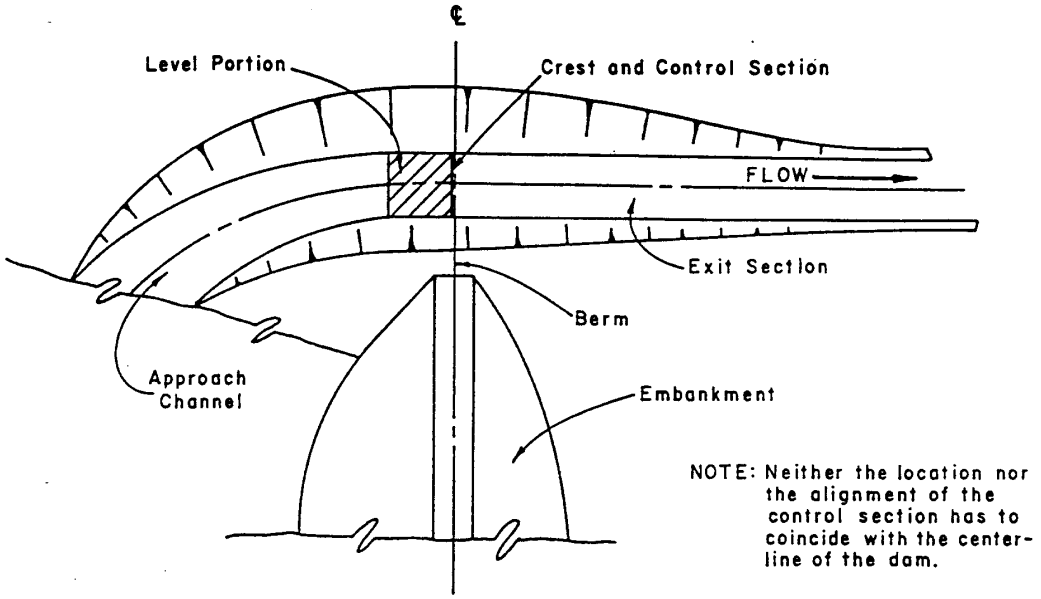
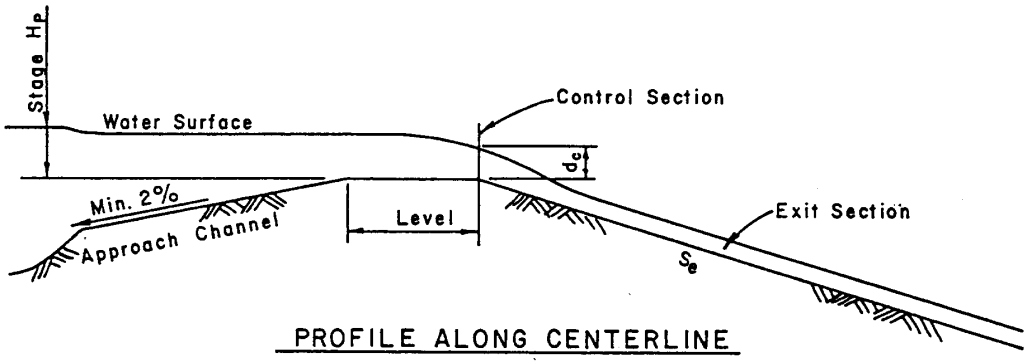


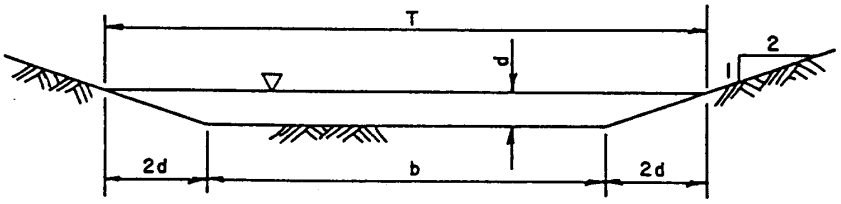
Figure 8-4: Sediment Trap Concept
Source: Pima County Dept. of Transportation and Flood Control District



PLAN VIEW OF EXCAVATED EMERGENCY SPILLWAY



PROFILE ALONG CENTERLINE



CROSS-SECTION AT CONTROL SECTION

Figure 8-5: Emergency Spillway

8.4.6. State of Arizona Dam Safety Requirements

The Arizona Department of Water Resources (ADWR) has legal jurisdiction over all dams in the State of Arizona. ADWR must be contacted regarding dam safety jurisdiction and specific requirements in the design of any dam or embankment which may fall under state jurisdiction.

8.4.7. Safety

Detention facilities in general should be open, visible, and accessible so that persons can appreciate any hazard and guard themselves, and so that rescue efforts, if necessary, are not impeded.

To reduce the potential dangers associated with detention facilities the following recommendations are made in the design and construction:

- keep basin and water depths shallow.
- keep side slopes as flat (4H:1V or flatter) as possible to allow easier egress in the event of flooding.
- basin floor should consist of material or soil which provides firm footing when saturated. The ground surface side slopes around the facility should be made rough.
- break up ponding water with islands, boulders and mounds; put solid objects for holding onto in the ponding area such as large plants or rocks.
- avoid sudden constrictions and high velocities at outlets. Broad open rectangular weirs are preferable to anything involving the mouths of pipes and/or creating a hazardous vortex at the outlet.
- restricting public access and/or identifying potential hazards associated with detention basins, particularly in multi-use areas.

If detention facilities must be designed with steeper side slopes or vertical walls, adequate routes out of the basin should be provided.

Signage should be provided to inform the public of the basin purpose and potential safety hazard from stormwater. (e.g. , DANGER - This basin is designed to collect stormwater runoff DO NOT ENTER during rainy or threatening weather).

8.4.7.1. Security Barriers

Detention basins designed in accordance with Sections 8.4.3 and the previous section should preclude the need for security barriers to prevent unauthorized access. Security barriers, with maintenance access gates, are recommended along the top of all basin side slopes steeper than 3H:1V and where water depths exceed three (3) feet.

Security barriers may consist of masonry, wood, chain-link, or wrought-iron (pool-type) fencing and

must be a minimum height of forty-two (42) inches. Fencing, if necessary, should not restrict the hydraulic capacity of inlet or outlet structures.

Appropriate hand railings shall be provided, per the Uniform Building Code, for all retaining walls or inlet/outlet structure headwalls and wingwalls over thirty (30) inches in height. Detail sections of proposed barriers shall be shown on the grading and drainage plans or development plans, as appropriate.

CHAPTER 9: LOW IMPACT DEVELOPMENT REQUIREMENTS FOR INFILTRATION AND REUSE OF STORMWATER

Volumetric increases to the city stormwater conveyance system, as the result of increased impervious surface have resulted in the need to upsize stormdrain systems in the City. While detention is effective in controlling peak discharges, the volumetric increase is not abated. Low Impact Development (LID) is an accepted standard in which stormwater is infiltrated and/or reused, resulting in the mitigation of these volume increases.

Low Impact Development will address water quality concerns that can arise when impervious area is added to previously undeveloped sites. Runoff from impervious areas often contains suspended solids and heavy metals along with other contaminants. Many of the Low Impact Development measures will remove some of these pollutants.

Water conservation is also a consideration when designing for the Low Impact Development requirements. Water can in many cases be reused or directed towards landscape areas in an effort to reduce water consumption.

The use of LID will help control volume increases and hence reduce the cost of upsizing downstream infrastructure as well as promote water conservation.

9.1. POLICIES

a. Stormwater LID is required for all new subdivisions, commercial and industrial developments, redevelopment of non-conforming sites (i.e., existing developed sites that do not have detention that have been razed and vacant for greater than six months), and other developments greater than 1/4 acre in size. LID shall be implemented according to the following schedule as measured from the effective date of Ordinance No. 2009-07:

    1. For the first year the program will be voluntary.

    2. In the second year, developments will be required to retain/infiltrate one half (1/2) inch of runoff from all additional impervious surfaces.

    3. In the third year, developments will be required to retain/infiltrate one (1) inch of runoff from all additional impervious surfaces. The requirement to detain for the 2-year storm will no longer be required once the 1-inch threshold is implemented.

b. LID requirements may be waived by the Stormwater Manager for the following:

1. Single-family residential structure or lot (i.e., not associated with a new subdivision).

2. Residential subdivisions with lot areas $\geq$ 1 acre in area, if it can be shown that such a waiver will not result in any adverse downstream effects, nor create any disturbance to the existing drainage patterns both within and adjacent to the subdivision.

3. Developments less than 1/4 acre or increases in impervious area of $\leq$ 5,000 square feet. It must be demonstrated to the satisfaction of the Stormwater Manager that there will be no increase in the potential for damages to adjacent properties and adequate off-site or downstream drainage capacity is available.

c. For developments requiring LID, all new impervious surfaces shall be infiltrated or reused in accordance with the current applicable standard.

d. The methodology for determining the required volume of stormwater to be infiltrated or reused is as follows:
Impervious Surface (square feet) X current requirement (ft.) (e.g. ½ inch or 1 inch) = volume requirement

e. In order to provide specific guidance for the design of these LID facilities, the City has developed the City of Flagstaff Low Impact Development (LID) Guidance Manual. The Manual is hereby adopted as part of these Requirements.

f. A waiver may be granted by the Stormwater Manager for deviations from the Integrated Management Practice designs in the LID Guidance Manual. The waiver request will be reviewed on a case-by-case basis and will require supporting analysis, documentation, etc. (as determined by the Stormwater Manager) be submitted and approved prior to granting of the waiver.

g. The City established a maximum ponding depth of (.3) three-tenths of (1) one foot without an engineered infiltration system.

h. Developments which are phased shall prepare a master stormwater LID plan for the entire development. The master stormwater LID plan must either be implemented with the first phase, if possible, or LID measures must stand alone for each phase. Interim temporary LID facilities may be required for phasing.

i. The City of Flagstaff shall only accept large-scale LID facilities for operation and maintenance. The City shall not accept small-scale, local on-site LID's for operation, maintenance, or liability.

j. Maintenance of local on-site LID facilities shall be the responsibility of the property owner or homeowner's association. The City shall reserve the right to periodically inspect any LID facilities to verify that regular maintenance activities are being performed. Final Plats;

Covenants, Conditions, and Restrictions (CC&R's); and/or Development Plans shall include a special note stating that (1) the owner(s) shall be solely responsible for the operation, maintenance, and liability for all LID facilities; and, (2) the City of Flagstaff may periodically inspect said LID facilities to verify that regular maintenance activities are being performed adequately.

k. The City of Flagstaff Parks and Recreation Division shall review and approve proposed stormwater LID facilities designed within designated public areas or parks. Review and approval from the Parks and Recreation Commission may also be required.

l. No part of a private LID shall be constructed in a public right-of-way or public utility easement.

9.2. SUBDIVISION REQUIREMENTS

All new subdivisions are required to provide LID for the entire subdivision, including the respective one-half of all abutting streets to the subdivision. Two or more subdivisions may join together to provide a common LID facility.

Preliminary Plat submittals shall be accompanied by a preliminary drainage report that identifies LID locations, types and sizes and a preliminary calculation of the required volume.

All Final Plat submittals require a final drainage report, in accordance with Chapter 2 of this manual, which technically demonstrates compliance with City of Flagstaff Floodplain Management Regulations, Stormwater Management requirements, and the drainage policies and design criteria set forth in this manual. This report must be submitted with the subdivision improvement plans and must be accepted prior to recording the final plat.
Urbanization and other land development activities, including construction of roads, changes natural pervious areas into impervious, altered surfaces. In addition, natural drainage systems are often replaced by lined channels, storm drains, and curbed streets. The result of such activities is an increase in the volume of runoff, peak discharge rates, erosion, and non-point source pollution due to the reduction in infiltration and natural vegetation.

In the absence of regional detention facilities and due to inadequate downstream capacities of existing streets, storm drain systems or channels, local on-site or sub-regional LID facilities are necessary to attenuate the increased runoff caused by development. LID facilities can also serve a dual purpose by improving the quality of stormwater discharges. The temporary storage of stormwater runoff can reduce the extent of downstream flooding, soil erosion, sedimentation, and surface water pollution. LID facilities can also be used to reduce the costs associated with large storm drain systems.

CHAPTER 10: EROSION HAZARD/BUILDING SETBACKS

In addition to the hazards associated with flooding, natural and unlined artificial channels can experience erosion of the channel banks over a long period of time or during a single storm event. This can present a particular danger to adjacent structures or other development as the channel banks erode or migrate.

The purpose of this chapter is to present erosion hazard and building setback policies to be applied to new development adjacent to natural watercourses or unlined engineered open channels in order to protect structures from potential damage. This requirement is in addition to other applicable setbacks in the City of Flagstaff Land Development Code and/or the Uniform Building Code.

10.1. POLICIES

a. All new buildings or structures constructed adjacent to a natural watercourse or an unprotected engineered channel located within City of Flagstaff shall be set back from the channel top of bank a sufficient distance in order to protect the structure from erosion of the channel banks and to allow for maintenance access and buffer.

b. The setback shall be measured from the top edge of the highest channel bank with the minimum setback being ten (10) feet to allow for access and maintenance considerations.

c. A slope stability analysis of the channel may be required by the Stormwater Manager if conditions exist which indicate that the channel bank may be unstable.

d. Exceptions or reductions of the building setback requirements may be granted by the Stormwater Manager if it can be demonstrated that adequate erosion and flow velocity protection can and will be constructed. All requests and plans for exception or reduction of setback requirements must be accompanied by a detailed soil-stability and/or sediment transport studies approved by the Stormwater Manager. Requests for reduction of the minimum building hazard setbacks must take access and maintenance into consideration.

e. Building setbacks from natural channels or unlined engineered channels may still be applicable even if it is demonstrated that the channel is stable under Policy 9.1.c. and d. above.

f. Natural vegetation is not an acceptable means of bank stabilization for the purpose of reducing building setbacks. Vegetation may be used along watercourses where flow velocities are less than five (5) feet per second during the 100-year discharge, provided that there is an acceptable seeding and maintenance program.

CHAPTER 11: EROSION AND SEDIMENT CONTROL

Erosion and sedimentation are natural or geologic processes by which soil material is detached and transported from one location and deposited in another, primarily by rainfall and stormwater runoff. Urban development tends to accelerate erosion and sedimentation, resulting in safety hazards, costly maintenance problems, unsightly conditions, instability of slopes, and disruption of ecosystems.

For these reasons, the total design process of any project (public or private) must be done with due consideration given to minimizing erosion and sedimentation, particularly during construction activities. This chapter will present general guidelines and criteria for erosion and sediment control measures or Best Management Practices (BMP's). Additional guidelines, policies, and criteria will be incorporated into subsequent revisions of this manual or as federal NPDES Phase II requirements mandate.

11.1. POLICIES

a. The effects of erosion shall be considered in the location and design stages of new development, since erosion can be controlled to a considerable degree by geometric design particularly relating to cross-section.

b. The level of effort by the engineer and use of erosion control measures shall be commensurate with the potential for erosion.

c. On-site erosion control measures shall be applied to reduce the gross erosion (e.g., gullies or rilling) and sediment transport from the site.

d. Sediment control shall be used whenever possible or necessary, to prevent offsite damage or sediment deposition on public streets.

e. Special consideration shall be given to the maintenance of existing and proposed vegetative cover on areas of high erosion potential such as erodible soils, steep slopes, drainageways, and banks of streams.

f. Storm Water Pollution Prevention Plans (SWPPP) are required for any land disturbing activity between one (1) and five (5) acres. Developers are responsible for complying with NPDES Phase I requirements for land disturbing activities greater than 5 acres. SWPPP's should be prepared by an engineer.

11.2. GENERAL GUIDELINES

The design of erosion and sediment control measures involves the application of common sense planning, scheduling, and the control activities which will minimize the adverse impacts of soil erosion, transport, and deposition. The following basic guidelines should govern the development and implementation of sound erosion and sediment control measures:

- The project should be planned to take advantage of topography, soil type(s), waterways, and natural vegetation on the site.
- The smallest practical area(s) should be exposed for the shortest possible time.
- Use of flat side slopes, rounded and blended with the natural terrain.
- Drainage channels designed with due regard to width, depth, slopes, alignment and protective treatment.
- Use of facilities for ground water interception.
- Use of berms, dikes, sediment traps and other protective devices.
- Use of protective ground covers, grassed swales, natural vegetation, and landscaping.
- A thorough maintenance and follow-up program should be implemented.

These basic guidelines should be tied together in the planning process that identifies potential erosion and sediment control problems before construction begins.

11.3. DESIGN CRITERIA

The following criteria represents the minimum requirements necessary for controlling erosion and sedimentation from construction activities. This criteria is intended to work in conjunction with individually developed plans and establish minimum standards of soil conservation practice which apply to all land disturbing activities.

11.3.1. Stabilization

The following criteria refers to stabilization of denuded areas and soil stockpiles:

1. Permanent or temporary soil stabilization should be applied to denuded areas within fifteen (15) days after final grade is reached on any portion of the site. Soil stabilization should also be applied within (15) days to denuded areas which may not be at final grade but will remain dormant for longer than sixty (60) days.
2. Applicable practices include but are not limited to temporary erosion control material, vegetative establishment, mulching, and the early application of a gravel base on areas to be paved.
3. Soil stockpiles should be stabilized or protected with sediment trapping measures to prevent soil loss.

11.3.2. Protection of Adjacent Property

Properties adjacent to the site of a land disturbance shall be protected from sediment deposition. This may be accomplished by completing necessary rough grading including detention facilities; by preserving a well-vegetated buffer strip around the lower perimeter of the land disturbance; by installing perimeter controls such as sediment barriers, silt fencing, temporary berms, sediment basins; or by a combination of such measures.

All temporary and permanent erosion and sediment control practices shall be maintained and repaired as needed to assure continued performance of their intended function. Damages which may occur to adjacent property during construction are the responsibility of the property owner and/or permittee.

11.3.3. Cut and Fill Slopes

Cut and fill slopes, including those for public roadways, shall be designed and constructed in a manner that will minimize erosion. Consideration shall be given to the length and steepness of the slope, the soil type, upslope drainage area, groundwater conditions, and other applicable factors. The following guidelines are provided to aid in developing adequate design:

a. Roughened soils surfaces are preferred to smooth surfaces on slopes.
b. Diversions shall be constructed at the top of long steep cut slopes which have significant (greater than 40 feet in length upslope) drainage area above the slope in accordance with Uniform Building Code, Appendix Chapter 33. Diversions or terraces may be utilized to reduce slope lengths.
c. Concentrated stormwater shall not be allowed to flow down a cut or fill slope unless contained within an adequate temporary or permanent channel flume or slope drain structure.
d. Wherever a slope face crosses a water seepage plane that endangers the stability of the slope, adequate subsurface drainage facilities or other protection measures shall be provided.

11.3.4. Stream Crossings

All construction related to crossing streams or washes shall be in accordance with U.S. Army Corps of Engineers Section 404 Permitting requirements, ADEQ Section 401 Water Quality Certification requirements, and requirements of the Stormwater Manager.

Construction vehicles shall be kept out of watercourses to the extent possible or in areas not identified on the approved plans. Where in-channel work is permitted, precautions shall be taken to stabilize the work area during construction, prevent sedimentation, and allow stormwater runoff through the work area. The channel bed and banks shall always be re-stabilized immediately after in-channel work is completed.

Where an active (wet) watercourse must be crossed by construction vehicles regularly, a temporary stream crossing shall be provided in accordance with criteria established by the Corps of Engineers 404 permitting program or the Stormwater Manager.

11.3.5. Vegetative Cover

Seed bed preparation shall be considered for all vegetative control measures on public roadway fill slopes. Soil characteristics such as depth of rock, pH, fertility, and moisture shall be evaluated during plant selection. Lime, fertilizer, and irrigation will often be required to establish vegetative cover.

Permanent seeding with perennial cover shall only be used for public roadway fill slopes not exceeding 2H:1V and six (6) feet in height, during acceptable growing seasons.

Sodding should be used in areas requiring additional protection from concentrated flow, such as grassed swales and waterways and storm drain inlets (if velocities are acceptable). Sodding may also be appropriate when an immediate aesthetic effect is desired.

Mulching shall be used on public roadway slopes with all seeding operations to provide temporary protection during adverse weather conditions. Typical mulching material includes straw, hay, and wood chips.

11.3.6. Storm Water Pollution Prevention Plans

Stormwater Pollution Prevention Plans (SWPPP), BMP's, erosion, and sediment control design methods and facilities should be in accordance with the Arizona Department of Transportation, Erosion and Pollution Control Manual, June 1995, as amended. The SWPPP can be a separate plan sheet or can be incorporated into the grading & drainage plans.

CHAPTER 12: ENERGY DISSIPATORS

12.1. GENERAL

High exit velocities and flow expansion turbulence at conduit outlets often result in local scour, channel degradation, and conduit failure. Typical rock riprap aprons may be appropriate where moderate outlet velocities exist, however, they are not suitable for outlet velocities exceeding ten (10) feet per second. Riprap basins or concrete energy dissipators may be required to reduce high velocity outlet flows to acceptable limits.

In general, an energy dissipators is any device designed to protect downstream areas from erosion by reducing the velocity of flow to acceptable limits. This Chapter presents information and design procedures which are based on FHWA, HEC-14, *Hydraulic Design of Energy Dissipators for Culverts and Channels.*

12.2. DISSIPATOR TYPE SELECTION

The dissipator type which is selected should be appropriate for the location. Generally there are two types of energy dissipators, internal and external. An internal dissipator is located within the conduit barrel and an external dissipator is located outside of the conduit barrel outlet.

12.2.1. Dissipator Types

Dissipator types are outlined as follows:

- Riprap Aprons (see Section 5.2.4.4)
- Riprap Scour Holes or Basins (see Section 11.3.4)
- Internal Dissipators
- External Dissipators
- Stilling Basins

Internal dissipators are used where right-of-way is limited, a scour hole at the outlet is unacceptable, debris is not a problem, and only moderate velocity reduction is needed. Internal dissipators are typically in the form of tumbling flow or increased resistance. Information and design procedures for internal dissipators can be found in HEC-14 and FHWA/OH-84/007, *Internal Energy Dissipators.*

External dissipators are used where the outlet scour is not acceptable, only a moderate amount of debris is present, and the conduit outlet velocity is moderate (Froude No. < 3). A design procedure for the USBR Type VI concrete impact basin is presented in Section 11.3.5. Design procedures and information on other dissipators such as Contra Costa, Hook Type, CSU Rigid Boundary, and Drop

Structures can be found in HEC-14.

Stilling basins are used where an outlet scour hole is not acceptable, debris is present, and the conduit outlet velocity is high (Froude No. > 3). Design procedures and information on stilling basins such as St. Anthony Falls can be found in HEC-14.

12.3. CONDUIT OUTLET STRUCTURES

12.3.1. Conduit Outlet Type

In choosing a dissipator, the selected conduit end treatment has the following implications:

- Conduit ends which are projecting or mitered to the fill slope offer no outlet protection from damage.
- Headwalls provide embankment stability, erosion protection, protection from buoyancy, and reduce damage to the conduit.
- Commercial end sections add little cost to the conduit, require less maintenance, retard embankment erosion, and incur less damage from maintenance.
- Aprons do not reduce outlet velocity, but if used shall extend at least one culvert diameter downstream and shall not protrude above the normal streambed elevation.
- Wingwalls are used where side slopes of the channel are unstable, where the culvert is skewed to the normal channel flow, to redirect outlet velocity, and to retain fill.

12.3.2. Design Considerations

The material selected for the dissipator should be based on a comparison of the total cost over the design life of alternate materials and shall not be made using first cost as the only criteria. This comparison shall consider replacement cost and the difficulty of construction as well as traffic delays (if applicable).

The design frequency and discharge used for the energy dissipator shall be equal to or greater than that of the conduit. The conduit shall be designed independently of the dissipator, with the exception of internal dissipators, which may require an iterative solution. The conduit design shall be completed before the outlet protection is designed and shall include computation of the outlet velocity.

The conduit exit velocity after dissipation shall be consistent with the maximum allowable velocity in the downstream channel. Downstream channel protection shall be designed concurrently with the dissipator design.

Most energy dissipators will normally be exposed to public access, therefore, designs for energy dissipators must address safety concerns as part of the design. Adequate signage, fencing or railings

may be necessary to identify the potential hazard associated with high velocity flows or keep the public away from hazardous locations.

12.3.3. Riprap Scour Holes/Basins

The following riprap basin design procedure was adapted from HEC-14, which was based on laboratory data obtained from full scale prototypical models. The principal features of a riprap basin are:

- Preshaping and lining with riprap of median size (D_{50}).
- Constructing the floor at a depth of h_s below the invert, where h_s is the depth of scour that would occur in the pad of riprap size D_{50}.
- The overall length (L_b) of the basin is $15h_s$ or $4W_o$ which ever is greater, where W_o is the pipe diameter or barrel width.
- Sizing D_{50} so that $2 < H_s/D_{50} < 4$.
- Sizing the length of the dissipating pool to be $10(H_s)$ or $3(W_o)$ whichever is larger for a single barrel.

The depth (h_s), length (L_s) and width (W_o) of the scour hole are related to the characteristic size (D_{50}) of the riprap, the discharge (Q), the brink depth (y_o), and the tailwater (TW). The laboratory results for angular riprap were approximately the same for rounded material when rock size and other variables were the same.

When the ratio of tailwater depth to brink depth (TW/y_o) is less than 0.75 and the ratio of scour depth to riprap size (h_s/D_{50}) was greater than 2.0, the scour hole functions very efficiently as an energy dissipator.

For high tailwater basins ($TW/y_o > 0.75$) the high velocity core of water emerging from the culvert retains its jet-like character as it passes through the basin, and diffuses in a manner similar to a concentrated jet entering a large body of water. As a result, the scour hole is not as deep as with low tailwater and is generally longer. Therefore, riprap may be required for the channel downstream of the riprap basin.

12.3.3.1. Riprap Basin Design Procedure

The form given in Figure 11-1 can be used with this procedure.

Step 1 Determine Input Flow:

a. Calculate y_o, V_o, and Froude No. at the culvert outlet/brink.

where: y_o = normal flow depth at brink
V_o = normal velocity at brink

Step 2 Check the tailwater: Determine if $TW/d_o \leq 0.75$.

Step 3 Determine the D_{50}:

a. Using Figure 11-2, select D_{50}/y_e (where $0.25 < D_{50}/y_e < 0.45$).
b. Obtain h_s/y_e using the calculated Froude Number.
c. Check to see if $2 < h_s/D_{50} < 4$ and repeat until a D_{50} is found within the range.

Step 4 Size the basin as shown in Figure 11-3:

a. Determine the length (L_s) of the pool (where $L_s = 10h_s$ or $3W_o$ minimum).
b. Determine the length (L_B) of the basin (where $L_B = 15h_s$ or $4W_o$ minimum).
c. Determine the thickness of riprap:
Approach = $3D_{50}$ or $1.5D_{max}$
Remainder = dD_{50} or $1.5D_{max}$

Step 5 Determine V_B:

a. Basin exit depth (d_B) = critical depth at basin exit.
b. Basin exit velocity (V_B) = $Q/(W_B)d_B$.
c. Compare V_B with the average normal flow velocity in the natural channel (V_d).

High Tailwater Design:

Step 6 Design a basin for low tailwater conditions from Steps 1 - 5.

a. Compute equivalent circular diameter (D_E) for brink area from:
$A = [\pi(D_E)^2]/4 = d_o(W_o)$
b. Estimate centerline velocity at a series of downstream cross sections using Figure 11-4.
c. Size the riprap per Chapter 4.

Riprap Basin Design Example:

Given: Box culvert - 8 ft by 6 ft
Design discharge = 800 cfs
Supercritical flow in culvert
Normal flow depth = brink depth = 4 ft
Tailwater depth = 2.8 ft

Find: *Riprap basin dimensions*

Solution: *Low Tailwater Condition*

Step 1 - Determine Input Flow:

a. $y_o = d_E$ *for rectangular section*
$y_o = 4\ ft = D_E = 4\ ft$
$V_o = Q/A = 800/(4)8 = 25\ ft/s$
$Fr = V/(gd_E)^{0.5} = 25/[32.2)4]^{0.5} = 2.2 < 3.0, OK$

Step 2 - Check TW:

a. *Determine if* $TW/d_o \leq 0.75$:
$TW/d_o = 2.8/4 = 0.7 < 0.75, OK$

Step 3 - Determine d_{50}:

a. *Using Figure 11-2:*
Select $D_{50}/y_E = 0.45$
Thus, $D_{50} = 0.45(4) = 1.80\ ft$
b. *Obtain* h_s/y_E *using Fr from Fig. 9-4*
Thus, $h_s.y_E = 1.6$
c. *Check if* $2 < h_s/D_{50} < 4$
$h_s = 4(1.6) = 6.4\ ft$
$h_s/D_{50} = 6.4/1.8 = 3.6$
Thus, $2 < 3.6 < 4$. *OK*

Step 4 - Size Basin:

a. *As shown on Fig. 11-3, determine length of pool* (L_s)
$L_s = 10h_s = 10(6.4) = 64\ ft$
$min = 3W_o = 3(8) = 24\ ft$
Therefore, use $L_s = 64\ ft$
b. *Determine length of basin* (L_B)
$L_B = 15h_s = 15(6.4) = 96\ ft$
$min - 4W_o = 4(8) = 32\ ft$
Therefore, use 96 ft
c. *Determine thickness of riprap:*
Approach $= 3D_{50} = 3(1.8) = 5.4\ ft$
Remainder $= 2D_{50} = 2(1.8) = 3.6\ ft$

Step 5 - Determine V_B:

a. *d_B = critical depth at basin exit = 3.3 ft (assuming a rectangular cross section with width = 24 ft)*

b. *$V_B = Q/(W_B)d_B = 800/(24 \times 3.3) = 10$ ft/s*

c. *$V_B = 10$ ft/s < $V_d = 18$ ft/s*

High Tailwater Condition:

Data and Steps 1 - 5 are the same as above with the addition of the following:

Tailwater depth = 4.2 ft
$TW/d_o = 4.2/4 = 1.05 > 0.75$
Downstream channel can only tolerate 7 ft/s

Step 6 - High TW Design:

a. *Design a basin for low tailwater conditions from Steps 1 - 5.*
$D_{50} = 1.8$ ft, $h_s = 6.4$ ft, $L_s = 64$ ft, and $L_B = 96$ ft

b. *Compute equivalent circular diameter (D_E) for brink area from:*
$A = \pi D_E^2/4 = d_o(W_o) = 4(8) = 32$ ft^2
$D_E = [32(4)/\pi]_{0.5} = 6.4$ ft
$V_o = 25$ ft/s

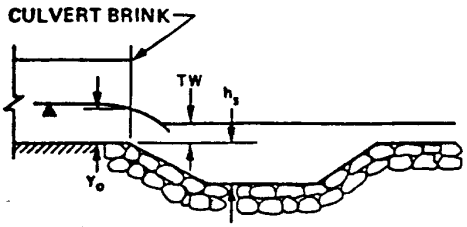
c. *Estimate centerline velocity at a series of downstream cross sections using Fig. 11-4.*

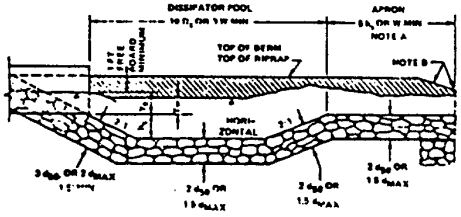
L/D_E	L	V_L/V_o	V_L	D_{50}
10	64	0.59	14.7	1.4
15*	96	0.37	9.0	0.6
20	128	0.30	7.5	0.4
21	135	0.28	7.0	0.4

**is on a logarithmic scale so interpolations must be made logrithmically.*

d. *Size the riprap using Chapter 4. The channel can be lined with the same size rock used for the basin. Protection must extend at least 135 feet downstream.*

PROJECT		PLAN SHEET NO.	DATE
		DESIGNER	REVIEWER





DESIGN VALUES	TRIALS		
CHART 11.3	1	2	3
D_{50}/d_e			
D_{50}			
F_r			
h_s/d_e			
h_s			
h_s/D_{50}			
$2 < h_s/D_{50} < 4$			

BASIN DIMENSIONS		FEET	
POOL LENGTH IS THE LARGER OF:	$10h_s$		
	$3W_o$		
BASIN LENGTH IS THE LARGER OF:	$10h_s$		
	$3W_o$		
THICKNESS APPROACH	$3D_{50}$		
THICKNESS APPROACH	$3D_{50}$		

TAILWATER CHECK	
TW	
d_e	
TW/d_e	
IF $TW/d_e > 0.75$ CALCULATE RIPRAP DOWNSTREAM USING CHART 11.4	
$D_e=(4A_o/\pi)^{.5}$	

DOWNSTREAM RIPRAP (Figure 9-5)				
L/D_e	L	V_L/V_o	V_L	D_{50}

Figure 12-1: Riprap Basin Design Chart
Source: AASHTO Model Drainage Manual, 1991

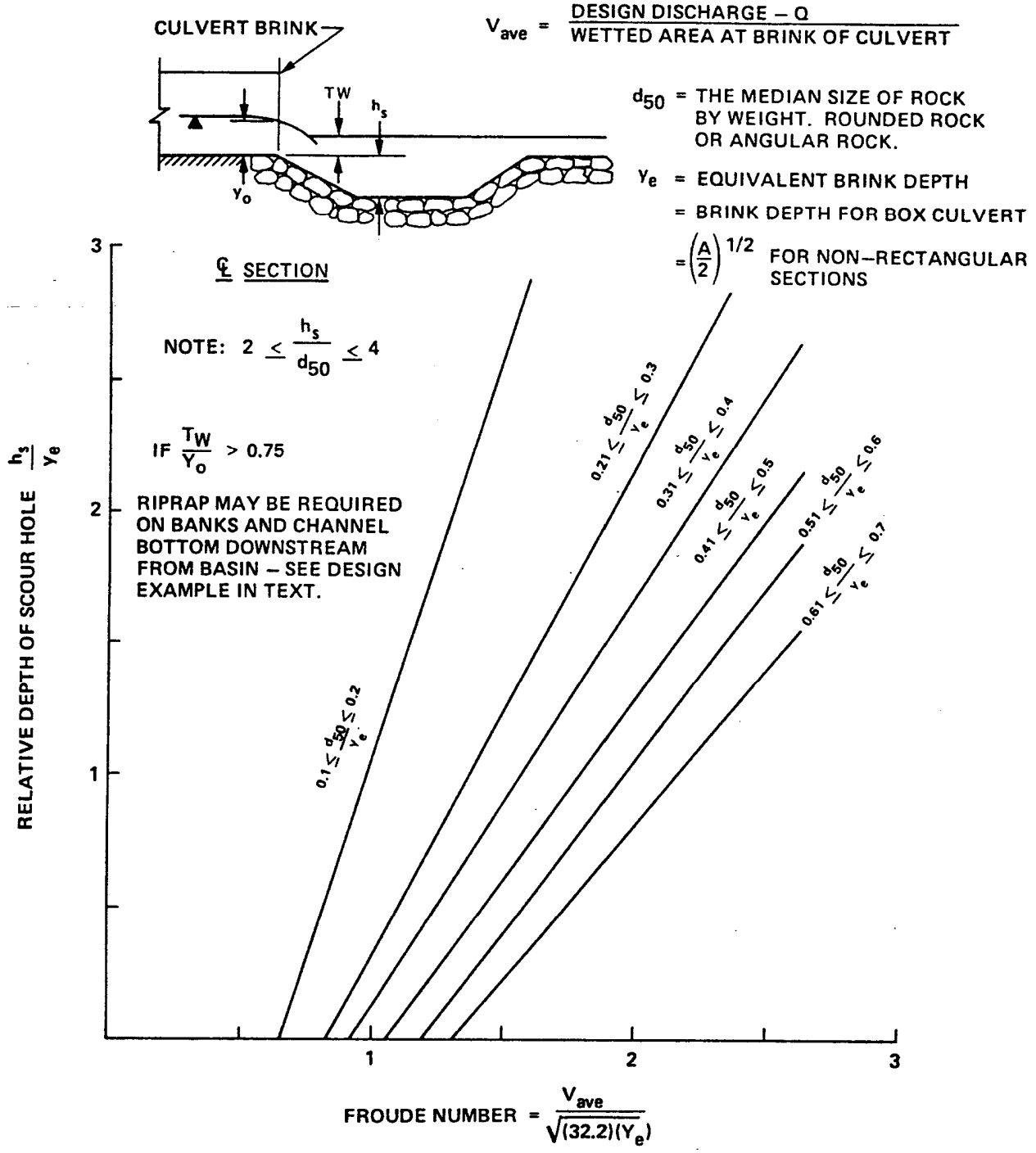


Figure 12-2: Relative Depth of Scour
Source: FHWA, HEC-14, 1983

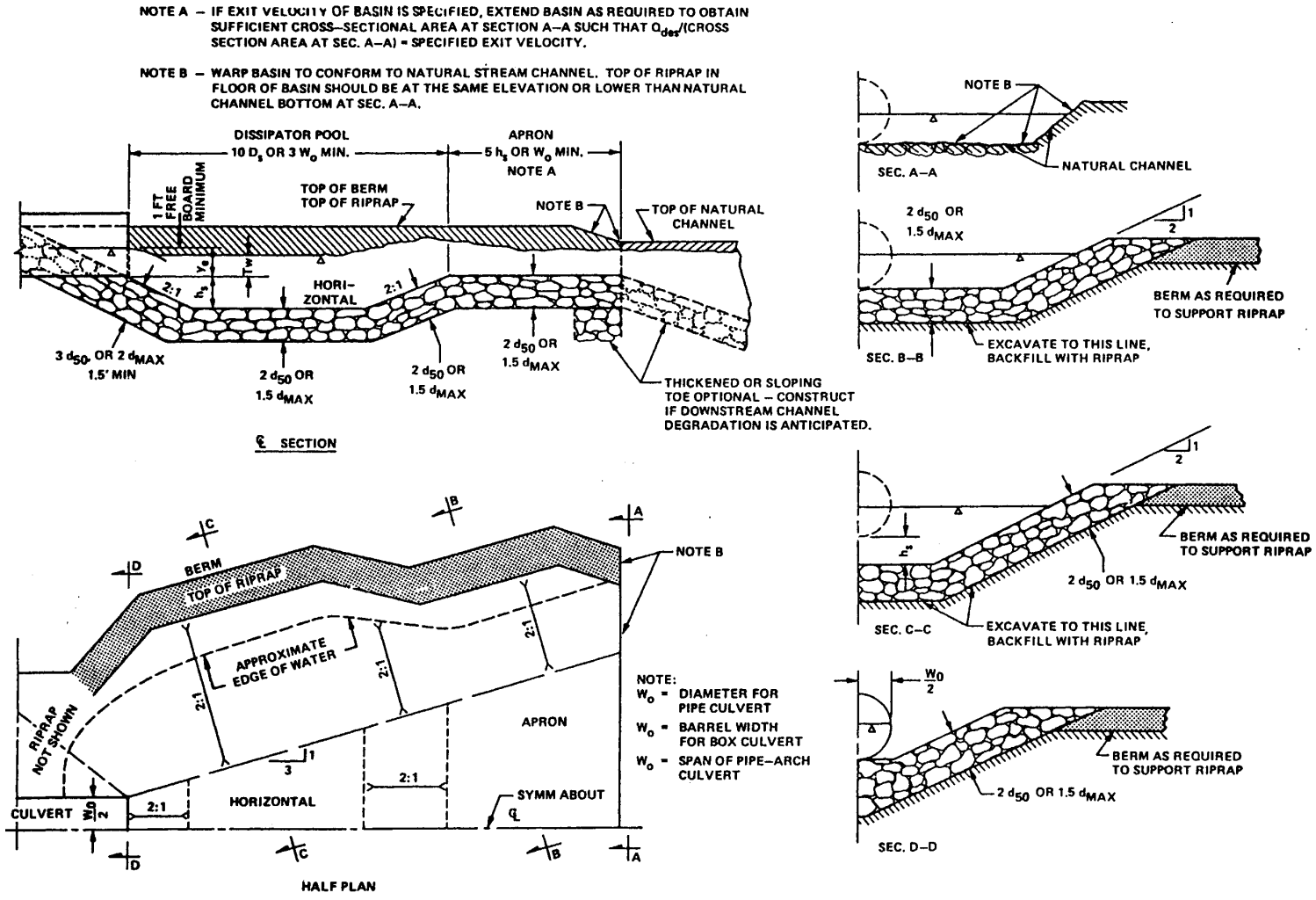
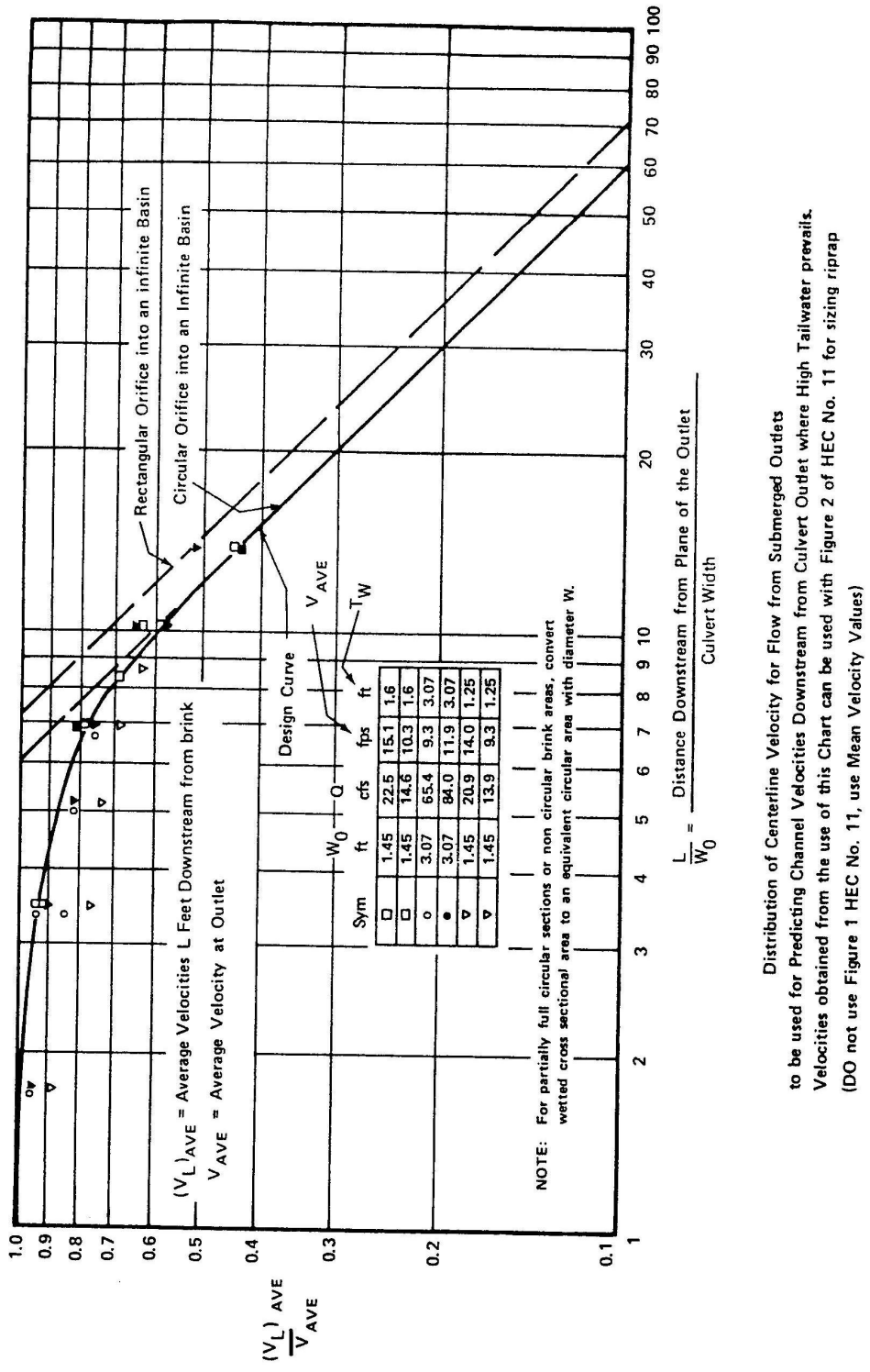


Figure 12-3: Details of Riprap Energy Dissipator
Source: FHWA, HEC-14, 1983



Distribution of Centerline Velocity for Flow from Submerged Outlets
to be used for Predicting Channel Velocities Downstream from Culvert Outlet where High Tailwater prevails.
Velocities obtained from the use of this Chart can be used with Figure 2 of HEC No. 11 for sizing riprap
(DO not use Figure 1 HEC No. 11, use Mean Velocity Values)

Figure 12-4: Velocity Distribution for High Tailwater
Source: FHWA, HEC-14, 1983

12.3.4. Concrete Outlet Structures

Appropriate reinforced concrete energy dissipation structures may be required to reduce erosive flow velocity (> 10 ft/s) to acceptable limits. These structures are suitable for a wide variety of site conditions and in some cases, they are more economical than riprap basins, particularly where long term operation and maintenance costs are considered. Figure 11-5 illustrates examples of concrete energy dissipation structures.

Initial design considerations for impact structures are:

- High energy efficiency is required,
- Low tailwater control is anticipated,
- Use of concrete is more economical due to structure size and long term maintenance, and
- Site conditions dictate the use of a concrete outlet structure due to presence of public use areas where plunge pools and standing water are unacceptable for safety reasons or right-of-way limits are small.

12.3.4.1. USBR Type VI Impact Basin

Design criteria and procedures for the USBR Type VI Impact Type Dissipator are provided in this section. SCS Technical Release No. 49, *Criteria For The Hydraulic Design Of Impact Basins Associated With Full Flow In Pipe Conduits* can also be used for full pipe flow and pipe diameters from 1.5 to 5.5 feet. Information and design procedures for other concrete structures can be found in HEC-14.

This structure is designed to operate continuously at the design flow rate, requires no tailwater to operate effectively, and may be used in open channels as well. However, it is not recommended where debris or ice buildup may cause substantial clogging.

Discharges of up to 400 cfs per barrel and velocities up to 50 ft/s (Froude No. < 9.0) can be used without subjecting the structure to cavitation damage. Design conditions should not exceed this criteria. For best results, the tailwater should be set so that the maximum tailwater does not exceed $h_3 + h_2/2$ (see Figure 11-6).

The basin should be constructed horizontal for all entrance conduits with slopes greater than 15°. A horizontal section of at least one pipe diameter long should be provided immediately upstream of the basin. For entrance pipes with slopes greater than 15°, provide a horizontal section at least two pipe diameters upstream.

For erosion reduction and protection from undermining, an end sill with a low flow drainage slot, 45° wingwalls, and a cut-off wall should be provided at the end of the basin. Riprap should be placed downstream of the basin for a length of least four times the conduit diameter. Figure 11-6 illustrates the USBR Type VI Impact Basin design configuration.

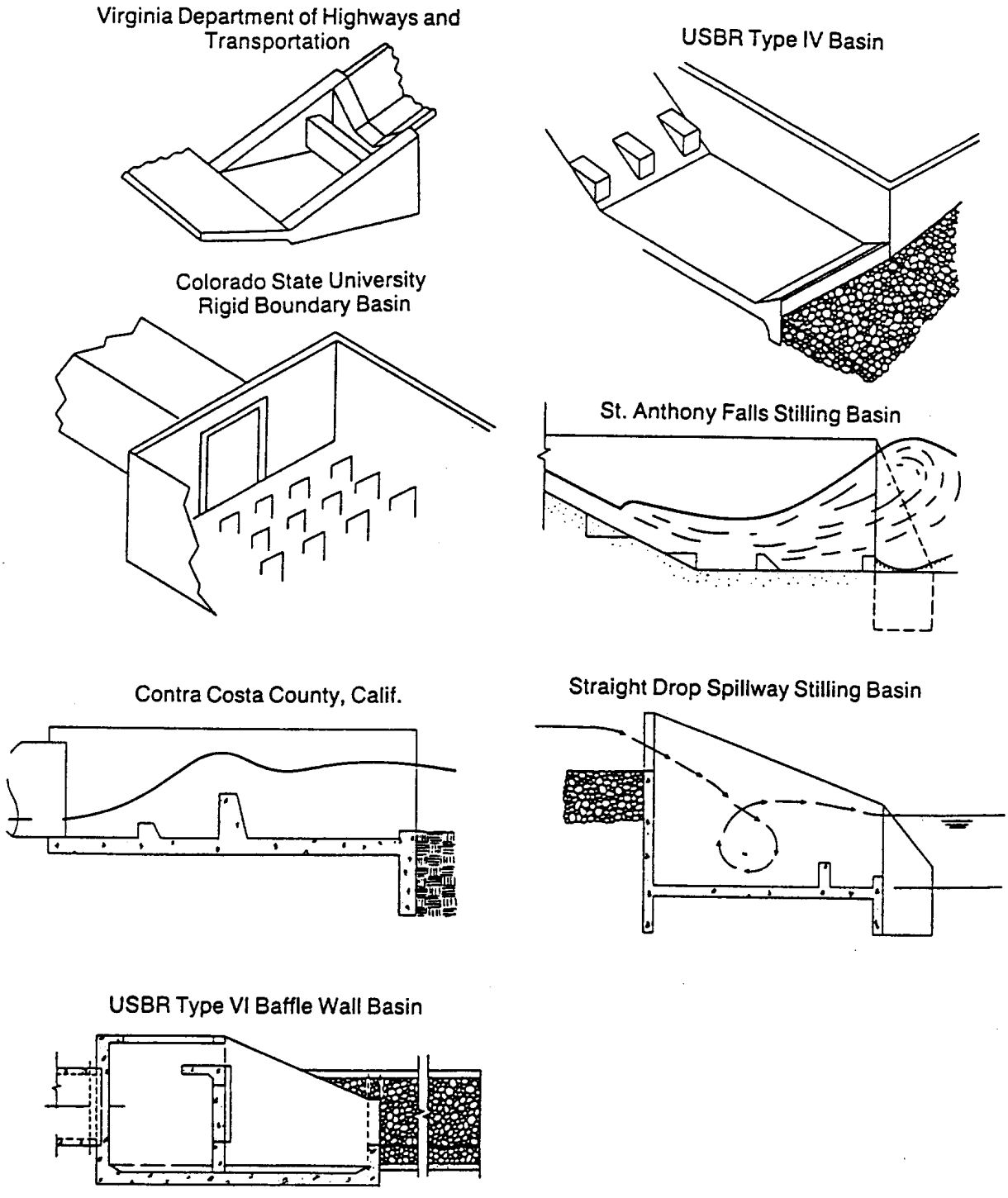


Figure 12-5: Energy Dissipation Structures
Source: North Carolina Erosion and Sediment Control Manual

12.3.4.2. USBR Type VI Impact Basin Design Procedure

The form given in Figure 11-7, can be used with this procedure.

Step 1 Calculate d_E:

a. For rectangular section, $d_E = D_o = y_o$.

b. For other sections, $d_E = (A/2)_{0.5}$.

Step 2 Determine Input Flow:

a. Calculate Froude No., $Fr = V_o/(g\ d_E)^{0.5}$.
b. Calculate specific energy, $H_o = d_E + V_o^2/2g$

Step 3 Determine Basin Width (W):

a. Using Figure 11-8, enter Fr and determine H_o/W
b. $W = H_o/(H_o/W)$

Step 4 Size Basin:

a. Using Table 11-1, obtain the dimensions of the basin as shown in Figure 11-6.

Step 5 Determine Energy Loss:

a. Using Figure 10-9, enter Fr and determine H_L/H_o.
b. $H_L = (H_L/H_o)H_o$.

Step 6 Determine Exit Velocity (V_B):

a. Exit energy (H_E) = $H_o - H_L$.
b. $H_E = d_B + V_B^2/2g$
$V_B = *Q/W)/d_B$

USBR Type VI Design Example:

Given: D = 48 dia. inch pipe (n = 0.15)
Q = 300 cfs
V_o = 40 ft/s
S_o = 0.15 ft/ft
d_o = 2.3 ft

Find: Basin dimensions, energy loss, and exit velocity.
Solution:

Step 1 - Calculate d_E:

a. Other sections other than rectangular, $d_E = (A/2)^{0.5}$
$A = Q/V_o = 300/40 = 7.5\ ft^2$
$d_E = (7.5/2)^{0.5} = 1.94\ ft$

Step 2 - Determine Input Flow:

a. Froude No., $Fr = V_o/(gd_E)^{0.5} = 40/[32.2(1.94))]^{0.5} = 5.05$
b. Specific energy, $H_o = d_E + V_o^2/2g = 1.94 + (40)^2/64.4 = 26.8$

Step 3 - Determine W:

a. Using Figure 11-8 and Fr = 5.05, $H_o/W = 1.68$
b. $W = H_o/(H_o/W) = 26.8/1.68 = 16\ ft$

Step 4 - Size basin:

a. Using Table 11-1 and W, obtain remaining basin dimensions

Step 5 - Determine energy loss (H_L):

a. Using Figure 11-9 and Fr = 5.05, $H_L/H_o = 0.67$
b. $H_L = (H_L/H_o)H_o = 0.67(26.8) = 18\ ft$

Step 6 - Calculate exit velocity (V_B):

a. Exit energy *H_E) = $H_o - H_L = 26.8 - 18 - 8.8\ ft$
b. $H_E = d_B + V_B^2/2g = 8.8$
$V_B = (Q/W)/d_B = (300/16)/d_B = 18.75/d_B$

d_B	V_B	$d_B + V_B^2/2g = 8.8$
$2.3 = d_o$	8.1	3.3
1.0	18.8	6.5
0.8	23.4	9.3, use
0.9	20.8	7.6

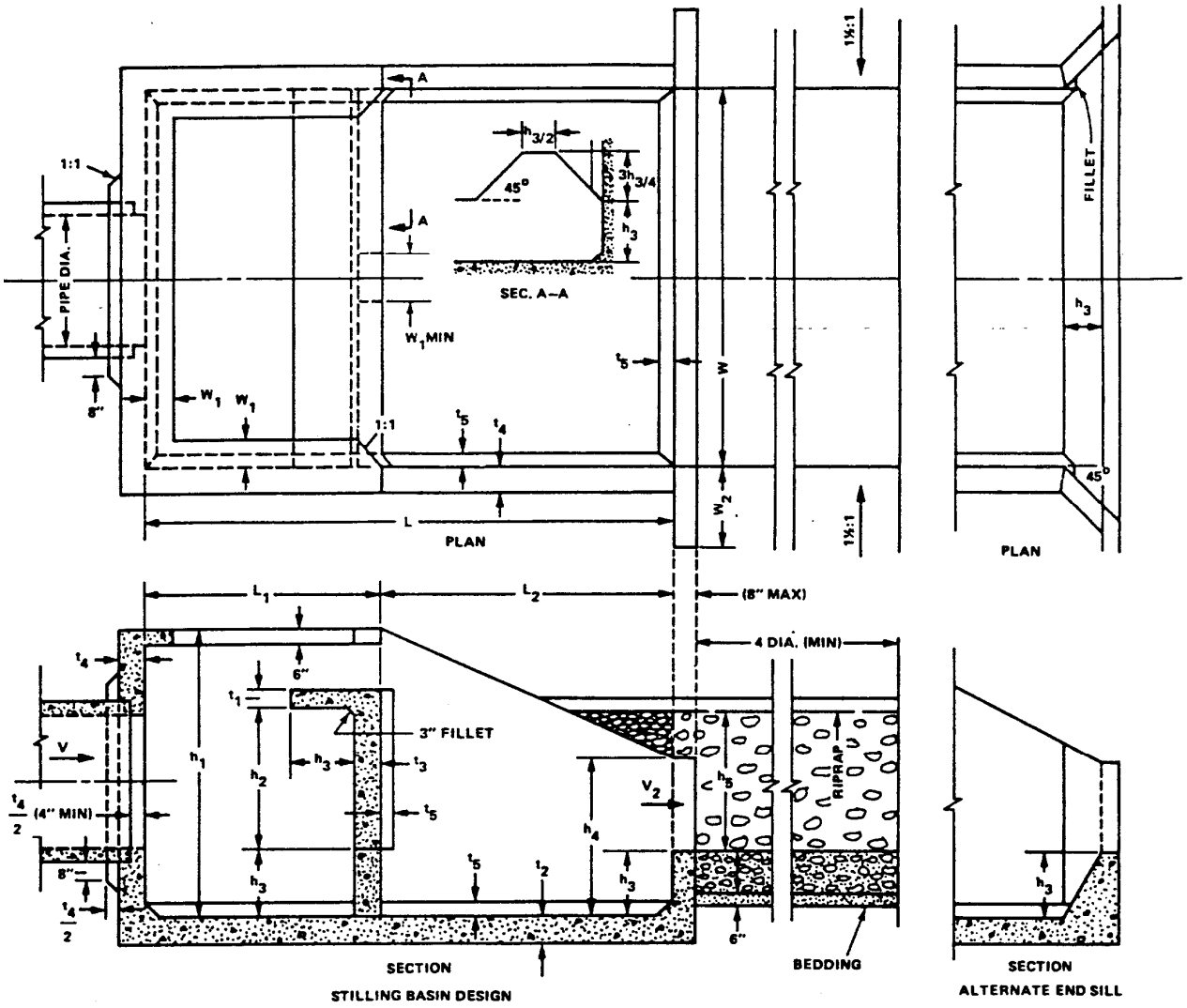
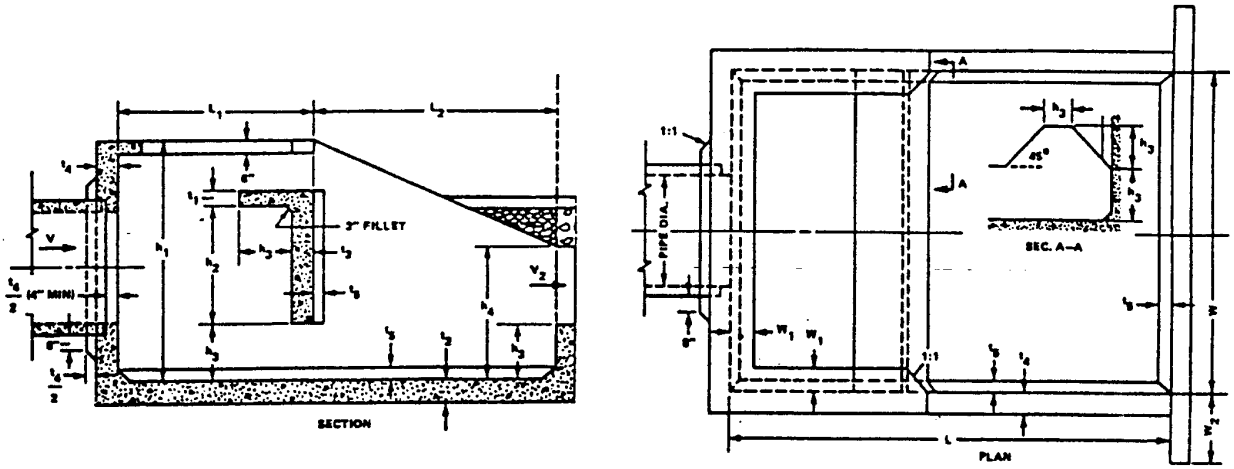


Figure 12-6: USBR Type VI Impact Basin
Source: AASHTO Model Drainage Manual, 1991

PROJECT	PLAN SHEET NO.	DATE
	DESIGNER	REVIEWER



CHOOSE BASIN WIDTH (W) CHART 11.6	TRIALS		
	1	2	3
$d_e=Y_e$			
V_o			
$H_o=d_e+V_o^2/2g$			
F_r			
H_o/W			
$W=H_o/(H_o/W)$			

CHECK OUTLET VELOCITY (V_B)			
H_L/H_o (CHART 11.7)			
$H_L=(H_L/H_o)H_o$			
$H_e=H_o-H_L$			
d_B			
$V_B=(Q/W)/d_B$			
$(H_e)_T=d_B+V_B^2/2g$			
IF $(H_e)_T \neq H_e$ CHOOSE ANOTHER D_B			

BASIN DIMENSIONS (FEET-INCHES) FROM TABLE 11.1							
W	h_1	h_2	h_3	h_4	L	L_1	L_2
W	W_1	W_2	t_1	t_2	t_3	t_4	t_5

Figure 12-7: USBR Type VI Impact Basin Design Chart
Source: AASHTO Model Drainage Manual, 1991

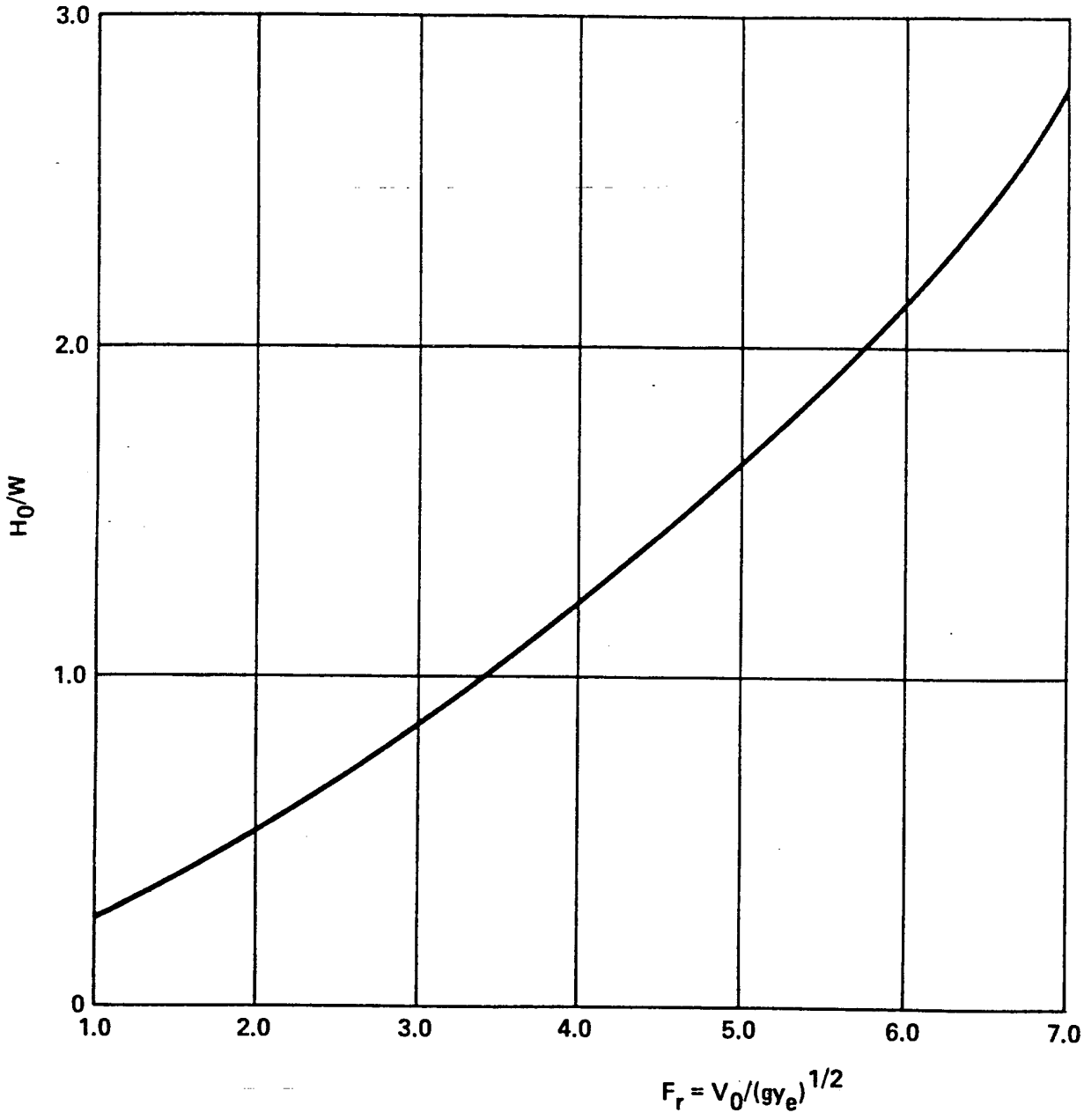


Figure 12-8: Design Curve For USBR Type VI Impact Basin
Source: AASHTO Model Drainage Manual, 1991

TABLE 12-1: USBR TYPE VI BASIN DIMENSIONS

W	h_1	h_2	h_3	h_4	L	L_1	L_2
4	3-1	1-6	0-8	1-8	5-5	2-4	3-1
5	3-10	1-11	0-10	2-1	6-8	2-11	3-10
6	4-7	2-3	1-0	2-6	8-0	3-5	4-7
7	5-5	2-7	1-2	2-11	9-5	4-0	5-5
8	6-2	3-0	1-4	3-4	10-8	4-7	6-2
9	6-11	3-5	1-6	3-9	12-0	5-2	6-11
10	7-8	3-9	1-8	4-2	13-5	5-9	7-8
11	8-5	4-2	1-10	4-7	14-7	6-4	8-5
12	9-2	4-6	2-0	5-0	16-0	6-10	9-2
13	10-2	4-11	2-2	5-5	17-4	7-5	10-0
14	10-9	5-3	2-4	5-10	18-8	8-0	10-9
15	11-6	5-7	2-6	6-3	20-0	8-6	11-6
16	12-3	6-0	2-8	6-8	21-4	9-1	12-3
17	13-0	6-4	2-10	7-1	21-6	9-8	13-0
18	13-9	6-8	3-0	7-6	23-11	10-3	13-9
19	14-7	7-1	3-2	7-11	25-4	10-10	14-7
20	15-4	7-6	3-4	8-4	26-7	11-5	15-4

W	W_1	W_2	t_1	t_2	t_3	t_4	t_5
4	0-4	1-1	0-6	0-6	0-6	0-6	0-3
5	0-5	1-5	0-6	0-6	0-6	0-6	0-3
6	0-6	1-8	0-6	0-6	0-6	0-6	0-3
7	0-6	1-11	0-6	0-6	0-6	0-6	0-3
8	0-7	2-2	0-6	0-7	0-7	0-6	0-3
9	0-8	2-6	0-7	0-7	0-8	0-7	0-3
10	0-9	2-9	0-8	0-8	0-9	0-8	0-3
11	0-10	3-0	0-8	0-9	0-9	0-8	0-4
12	0-11	3-0	0-8	0-10	0-10	0-9	0-4
13	1-0	3-0	0-8	0-11	0-10	0-10	0-4
14	1-1	3-0	0-8	1-0	0-11	0-11	0-5
15	1-2	3-0	0-8	1-0	1-0	1-0	0-5
16	1-3	3-0	0-9	1-0	1-0	1-0	0-6
17	1-4	3-0	0-9	1-1	1-0	1-0	0-6
18	1-4	3-0	0-9	1-1	1-1	1-1	0-7
19	1-5	3-0	0-10	1-2	1-1	1-1	0-7
20	1-6	3-0	0-10	1-2	1-2	1-2	0-8

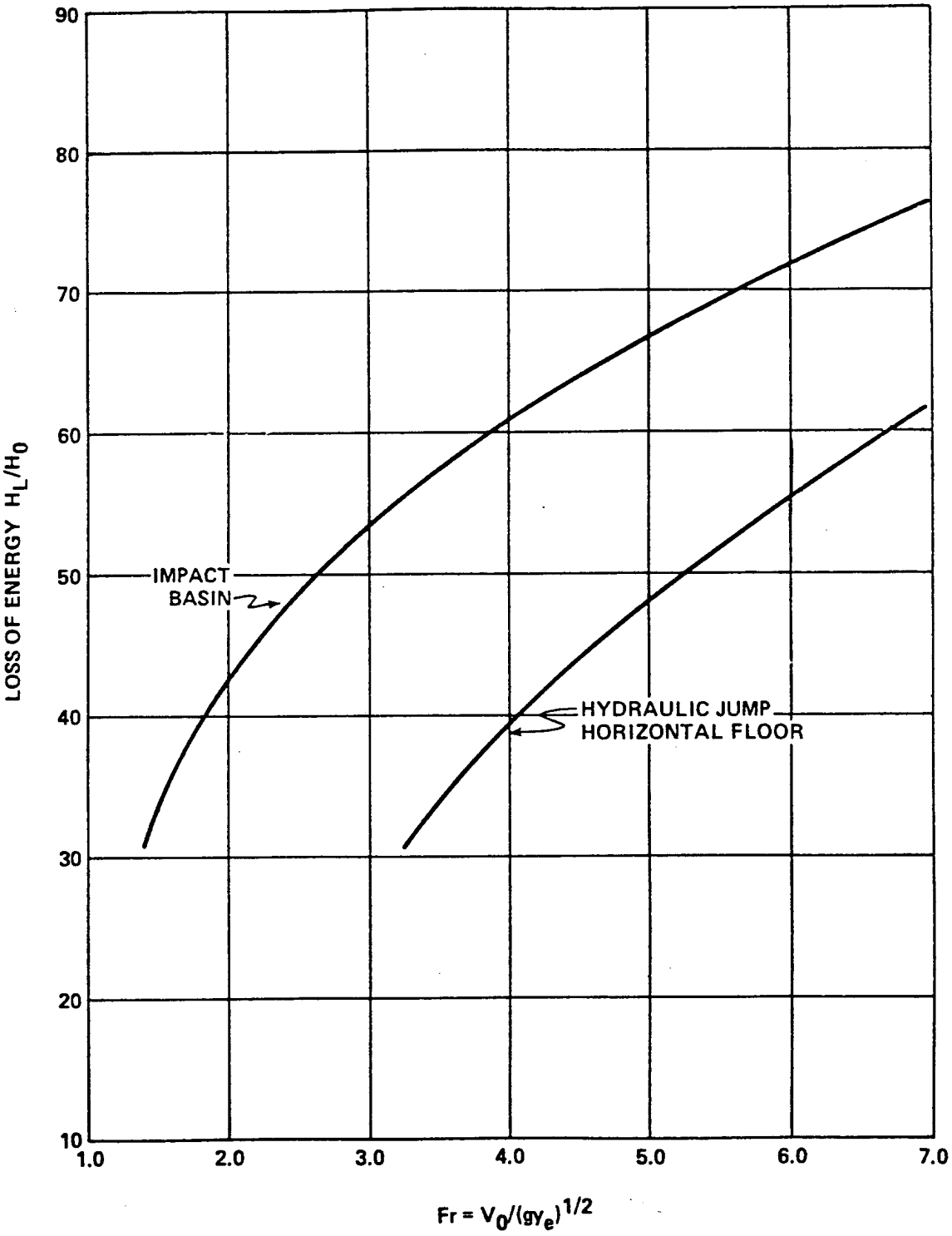


Figure 12-9: Energy Loss For USBR Type VI Impact Basin
Source: AASHTO Model Drainage Manual, 1991

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Stormwater Management Design Manual Update

March 4, 2025

City Council First Read

Ordinance #2025-04

TEAM FLAGSTAFF

WE MAKE THE CITY BETTER

Objectives for Tonight

- Project Scoping Exercise
- New Manual Basis
- Intent of Manual
- Peer Review and Public Comments
- Manual Revisions
- Discussion and Questions
- First Read Ordinance #2025-04
- Adopt Resolution and Ordinance



Project Scoping Exercise

- Review existing manual (2009) to identify desired changes and deficiencies
- Review options for the new manual
    a. Edit existing manual – too many edits
    b. Create new manual – too large, cumbersome
    c. Create new manual – **adopt from other agencies with adaptation to our community**

New Manual Basis

- Coconino County Drainage Design Criteria Manual - Revised 2020
  - Previous County version was based on City of Flagstaff manual
- City of Flagstaff Manual 2025 then utilized County 2020 version with adaptations to our community
- Adopted Flood Control District of Maricopa County Drainage and Design Manual – Hydraulics
- Hydrology – more regional specific (COF) with references to applicable standards and guidelines from other agencies

Intent of Manual

- Update to current engineering and drainage policies, methods, standards, definitions, and design procedures
- Goals as outlined in the Staff Report

Peer Review and Public Comments

- Initial peer review to over 30 participants - February 19, 2024 to March 12, 2024
- Final peer request extended through April 4, 2024
- Multiple comments received, considered, and incorporated as applicable
- Water Commission review – September 19, 2024
- Open for public comment September 20, 2024 through end of October 2024 - No public comments received

Remains Applicable

- Title 13 City of Flagstaff Engineering Design Standards and Specifications for New Infrastructure
  - Chapter 8 of Title 13 is the new stormwater manual
- Title 12 Floodplains (Floodplain Ordinance)
  - Floodplain Use Permit
  - FEMA Regulations
  - NFIP (National Floodplain Insurance Program)
- Low Impact Development Guidance Manual

Manual Revisions

2009 Manual	2025 Revised Manual	Summary of Revisions
Definitions	**Definitions**	- Definitions updated as need.
1: Introduction	**1.0 General Conditions and Requirements**	- Chapter sections updated as needed. - Added more sections including Legal Authority, References, Deviation From Adopted Standards, and a Disclaimer
2: Drainage Reports and Plans	**2.0 Drainage Reports**	- Chapter sections reorganized and revised as needed. - Sections about stormwater construction plans have been removed. More applicable to Engineering Standards, Title 13.
	3.0 Floodplain Requirements	- City of Flagstaff Administrative Floodplains added. - This chapter was contained in Chapter 2 (Drainage Reports) of the 2009 manual. - Additional information and guidelines provided as needed based on updated floodplain analysis and revision methods.

Manual Revisions

2009 Manual	2025 Revised Manual	Summary of Revisions
3: Hydrology	**4.0 Hydrology**	- Revised and updated based on City of Flagstaff updated regional hydrology standards where applicable. - Revised and added information and guidelines as needed based on updated hydrologic analysis methods. - Provided "Quick Reference Guide"
4: Open Channels **5: Culverts and Bridges** **6: Pavement Drainage** **7: Storm Drains** **8: Storage and Detention Facilities**	**5.0 Hydraulics**	- Adopted FCDMC Hydraulics Manual where applicable. - This chapter compiles Chapters 4 through 8 from the 2009 manual. - Revised and added information and guidelines as needed based on updated analysis methods. - Provided "Quick Reference Guide"
9: Low Impact Development Requirements for Infiltration and Reuse of Stormwater	**6.0 Low Impact Development**	- Revised and added information and guidelines as needed based on updated analysis methods. - Clarified policies and added section for previously separate documents: Rainwater Harvesting (updates policy) - Added Reference section to related City of Flagstaff documents.

Manual Revisions

2009 Manual	2025 Revised Manual	Summary of Revisions
10: Erosion Hazard/ Building Setbacks	**7.0 Erosion Hazard/ Building Setbacks**	- Substantially the same.
11: Erosion and Sediment Control	**8.0 Erosion and Sediment Control**	- Chapter sections reorganized and revised as needed. - Substantially the same.
12: Energy Dissipators		- Chapter removed and references to other design manuals included in new manual where applicable.
	9.0 Burned Watershed and Post-Wildfire Flooding	- Chapter added to manual based on current and ongoing impacts from regional wildfires.
	10.0 Two-Dimensional Flood Modeling	- Chapter added to manual based on hydrologic and hydraulic analysis methods and technology currently used.

Discussion and Questions

TEAM FLAGSTAFF

WE MAKE THE CITY BETTER

CITY OF FLAGSTAFF

STAFF SUMMARY REPORT

To: The Honorable Mayor and Council

From: Sarah Langley, Public Affairs Director

Co-Submitter: Sarah Darr

Date: 02/26/2025

Meeting Date: 03/04/2025

TITLE:

Consideration and Adoption of Resolution No. 2025-08: A resolution of the Flagstaff City Council recognizing the housing emergency declared by Resolution No. 2020-66 is exacerbated by the proliferation of short-term rentals limiting housing stock available to Flagstaff residents; and urging the state legislature of the State of Arizona to address the impacts of short-term rentals on the supply of housing for Arizona residents.

STAFF RECOMMENDED ACTION:

1. Read Resolution No. 2025-08 by title only
2. City Clerk reads Resolution No. 2025-08 by title only (if approved above)
3. Adopt Resolution No. 2025-08

Executive Summary:

This resolution recognizes the City of Flagstaff Housing Emergency declared by resolution No. 2020-66 and notes that this Housing Emergency is exacerbated by the proliferation of short-term rentals in our community. The resolution urges the state legislature of the State of Arizona to address the impacts of short-term rentals on the supply of housing for Arizona residents. The resolution lists numerous impacts that short-term rentals have on housing in Flagstaff, including making units unavailable for Flagstaff residents and potentially creating noise and nuisance issues for those living nearby. The resolution calls for the state legislature to allow local governments to adopt reasonable regulations on the number and location of short-term rentals to mitigate the negative impacts short-term rentals can have on local housing markets.

Financial Impact:

None

Policy Impact:

None

Previous Council Decision or Community Discussion:

The Flagstaff City Council approved the Council's 2025 state and federal legislative priorities on January 21, 2025. The 2025 state legislative priorities include a priority to support efforts that allow for local regulations over short-term rentals.

On February 11, 2025, the Housing Commission discussed the Resolution and voted 5-4 to send the Resolution to the City Council with a recommendation for approval. Comments from commissioners who voted in support of a recommendation to approve the Resolution centered around the desire to return the ability to regulate STRs to the local level and the potential for growth of STRs in the future. Comments from commissioners who voted against a recommendation to approve the Resolution centered around the belief that further STR regulations would not benefit the community and could negatively impact the generation of tax revenue from STRs. More information can be found in the meeting minutes.

Options and Alternatives to Recommended Action:
Option A - Approve the resolution
Option B - Do not approve the resolution

Background and History:
Senate Bill 1350, passed in 2016, requires local governments in the state of Arizona to allow short-term rentals in all residential zones.

Connection to PBB Priorities and Objectives:
This resolution is in support of the Livable Community, and Safe and Healthy Community priorities within Priority Based Budgeting.

Connection to Regional Plan:
The resolution supports a numbers of goals within the 2030 Regional Plan, including:

- Goal NH.1. Foster and maintain healthy and diverse urban, suburban, and rural neighborhoods in the Flagstaff region.
- Goal NH.3. Make available a variety of housing types at different price points, to provide housing opportunity for all economic sectors.

Connection to Carbon Neutrality Plan:
The resolution supports the Housing for All target area within the Carbon Neutrality Plan.

Connection to 10-Year Housing Plan:
This resolution is in support of the following section of the City of Flagstaff's 10-Year Housing Plan:
Protect 1: City Council will continue to lobby and support federal and state legislation to encourage changes to federal and state laws, and to increase the amount of funding available for the preservation and construction of affordable housing.
Protect 1.1: Advocate to the State of Arizona to allow greater local control of vacation rentals and second homes.

Connection to Division Specific Plan:
N/A

Attachments: Res. 2025-08
Minutes from Housing Commission Meeting

RESOLUTION NO. 2025-08

A RESOLUTION OF THE FLAGSTAFF CITY COUNCIL, RECOGNIZING THE HOUSING EMERGENCY DECLARED BY RESOLUTION NO. 2020-66 IS EXACERBATED BY THE PROLIFERATION OF SHORT-TERM RENTALS LIMITING HOUSING STOCK AVAILABLE TO FLAGSTAFF RESIDENTS; AND URGING THE STATE LEGISLATURE OF THE STATE OF ARIZONA TO ADDRESS THE IMPACTS OF SHORT-TERM RENTALS ON THE SUPPLY OF HOUSING FOR ARIZONA RESIDENTS

RECITALS:

WHEREAS, zoning power is a fundamental authority used by cities to structure their development and is considered a legitimate exercise of the police power;

WHEREAS, the power to zone is the power to divide up the locality's geographic area into different categories of land use that are inconsistent with each other;

WHEREAS, areas zoned residential are commonly separated from areas zoned commercial and industrial, and residential areas are often further zoned into single-family and multi-family areas;

WHEREAS, courts have long upheld the distinction between residential and commercial uses because the police power allows for the creation of zones;

WHEREAS, the City of Flagstaff ("City" or "Flagstaff") has a legitimate governmental interest in preserving the residential character of neighborhoods that enhance the quality of life for its residents and visitors by minimizing the adverse impacts of short-term rentals ("STR" or "STRs") through regulation;

WHEREAS, local regulations are necessary to ensure that such STR activities do not become a nuisance to residents, threaten the public health, safety or welfare of neighboring properties;

WHEREAS, reasonable local regulations to limit the number and location of STRs will provide a balance between STRs and available housing stock;

WHEREAS, local governments apply design standards tailored for residential neighborhoods;

WHEREAS, STR owners may live elsewhere and not experience the quality of life problems and negative impacts associated with STRs in residential neighborhoods;

WHEREAS, a home is typically the largest investment a household will make in their lifetime;

WHEREAS, permanent residents deserve the right to tranquility and peaceful enjoyment of their home without over intrusion STR occupants in their neighborhood;

WHEREAS, the U.S. Census Bureau data indicates the average household size in Flagstaff is 2.32 persons and average family size is 2.83 persons;

WHEREAS, current vacation rental industry practice is to set maximum limits upon the

number of transient occupants within an STR, but lacking provisions for verification and enforcement when overcrowding occurs;

WHEREAS, current vacation rental industry practice is to charge a flat rental fee for the term of the STR lease, regardless of the occupant count, which incentivizes the current common practice for lessees of STRs to increase the occupant count so as to spread out the cost burden of the STR among as many people as possible occupying the STR;

WHEREAS, Flagstaff has received complaints related to the operation of STRs in residential neighborhoods, including complaints concerning excessive occupants, lighting, noise, parking, and increased trash;

WHEREAS, permanent residents worry the concentration of STRs in their neighborhood could change the character and transform the quality of life of the area creating an incredibly difficult task for local governments of finding ways to regulate STRs in such a way that they protect neighborhoods while balancing a homeowner's property rights;

WHEREAS, traditional lodging establishments (hotels, motels, and bed & breakfasts) are generally restricted to commercial and other non-residentially zoned areas where intensity of uses is separated from less busy and quieter residential uses;

WHEREAS, traditional lodging establishments have stricter development standards, undergo annual inspections, and have more stringent operational and business requirements;

WHEREAS, STRs are not treated as similar businesses, posing a threat to the hotel industry which claims that the business models of STR platforms offer unfair economic advantages because STRs do not have to pay for staff and are not regulated like hotels which increases hotel costs substantially;

WHEREAS, STRs eliminate critically important housing units from Flagstaff’s available housing stock;

WHEREAS, since STRs are mainly located in residential areas, by renting an STR, tourists are using up space that otherwise might be used for housing by permanent residents, resulting in a decrease of long-term housing availability which contributes to increasing housing and rental prices;

WHEREAS, in December 2020, the Flagstaff City Council declared a Housing Emergency prioritizing affordable housing within City operations to create safe, decent, and affordable housing opportunities for all community members;

WHEREAS, in February 2022 Flagstaff City Council adopted The Ten-Year Housing Plan, with overarching goals of impacting at least 6,000 low-to-moderate-income City residents through a combination of unit creation or subsidy provision. Additionally, creating or preserving 7,976 housing units by 2031 with a minimum of ten percent being affordable;

WHEREAS, as of February 2025, STRs comprise 3.6% of Flagstaff’s housing stock;

WHEREAS, at the beginning of 2021, Flagstaff had approximately 600 STRs, which has increased to 1,142 as of February 2025;

WHEREAS, as of January 2022, 22% of homes in Flagstaff are classified as second homes, the City must implement policies to address the strain on local housing and ensure access to affordable and stable housing for long-term residents;

WHEREAS, an Urban Institute Study found that cities and counties across the country face significant rental housing affordability challenges as more households with low and moderate incomes compete for a shrinking number of affordable units;

WHEREAS, in 2020, the Arizona Housing Coalition found that the "proliferation of short-term rentals particularly impacts the availability of affordable housing in high-tourism areas such as Flagstaff and Scottsdale;"

WHEREAS, growing affordability challenges disproportionally impact lower-income households, contributing to housing instability and homelessness;

WHEREAS, a 2019 Economic Policy Institute cost-benefit analysis concluded that the local economic costs of STRs likely outweigh the benefits. While the introduction and expansion of STRs carries large potential economic benefits and costs, the costs to renters and local jurisdictions likely exceed the benefits to travelers and property owners;

WHEREAS, Arizona preempts local government from regulating short-term rentals to a much higher degree than other states;

WHEREAS, reasonable local regulations on STRs as to numbers and locations can strike a balance between property owners' rights to fair use of their properties and the rights of surrounding property owners to set and maintain community standards;

WHEREAS, returning local control over short-term rentals shares bipartisan support in the Arizona Legislature;

WHEREAS, every community is different when it comes to what works and what doesn't, necessitating a return of local control over the regulation of STRs;

WHEREAS, regulating STRs means looking at the different variables and planning objectives of each community and taking them into consideration, such as housing costs, the general appetite for visitors, availability of traditional lodging, the value of tourism, the percent of existing STRs, and more;

WHEREAS, absent appropriate controls on the number and manner and places of operation of STRs, neighborhoods stand to be harmed by undue commercialization and disruption to the primary and overarching purpose of a neighborhood being first and foremost a residential community, where people reside, not a place of transient occupancy;

WHEREAS, with state preemption, these critical elements are being overlooked;

WHEREAS, reasonable local regulations on the number and location of short-term rentals will balance Flagstaff's desire to promote economic development and tourism with Flagstaff's legitimate need to mitigate the adverse impacts often associated with STRs.

ENACTMENTS:

NOW, THEREFORE, BE IT RESOLVED BY THE COUNCIL OF THE CITY OF FLAGSTAFF AS FOLLOWS:

SECTION 1. The City of Flagstaff recognizes that the Housing Emergency declared via Resolution 2020-66 is exacerbated by the proliferation of short-term rentals and requests the State Legislature return local control to cities, towns, and counties to implement reasonable zoning restrictions on STRs, including limitations on the number and location of short-term rentals.

SECTION 2. The City of Flagstaff calls on the Legislature and Governor of the State of Arizona to allow local governments to adopt reasonable regulations on the number and location of STRs as to strike a balance between property owners' rights to fair use of their properties and the rights of surrounding property owners to set and maintain community standards.

SECTION 3. The City of Flagstaff invites similarly situated cities, towns, and counties to pass their own resolution declaring a housing emergency and recognizing the negative impact STRs can have on local housing markets.

SECTION 4. Effective Date.

This resolution shall be immediately effective upon adoption.

PASSED AND ADOPTED by the City Council of the City of Flagstaff this 4th day of March, 2025.

_____
MAYOR

ATTEST:

_____
CITY CLERK

APPROVED AS TO FORM:

_____
CITY ATTORNEY

DRAFT MEETING MINUTES

HOUSING COMMISSION
MONDAY
FEBRUARY 10, 2025

VIRTUAL MEETING ONLY
MICROSOFT TEAMS MEETING
1:00 PM

1. Call to Order

Commissioner Tyler Denham called the meeting to order at 1:05 pm

NOTICE OF OPTION TO RECESS INTO EXECUTIVE SESSION

Pursuant to A.R.S. §38-431.02, notice is hereby given to the members of the Commission and to the general public that, at this regular meeting, the Commission may vote to go into executive session, which will not be open to the public, for legal advice and discussion with the City's attorneys for legal advice on any item listed on the following agenda, pursuant to A.R.S. §38-431.03(A)(3).

2. Roll Call

NOTE: One or more Commission members may be in attendance telephonically or by other technological means.

Kevin Bond - Absent	Karen Flores - Present	Cory Runge - Present
Eric Brownfield - Present	Sandi Flores, Vice Chair - Present	Ross Schaefer - Present
Tyler Denham - Present	Jacquie Kellogg - Present, arrived at 1:10 pm	Glenn Slivers - Absent
Kevin Dobbe - Absent	Devonna McLaughlin, Chair - Absent	Hayley Zoroya - Present
	Moses Milazzo - Present	

OTHERS PRESENT:
Adriana Fisher, Housing Program Manager
Jennifer Mikelson, Housing Planning Manager
Marissa Molloy, Housing Specialist
Jessica Donohoe, Housing Planner
Kristine Pavlik, Housing and Grants Administrator
Sarah Darr, Housing Director
Justyna Costa, Assistant Housing Director
Dan Folke, Community Development Director
Khara House, Council Liaison
Christina Rubalcava, Senior Assistant City Attorney
Anthony Garcia, Councilmember
David Spence, Councilmember
Sarah Langley, Public Affairs Director

3. LAND ACKNOWLEDGMENT

The Housing Commission humbly acknowledges the ancestral homelands of this area's Indigenous nations and original stewards. These lands, still inhabited by Native descendants, border mountains sacred to Indigenous peoples. We honor them, their legacies, their traditions, and their continued contributions. We celebrate their past, present, and future generations who will forever know this place as home.

Read by Commissioner Cory Runge

4. Public Comment

At this time, any member of the public may address the Commission on any subject within their jurisdiction that is not scheduled before the Commission on that day. Due to Open Meeting Laws, the Commission cannot discuss or act on items presented during this portion of the agenda. To address the Commission on an item that is on the agenda, please wait for the Chair to call for Public Comment at the time the item is heard.

David Spence, as an individual, asked about co-housing. Ms. Sarah Darr, Housing Director, noted that she would be in contact after the meeting.

5. APPROVAL OF MINUTES

None.

6. ACTION ITEMS

A. Discussion and consideration of recommendation to City Council for approval of A RESOLUTION OF THE FLAGSTAFF CITY COUNCIL RECOGNIZING THE HOUSING EMERGENCY DECLARED BY RESOLUTION NO. 2020-66 IS EXACERBATED BY THE PROLIFERATION OF SHORT-TERM RENTALS LIMITING HOUSING STOCK AVAILABLE TO FLAGSTAFF RESIDENTS; AND URGING THE STATE LEGISLATURE OF THE STATE OF ARIZONA TO ADDRESS THE IMPACTS OF SHORT-TERM RENTALS ON THE SUPPLY OF HOUSING FOR ARIZONA RESIDENTS
Discuss the proposed resolution and recommend approval for City Council meeting on March 4, 2025.

Ms. Justyna Costa, Assistant Housing Director, and Ms. Sarah Langley, Public Affairs Director, gave an introduction to the discussion: /flagsshareddocs/file/2.10.25 PowerPoint.pdf

Commissioners made comments and asked questions on the following topics:

- The percentage of Short-Term Rentals (STRs) in Flagstaff's housing stock
- Generation of tax revenue from STRs and economic risks on regulating STRs
- Other ways to address noise and disorderly conduct
- Regulations on second homes
- How the administration of this resolution will work
- HOA involvement
- Affordability of homes being used as STRs
- The potential growth of STRs in the future
- Where the request came from
- The effectiveness of the resolution
- The ability to regulate STRs locally instead of at the State level

Ms. Langley and Ms. Darr answered questions. Christina Rubalcava, Senior Assistant City Attorney, provided clarification on the legality of HOA STR restrictions.

Moved by Sandi Flores, **seconded by** Moses Milazzo to forward the resolution to City Council with a recommendation for approval.

Vote: 5 - 4

NAY: Cory Runge
Eric Brownfield
Jacquie Kellogg
Karen Flores

AYE - Hayley Zoroya
Moses Milazzo
Ross Schaefer
Sandi Flores
Tyler Denham

Commissioner Cory Runge noted, in discussion after the motion and a second was made to forward the resolution with a recommendation to approve, that he would have recommended forwarding the resolution to the City Council with a recommendation for denial. He said he did not believe that imposing further regulations on STRs would benefit the City and that there are other avenues to regulate potential impacts STRs may have on neighborhoods.

Council Liaison Khara House invited Commissioners to come as individuals to the Council Meeting where this resolution will be discussed.

7. PRESENTATION AND DISCUSSION ITEMS

None.

8. INFORMATIONAL ITEMS TO/FROM COMMISSION MEMBERS, STAFF, AND FUTURE AGENDA ITEM REQUESTS

A. Update from Housing Authority Liaison

This item was deferred to the next regular Housing Commission meeting.

B. Update from Housing Commissioners and Other Informational Items

Commissioner Tyler Denham requested to give a presentation on development regulations at the Housing Commission's regular February meeting. Ms. Darr said the February meeting was already heavily booked, but that they could schedule it for a future meeting.

C. Update from Housing Staff

This item was deferred to the next regular Housing Commission meeting.

9. ADJOURNMENT

Commissioner Tyler Denham adjourned the meeting at 1:58 pm.

CITY OF FLAGSTAFF

STAFF SUMMARY REPORT

To: The Honorable Mayor and Council

From: Georganna Staskey, Deputy City Clerk

Date: 03/03/2025

Meeting Date: 03/04/2025

TITLE:

Consideration and Possible Action: Use of the Council Initiative Fund

STAFF RECOMMENDED ACTION:

Authorize the use of the Council Initiative Fund:

1. Sponsorship of the Habitat for Humanity Blitz Home Build Volunteer Event
2. Other identified initiatives

Executive Summary:

Sponsorship of the Habitat for Humanity Summer Blitz Home Build Event Habitat for Humanity's mission is to build a world where everyone has a decent, safe, affordable place to live. They are unique in the affordable housing sector because they support sustainable and transformative development by providing homeownership opportunities to low-income and working-poor families. This June, Habitat has partnered with the Home Blitz Builders to build the first ten (10) Starter Homes in ten (10) days at Timber Sky. This event is possible with volunteers community wide. Support from the Council Initiative Fund would assist with food and drinks for the volunteers in the community dedicating their time.

Financial Impact:

Cost: $1,000.00 (potentially more)
Account Number Budgeted: 001-09-401-1300-1-4290
FY25 Budget currently remaining: $7,600.00
Funding Source: General Fund

There is a total of $7,600.00 available within the fund.

Policy Impact:

None

Connection to PBB, Carbon Neutrality Plan, 10-Year Housing Plan & Regional Plan:

The Council Initiative fund is intended to support all City Council goals, objectives, and priorities.

Previous Council Decision on This:

None

Background and History:

The Council Initiatives Fund was established and included in the 2020-21 Budget. The formation of this particular fund was not driven by any singular request or need, but rather as a proactive measure to enable our City Council to approve unforeseen expenditures, from time to time, that would be of benefit to the Flagstaff community. The fund is limited in amount ($25K annual appropriation) and it does not rollover or

accumulate. It is an annual appropriation.

There are numerous instances throughout the course of the fiscal year where Council may want to approve miscellaneous expenditures, for the benefit of our community, that simply do not fall neatly within a specific budget appropriation. This fund is intended to allow Council some discretion to approve such expenditures. There is no established process for doing so, other than majority support. We of course always need to stay within our legal parameters and our City Attorney can advise accordingly. Similarly, such matters should be identified on the Council meeting agenda, as an action item.

Attachments:

CITY OF FLAGSTAFF

STAFF SUMMARY REPORT

To: The Honorable Mayor and Council

From: Georganna Staskey, Deputy City Clerk

Date: 02/26/2025

Meeting Date: 03/04/2025

TITLE

Future Agenda Item Request (F.A.I.R.): A request by Councilmember Spence to place on a future agenda a discussion regarding immigration deportation issues in Flagstaff in light of the current federal deportation initiative

STAFF RECOMMENDED ACTION:

Council Direction

Executive Summary:

Rule 4.01, Procedures for Preparation of Council Agendas, of the City of Flagstaff City Council Rules of Procedure outlines the process for bringing items forward to a future agenda. Councilmember Spence has requested this item be placed on an agenda under Future Agenda Item Requests (F.A.I.R.) to determine if there are two other members of Council interested in placing it on a future agenda.

Information:

None

Attachments: