MARANA TOWN COUNCIL
SPECIAL COUNCIL MEETING
NOTICE AND AGENDA
11555 W. Civic Center Drive, Marana, Arizona 85653
Council Chambers, June 28, 2016, at or after 6:00 PM

Ed Honea, Mayor
Jon Post, Vice Mayor
David Bowen, Council Member
Patti Comerford, Council Member
Herb Kai, Council Member
Carol McGorray, Council Member
Roxanne Ziegler, Council Member

Pursuant to A.R.S. § 38-431.02, notice is hereby given to the members of the Marana Town Council and to the general public that the Town Council will hold a meeting open to the public on June 28, 2016, at or after 6:00 PM located in the Council Chambers of the Marana Municipal Complex, 11555 W. Civic Center Drive, Marana, Arizona.

ACTION MAY BE TAKEN BY THE COUNCIL ON ANY ITEM LISTED ON THIS AGENDA. Revisions to the agenda can occur up to 24 hours prior to the meeting. Revised agenda items appear in *italics*.

As a courtesy to others, please turn off or put in silent mode all pagers and cell phones.

Meeting Times

Welcome to this Marana Town Council meeting. Regular Council meetings are usually held the first and third Tuesday of each month at 7:00 PM at the Marana Municipal Complex, although the date or time may change and additional meetings may be called at other times and/or places. Contact the Town Clerk or watch for posted agendas for other meetings. This agenda may be revised up to 24 hours prior to the meeting. In such a case a new agenda will be posted in place of this agenda.

Speaking at Meetings

If you are interested in speaking to the Council during the Call to the Public or Public Hearings, you must fill out a speaker card (located in the lobby outside the Council Chambers) and deliver it

to the Town Clerk prior to the convening of the meeting.

All persons attending the Council meeting, whether speaking to the Council or not, are expected to observe the Council rules, as well as the rules of politeness, propriety, decorum and good conduct. Any person interfering with the meeting in any way, or acting rudely or loudly will be removed from the meeting and will not be allowed to return.

Accessibility
To better serve the citizens of Marana and others attending our meetings, the Council Chambers are wheelchair and handicapped accessible. Persons with a disability may request a reasonable accommodation, such as a sign language interpreter, by contacting the Town Clerk at (520) 382-1999. Requests should be made as early as possible to arrange the accommodation.

Agendas
Copies of the agenda are available the day of the meeting in the lobby outside the Council Chambers or online at www.marana.com, by linking to the Town Clerk page under Agendas, Minutes and Recent Actions. For questions about the Council meetings, special services or procedures, please contact the Town Clerk, at 382-1999, Monday through Friday from 8:00 AM to 5:00 PM.

This Notice and Agenda Posted no later than Monday, June 27, 6:00 PM, at the Marana Municipal Complex, 11555 W. Civic Center Drive, the Marana Operations Center, 5100 W. Ina Road, and at www.maranaaz.gov on the Town Clerk page under Agendas, Minutes and Recent Actions.

SPECIAL COUNCIL MEETING

CALL TO ORDER AND ROLL CALL

PLEDGE OF ALLEGIANCE/INVOCATION/MOMENT OF SILENCE

APPROVAL OF AGENDA

CALL TO THE PUBLIC

At this time any member of the public is allowed to address the Town Council on any issue within the jurisdiction of the Town Council, except for items scheduled for a Public Hearing at this meeting. The speaker may have up to three minutes to speak. Any persons wishing to address the Council must complete a speaker card located outside the Council Chambers and deliver it to the Town Clerk prior to the commencement of the meeting. Individuals addressing a meeting at the Call to the Public will not be provided with electronic technology capabilities beyond the existing voice amplification and recording capabilities in the facilities and the Town's overhead projector/document reader. Pursuant to the Arizona Open Meeting Law, at the conclusion of Call to the Public, individual members of the Council may respond to criticism made by those who have addressed the Council, and may ask staff to review the matter, or may ask that the matter be placed on a future agenda.

PROCLAMATIONS

P1 Proclaiming August 2016 as Drowning Impact Awareness Month (Jocelyn C. Bronson)

MAYOR AND COUNCIL REPORTS: SUMMARY OF CURRENT EVENTS

MANAGER'S REPORT: SUMMARY OF CURRENT EVENTS

PRESENTATIONS

P1 Presentation: Relating to the Marana Regional Airport; presentation and discussion regarding updates to the Marana Regional Airport Master Plan and Business Plan (Steve Miller)

CONSENT AGENDA

The Consent Agenda contains items requiring action by the Council which are generally routine items not requiring Council discussion. A single motion and affirmative vote will approve all items on the Consent Agenda, including any resolutions or ordinances. Prior to a motion to approve the Consent Agenda, any Council member may remove any item from the Consent Agenda and that item will be discussed and voted upon separately.

C1 Ordinance No. 2016.009: Relating to Building; amending Town Code Title 7 (Building) by revising section 7-5-1 (Sewage disposal) to update and clarify wastewater utility and regulatory review references (Frank Cassidy)

C2 Resolution No. 2016-069: Relating to Development: accepting for maintenance certain public water improvements serving Marana Center Parcel 4 (Keith Brann)

C3 Resolution No. 2016-070: Relating to Development; accepting for maintenance certain public water improvements serving Marana Main Street Block 1 (Keith Brann)

C4 Resolution No. 2016-071: Relating to Development; approving a release of assurances for Del Webb at Dove Mountain III subdivision and accepting public improvements for maintenance (Keith Brann)

C5 Resolution No. 2016-072: Relating to Marana Regional Airport; authorizing the Town Manager to execute a grant agreement with the Federal Aviation Administration for funding in an amount not to exceed $375,664 for design of the Apron and Taxiway Rehabilitation project, FAA 21 Grant (Lisa Shafer)

C6 Ordinance No. 2016.010: Relating to Business Regulations; amending Town Code Title 9 (Business Regulations) by revising section 9-4-9 (Massage establishment license application; separate license; husband and wife; additional requirements) to amend requirements for proof of land ownership in massage establishment license applications; and designating an effective date (Jane Fairall)

LIQUOR LICENSES

BOARDS, COMMISSIONS AND COMMITTEES

COUNCIL ACTION

A1 Ordinance No. 2016.011: Relating to Development; adopting the 2016 Marana Subdivision Street Standards and the 2016 Marana Standard Details; and establishing an effective date (Keith Brann)

Resolution No. 2016-073: Relating to Development; declaring as a public record filed with the Town Clerk the amendments adopted by Ordinance No. 2016.011, adopting the 2016 Marana Subdivision Street Standards and the 2016 Marana Standard Details (Keith Brann)

A2 PUBLIC HEARING: Relating to Alternative Expenditure Limitation (Home Rule Option); public hearing pursuant to A.R.S. section 41-563.01 regarding the proposed extension of the alternative expenditure limitation for the Town of Marana

Resolution No. 2016-074: Relating to Alternative Expenditure Limitation; proposing an extension of the alternative expenditure limitation for the Town of Marana (Erik Montague)

ITEMS FOR DISCUSSION/POSSIBLE ACTION

EXECUTIVE SESSIONS

Pursuant to A.R.S. § 38-431.03, the Town Council may vote to go into executive session, which will not be open to the public, to discuss certain matters.

E1 Executive Session pursuant to A.R.S. §38-431.03 (A)(3), Council may ask for discussion or consultation for legal advice with the Town Attorney concerning any matter listed on this agenda.

FUTURE AGENDA ITEMS

Notwithstanding the mayor's discretion regarding the items to be placed on the agenda, if three or more Council members request that an item be placed on the agenda, it must be placed on the agenda for the second regular Town Council meeting after the date of the request, pursuant to Marana Town Code Section 2-4-2(B).

ADJOURNMENT

Council-Special Meeting **P1**

Meeting Date: 06/28/2016

To: Mayor and Council

Submitted For: Jocelyn C. Bronson, Town Clerk

From: Suzanne Sutherland, Assistant to the Town Clerk

Date: June 28, 2016

Subject: Proclaiming August 2016 as Drowning Impact Awareness Month (Jocelyn C. Bronson)

Attachments

Drowning Impact Awareness Month August 2016

PROCLAMATION
DROWNING IMPACT AWARENESS MONTH
AUGUST 2016

WHEREAS drowning is a top cause of injury and death for children and teens in Arizona, affecting victims and their families, emergency personnel and our community as a whole; and

WHEREAS child drownings are nearly 100 percent preventable; and

WHEREAS constant and capable supervision, use of life jackets, swimming lessons, rapid emergency response and stable and nurturing relationships can significantly reduce and prevent drownings; and

WHEREAS raising awareness through education will increase knowledge of the effective measures to take to prevent drowning; and

WHEREAS during the month of August, the Drowning Prevention Coalition of Arizona, in collaboration with the state and local governments, fire departments, hospital, swim schools, community organizations and private citizens will be engaging communities throughout Arizona in a coordinated and comprehensive response.

NOW, THEREFORE, the Mayor and Council of the Town of Marana proclaim

AUGUST, 2016
DROWNING IMPACT AWARENESS MONTH

and urge all citizens to familiarize themselves with water safety practices.

Dated this 28th day of June, 2016.

Ed Honea

Ed Honea, Mayor

ATTEST:

Jocelyn C. Bronson

Jocelyn C. Bronson, Town Clerk

Council-Special Meeting **P1**

Meeting Date: 06/28/2016

To: Mayor and Council

Submitted For: Steve Miller, Airport Manager

From: Suzanne Sutherland, Assistant to the Town Clerk

Date: June 28, 2016

Strategic Plan Focus Area:
Not Applicable

Subject: Presentation: Relating to the Marana Regional Airport; presentation and discussion regarding updates to the Marana Regional Airport Master Plan and Business Plan (Steve Miller)

Discussion:

Since August 2015, the Town has been working on a project to update the Marana Regional Airport's Master Plan and Business Plan, using grant funding from the Arizona Department of Transportation (ADOT). An airport master plan describes and depicts the overall concept for the long-term development of an airport. It presents the concepts graphically in the airport layout plan (ALP) drawing set, and also within a detailed and well thought out narrative report. The goal of the plan is to provide direction for future airport development that will satisfy aviation demand in a financially feasible manner and meet the needs of the Town of Marana with respect to the airport. This Airport Master Plan updates and replaces the September 2007 Airport Master Plan.

An airport business plan differs from a master plan in that it:

- Establishes strategies to achieve business goals and objectives;
- Establishes/Reinforces the mission and vision of the airport;
- Develops strategies to maximize revenue and development potential;
- Addresses funding issues; and
- Focuses strategies for development

Staff from the Town's consultants, Armstrong Consultants, Inc. and The Genesis Consulting Group, will make a presentation at tonight's meeting to Town Council, staff, and citizens

regarding the status of and progress on the Airport Master Plan and Business Plan updates.

Staff Recommendation:
Presentation only.

Suggested Motion:
Presentation only.

Attachments

No file(s) attached.

Council-Special Meeting **C1**

Meeting Date: 06/28/2016

To: Mayor and Council

From: Frank Cassidy, Town Attorney

Date: June 28, 2016

Strategic Plan Focus Area:
Not Applicable

Subject: Ordinance No. 2016.009: Relating to Building; amending Town Code Title 7 (Building) by revising section 7-5-1 (Sewage disposal) to update and clarify wastewater utility and regulatory review references (Frank Cassidy)

Discussion:

Since 2007, the town limits of the Town of Marana have extended into two counties. In January 2012, the Town of Marana began operating the wastewater system in northwestern Marana. Pursuant to the June 2013 wastewater settlement with Pima County, the Town's operation of the wastewater system in northwestern Marana was finalized.

Marana Town Code Section 7-5-1 describes the jurisdictional review for wastewater management issues involving building codes issues within the Town of Marana. This ordinance proposes to update the language of Section 7-5-1 to reflect that wastewater issues for the geographic area where the wastewater system is operated by Marana Water will be reviewed by Marana Water rather than Pima County Wastewater.

This proposed amendment also eliminates the assumption that all development will occur in Pima County, and makes other clarifying revisions.

Staff Recommendation:

Staff recommends adoption of Ordinance 2016.009, amending Town Code section 7-5-1 (Sewage disposal) to update and clarify wastewater utility and regulatory review references.

Suggested Motion:

I move to adopt Ordinance 2016.009, amending Town Code section 7-5-1 (Sewage disposal) to update and clarify wastewater utility and regulatory review references.

Attachments

Ordinance No. 2016.009

MARANA ORDINANCE NO. 2016.009

RELATING TO BUILDING; AMENDING TOWN CODE TITLE 7 (BUILDING) BY REVISING SECTION 7-5-1 (SEWAGE DISPOSAL) TO UPDATE AND CLARIFY WASTEWATER UTILITY AND REGULATORY REVIEW REFERENCES

WHEREAS the Town of Marana is now located in two counties and now operates a wastewater utility for a portion of the town, making it appropriate to update and clarify Town Code section 7-5-1 (Sewage disposal).

NOW, THEREFORE, BE IT ORDAINED BY THE MAYOR AND COUNCIL OF THE TOWN OF MARANA, as follows:

SECTION 1. Marana Town Code Title 7 (Building) is hereby amended to revise section 7-5-1 (Sewage disposal) as follows (with deletions shown with ~~strikeouts~~ and additions shown with double underlining):

7-5-1 Sewage disposal

A. Septic tank systems shall be designed and constructed in accordance with the standards of the Arizona department of health services and the applicable ~~Pima C~~county health department, and ~~with~~ compliance with those standards shall ~~to~~ be certified by the appropriate state or county agency or the town engineer.

B. Sewer systems shall be designed, constructed, and reviewed in accordance with ~~under~~ the adopted plumbing code~~,~~ and other applicable state and local laws and regulations. ~~Pima County wastewater management department, and Pima County department of environmental quality in accordance with local and state regulations.~~ Before a building permit is issued, ~~A~~all connections to any sewer system must be approved in writing by the ~~Pima County~~ wastewater utility that owns and operates the affected sewer system. ~~management department prior to a building permit being issued. Pima County may waive this requirement when requested by the building official.~~

SECTION 2. The various town officers and employees are authorized and directed to perform all acts necessary or desirable to give effect to this ordinance.

SECTION 3. All ordinances, resolutions, or motions and parts of ordinances, resolutions, or motions of the Council in conflict with the provisions of this ordinance are hereby repealed, effective as of the effective date of this ordinance.

SECTION 4. If any section, subsection, sentence, clause, phrase or portion of this ordinance is for any reason held to be invalid or unconstitutional by the decision of any court of competent jurisdiction, the decision shall not affect the validity of the remaining portions of this ordinance.

SECTION 5. This ordinance is administrative, and shall be effective from and after its adoption.

PASSED AND ADOPTED BY THE MAYOR AND COUNCIL OF THE TOWN OF MARANA, ARIZONA, this 28th day of June, 2016.

Mayor Ed Honea

ATTEST:

Jocelyn C. Bronson, Town Clerk

APPROVED AS TO FORM:

Frank Cassidy, Town Attorney

Council-Special Meeting **C2**

Meeting Date: 06/28/2016

To: Mayor and Council

Submitted For: Keith Brann, Town Engineer

From: Gus Myers, Engineering Technician

Date: June 28, 2016

Strategic Plan Focus Area:
Not Applicable

Subject: Resolution No. 2016-069: Relating to Development: accepting for maintenance certain public water improvements serving Marana Center Parcel 4 (Keith Brann)

Discussion:

This resolution will accept for maintenance a potable water system with an estimated value of $492,000, including approximately 5,200 linear feet of potable water line, water meters, appurtenances, valves and fire hydrants, serving Marana Center Parcel 4 (the Tucson Premium Outlets site).

Staff Recommendation:

Staff recommends adoption of Resolution 2016-069, accepting for maintenance certain public water improvements serving Marana Center Parcel 4.

Suggested Motion:

I move to adopt Resolution 2016-069, accepting for maintenance certain public water improvements serving Marana Center Parcel 4.

Attachments

Resolution No. 2016-069
TPO Exhibit A

MARANA RESOLUTION NO. 2016-069

RELATING TO DEVELOPMENT; ACCEPTING FOR MAINTENANCE CERTAIN PUBLIC WATER IMPROVEMENTS SERVING MARANA CENTER PARCEL 4

WHEREAS Marana Center Parcel 4 is a 46-acre parcel of land located in Marana Center, a 170.7 acre subdivision located just east of Interstate 10 and south of the intersection of Twin Peaks Road and Linda Vista Boulevard, according to the plat recorded in the office of the Recorder of Pima County at Sequence 20142340180; and

WHEREAS Tucson Premium Outlets, LLC, has completed certain public water improvements acceptable to Town standards as required to serve Marana Center Parcel 4.

NOW, THEREFORE, BE IT RESOLVED BY THE MAYOR AND COUNCIL OF THE TOWN OF MARANA that the Town accepts for maintenance a potable water system with an estimated value of $492,000, including approximately 5,200 linear feet of potable water line, water meters, appurtenances, valves, and fire hydrants, as depicted in the 10-page set of approved as-built engineering plans prepared by the engineering firm Kimley Horn entitled "Public Water Main Plan for Premium Outlets," bearing Marana plan set ENG1406-004, page 3 ("Overall Water Main Site Plan") of which is attached to this resolution as Exhibit A.

PASSED AND ADOPTED by the Mayor and Council of the Town of Marana, Arizona, this 28th day of June, 2016.

Mayor Ed Honea

ATTEST:

Jocelyn C. Bronson, Town Clerk

APPROVED AS TO FORM:

Frank Cassidy, Town Attorney

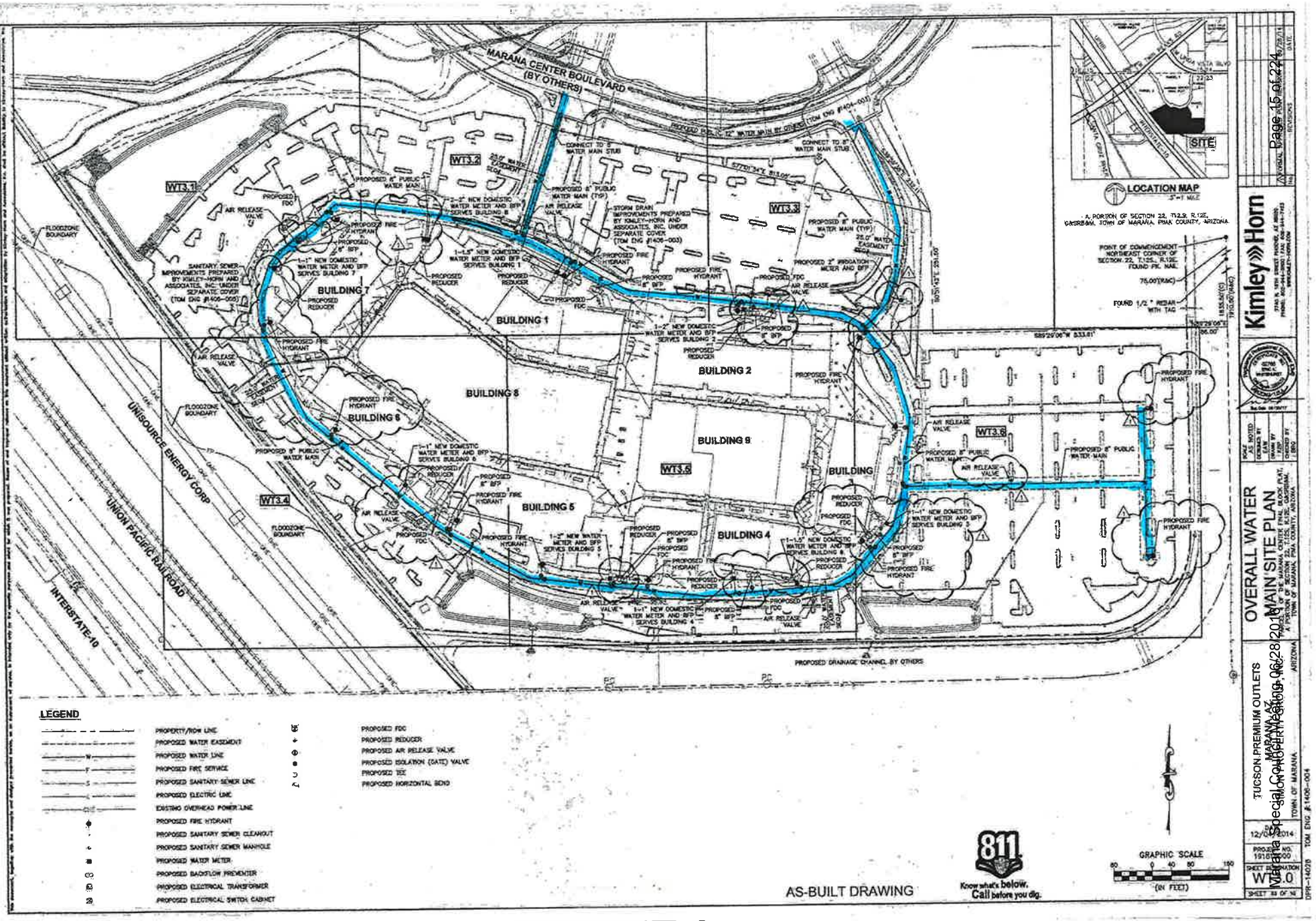

MARANA CENTER BOULEVARD (BY OTHERS)
WT3.1
WT3.2
WT3.3
WT3.4
WT3.5
WT3.6
BUILDING 1
BUILDING 2
BUILDING 3
BUILDING 4
BUILDING 5
BUILDING 6
BUILDING 7
BUILDING 8
BUILDING 9
UNISOURCE ENERGY CORP
UNION PACIFIC RAILROAD
INTERSTATE-10
PROPOSED DRAINAGE CHANNEL BY OTHERS
LOCATION MAP
SITE
LEGEND
PROPERTY/ROW LINE
PROPOSED WATER EASEMENT
PROPOSED WATER LINE
PROPOSED FIRE SERVICE
PROPOSED SANITARY SEWER LINE
PROPOSED ELECTRIC LINE
EXISTING OVERHEAD POWER LINE
PROPOSED FIRE HYDRANT
PROPOSED SANITARY SEWER CLEANOUT
PROPOSED SANITARY SEWER MANHOLE
PROPOSED WATER METER
PROPOSED BACKFLOW PREVENTER
PROPOSED ELECTRICAL TRANSFORMER
PROPOSED ELECTRICAL SWITCH CABINET
PROPOSED FDC
PROPOSED REDUCER
PROPOSED AIR RELEASE VALVE
PROPOSED ISOLATION (GATE) VALVE
PROPOSED TEE
PROPOSED HORIZONTAL BEND
AS-BUILT DRAWING
Know what's below. Call before you dig.
GRAPHIC SCALE
(IN FEET)
Kimley»Horn
OVERALL WATER MAIN SITE PLAN
TUCSON PREMIUM OUTLETS
MARANA, AZ
TOWN OF MARANA
ARIZONA
12/04/2014
WT3.0
TOM ENG #1406-004
DPR-140215

EXHIBIT A

Council-Special Meeting **C3**

Meeting Date: 06/28/2016

To: Mayor and Council

Submitted For: Keith Brann, Town Engineer

From: Gus Myers, Engineering Technician

Date: June 28, 2016

Strategic Plan Focus Area:
Not Applicable

Subject: Resolution No. 2016-070: Relating to Development; accepting for maintenance certain public water improvements serving Marana Main Street Block 1 (Keith Brann)

Discussion:

This resolution will accept for maintenance a potable water system including 390 linear feet of potable water line, water meters, appurtenances, valves and fire hydrants for Marana Main Street Block 1 (Marana Dental), with an estimated value of $44,600.

Staff Recommendation:

Staff recommends adoption of Resolution 2016-070, accepting for maintenance certain public water improvements serving Marana Main Street Block 1.

Suggested Motion:

I move to adopt Resolution 2016-070, accepting for maintenance certain public water improvements serving Marana Main Street Block 1.

Attachments

Resolution No. 2016-070
Exhibit A to Resolution

MARANA RESOLUTION NO. 2016-070

RELATING TO DEVELOPMENT; ACCEPTING FOR MAINTENANCE CERTAIN PUBLIC WATER IMPROVEMENTS SERVING MARANA MAIN STREET BLOCK 1

WHEREAS Marana Main Street Block 1 is a 0.995 acre parcel of land located in Marana Main Street, a 28.04 acre subdivision located along the east side of Sandario Road and south of the Interstate 10 Frontage Road, according to the plat recorded in the office of the Recorder of Pima County on March 21, 2014, at Sequence 20140800116; and

WHEREAS Boffo Properties, LLC, has completed certain public water improvements acceptable to Town standards as required to serve Marana Main Street Block 1.

NOW, THEREFORE, BE IT RESOLVED BY THE MAYOR AND COUNCIL OF THE TOWN OF MARANA that the Town accepts for maintenance a potable water system with an estimated value of $44,600, including approximately 390 linear feet of potable water line, water meters, appurtenances, valves, and fire hydrants, as depicted in the 3-page set of approved as-built engineering plans prepared by the firm Bruce R. Call Architecture Engineers Construction Management entitled "Water Plan for: Marana Main Street – Block 1," bearing Marana plan set ENG1502-008, sheet 3 ("Water Plan") of which is attached to this resolution as Exhibit A.

PASSED AND ADOPTED by the Mayor and Council of the Town of Marana, Arizona, this 28th day of June, 2016.

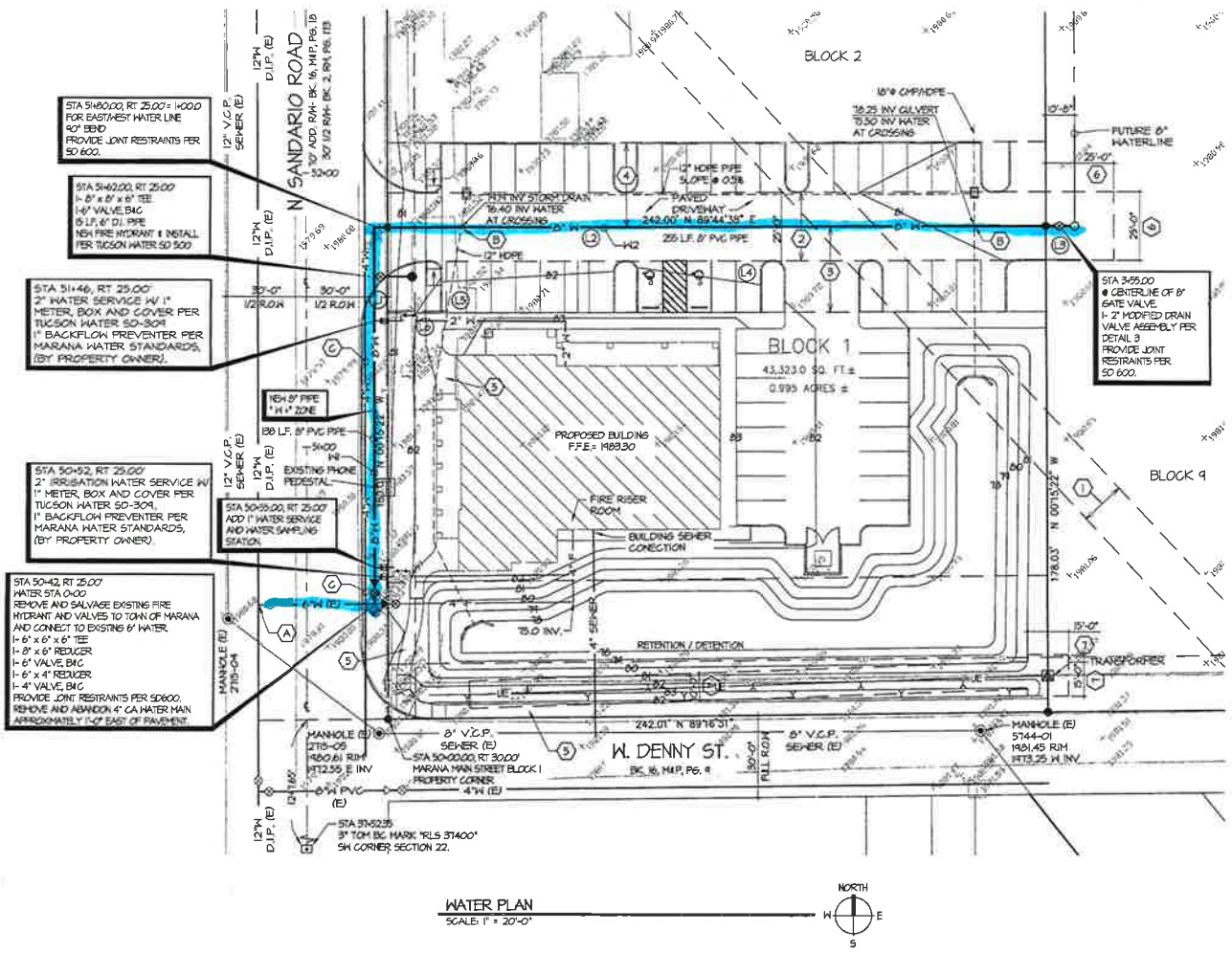
Mayor Ed Honea

ATTEST:

Jocelyn C. Bronson, Town Clerk

APPROVED AS TO FORM:

Frank Cassidy, Town Attorney



WATER PLAN
SCALE: 1" = 20'-0"

WATER LINE TABLE		
	BEARING	LENGTH
W1	N 00°15'22" W	138.00'
W2	N 89°44'38" E	255.00'

BLOCK 1 PUBLIC WATER EASEMENT LINE TABLE		
LINE	BEARING	DISTANCE
L1	N 00°15'22" W	30.50'
L2	N 89°44'38" E	242.00'
L3	S 00°15'22" E	12.50'
L4	S 89°44'38" W	214.33'
L5	S 00°15'22" E	18.00'
L6	S 89°44'38" W	27.67'

(X) SYMBOL FOR LINE TABLE KEYNOTE

EASEMENT KEYNOTES

1. 16.5' AT&T EASEMENT RECORDED IN MISC. RECORDS, BK. 109, PG. 225, ABANDONMENT BY SEPARATE INSTRUMENT
2. 25' WATER EASEMENT, 12.5' ON EACH SIDE OF PROPERTY LINE / WATER LINE. 12.5' ON EACH SIDE OF FIRE HYDRANT. TO BE GRANTED BY SEPARATE INSTRUMENT.
3. PRIVATE SHARED PARKING EASEMENT, NORTH 31.25' OF BLOCK 1, TO BE GRANTED BY SEPARATE INSTRUMENT.
4. PRIVATE SHARED PARKING EASEMENT, SOUTH 31.25' OF BLOCK 2, TO BE GRANTED BY SEPARATE INSTRUMENT.
5. PEDESTRIAN INGRESS AND EGRESS EASEMENT AT SOUTH AND WEST SIDEWALK.
6. 25' X 25' PUBLIC WATER EASEMENT, BLOCK 9, BY SEPARATE INSTRUMENT.
7. ELECTRICAL EASEMENT, BY SEPARATE INSTRUMENT.

KEYNOTES

A. 64'-0"± SOUTH TO WATER VALVE. 620'-0"± NORTH TO WATER VALVE
B. DUCTILE IRON 8" WATER PIPE AT CROSSING. NO JOINTS WITHIN 6'-0" OF CULVERT.
C. ABANDON 4" CA WATER PIPE.

Call at least two full working days before you begin excavation.
ARIZONA 811 Arizona Blue Stake, Inc.
Dial 8-1-1 or 1-800-STAKE-IT (782-5348)
In Maricopa County: (602) 263-1100

BRUCE R. CALL
ARCHITECTURE ENGINEERING CONSTRUCTION MANAGEMENT
4512 E. CAMP LOWELL DRIVE TUCSON, ARIZONA 85712 (520) 722-3668

REVISIONS		
MARK	DATE	REVISION

EXPIRES 6/30/17

WATER PLAN

MARANA MAIN STREET WATER PLAN

BEING A PORTION OF THE SW 1/4 OF SECTION 22, TOWNSHIP 11 SOUTH, RANGE 11 EAST, GILA & SALT RIVER MERIDIAN, TOWN OF MARANA, PIMA COUNTY, ARIZONA

REVISION DATE: OCTOBER 13, 2015

SHEET NO. 3 SHEET 3 OF 3

EXHIBIT A

Council-Special Meeting **C4**

Meeting Date: 06/28/2016

To: Mayor and Council

Submitted For: Keith Brann, Town Engineer

From: Glenn Phillips, Civil Engineering Specialist

Date: June 28, 2016

Strategic Plan Focus Area:
Not Applicable

Subject: Resolution No. 2016-071: Relating to Development; approving a release of assurances for Del Webb at Dove Mountain III subdivision and accepting public improvements for maintenance (Keith Brann)

Discussion:

If adopted, this proposed resolution will release the assurance agreement for Del Webb at Dove Mountain III subdivision, a 26-acre subdivision consisting of Lots 129 and 168-234, Blocks "1" and "2", and Common Areas "A" (Open Space/Drainage), "B" (Recreation Area), "C" (Open Space/Sewer) and "D" (Open Space/Drainage). If adopted, this resolution will accept for maintenance approximately 0.55 miles of the following paved streets as shown on the plat of Del Webb at Dove Mountain III:

- That portion of Bright Angel Trail located west of its intersection with Kaibab Trail
- That portion of Del Webb Trail located west of its intersection with Clear Creek Trail
- That portion of Rim Trail located between Del Webb Trail and Bright Angel Trail

Staff Recommendation:

Staff recommends adoption of Resolution 2016-071, approving a release of assurances for Del Webb at Dove Mountain III subdivision and accepting public improvements for maintenance.

Suggested Motion:

I move to adopt Resolution 2016-071, approving a release of assurances for Del Webb at Dove Mountain III subdivision and accepting public improvements for maintenance.

Attachments

Resolution No. 2016-071

Del Webb DM III map

MARANA RESOLUTION NO. 2016-071

RELATING TO DEVELOPMENT; APPROVING A RELEASE OF ASSURANCES FOR DEL WEBB AT DOVE MOUNTAIN III SUBDIVISION AND ACCEPTING PUBLIC IMPROVEMENTS FOR MAINTENANCE

WHEREAS the final plat for 'Del Webb at Dove Mountain III, Lots 129 and 168-234 Blocks "1" and "2" and Common Areas "A" (Open Space/Drainage), "B" (Recreation Area), "C" (Open Space/Sewer) and "D" (Open Space/Drainage)' ("Del Webb at Dove Mountain III") was recorded in the Pima County Recorder's Office on May 8, 2015, at Sequence 20151280191; and

WHEREAS the Town has a third party trust substitute assurance agreement (the "Assurance Agreement") with Pulte Home Corporation (the "Subdivider") and Landmark Title Assurance Agency of Arizona, LLC, as Trustee under trust number 18300-T, recorded in the Pima County Recorder's office on July 17, 2015, at Sequence Number 20151980112, assuring the completion of public improvements for Del Webb at Dove Mountain III; and

WHEREAS the Subdivider has completed the public improvements for Del Webb at Dove Mountain III acceptable to Town standards in accordance with the Assurance Agreement.

NOW, THEREFORE, BE IT RESOLVED by the Mayor and Council of the Town of Marana as follows:

Section 1. The Assurance Agreement is hereby released.

Section 2. The Town accepts for maintenance, including maintenance of regulatory traffic control and street signs, approximately 0.55 miles of the following paved streets as shown on the plat of Del Webb at Dove Mountain III:

- That portion of Bright Angel Trail located west of its intersection with Kaibab Trail
- That portion of Del Webb Trail located west of its intersection with Clear Creek Trail
- That portion of Rim Trail located between Del Webb Trail and Bright Angel Trail

PASSED AND ADOPTED by the Mayor and Council of the Town of Marana, Arizona, this 28th day of June, 2016.

Mayor Ed Honea

ATTEST:

Jocelyn C. Bronson, Town Clerk

APPROVED AS TO FORM:

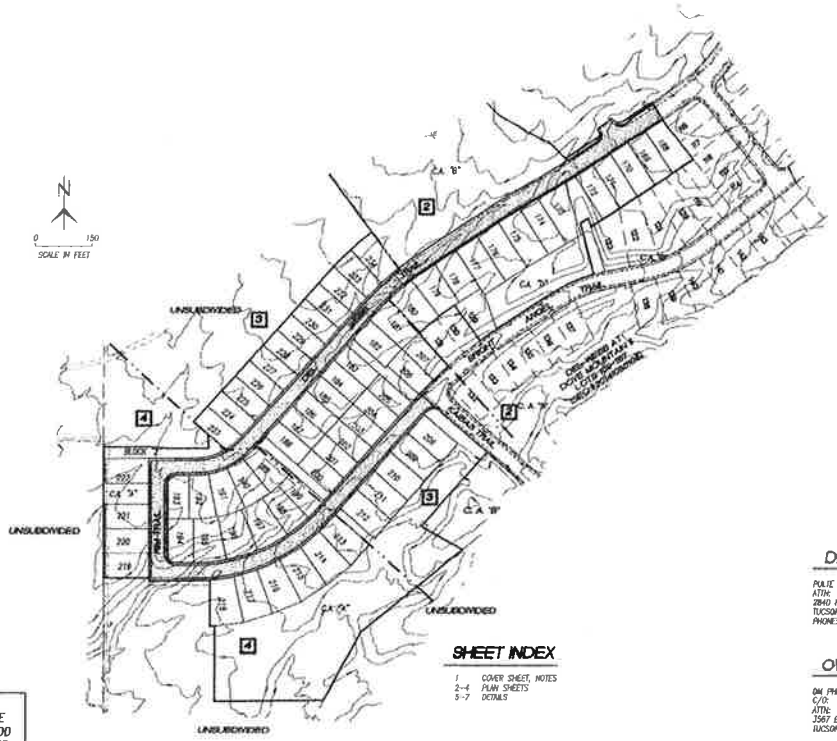
Frank Cassidy, Town Attorney

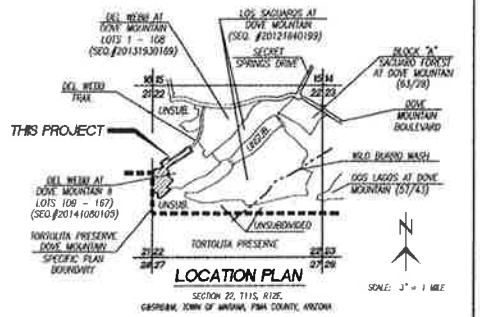
PRIVATE GRADING and DRAINAGE IMPROVEMENT PLANS FOR DEL WEBB AT DOVE MOUNTAIN III, LOTS 168 - 234

ENG1412-004

GENERAL NOTES

1. ALL CONSTRUCTION AND TEST METHODS SHALL BE IN CONFORMANCE WITH PIMA COUNTY/CITY OF TUCSON STANDARD SPECIFICATIONS FOR PUBLIC IMPROVEMENTS (PC/COT SSPI), 2003 EDITION.
2. BASIS OF BEARING FOR THIS PROJECT IS THE WEST LINE OF THE NORTHWEST QUARTER OF SECTION 22, T-11-S, R-12-E, SAID BEARING BEING N00°06'55"E.
3. BASIS OF ELEVATION FOR THIS PROJECT IS THE AS-BUILT 3" TOWN OF MARANA BRASS CAP SURVEY MONUMENT STAMPED RLS "12245" AT THE CENTERLINE INTERSECTION OF BRIGHT ANGEL TRAIL AND KAIBAB TRAIL. SAID ELEVATION BEING 2528.03 FEET(NAVD 29 DATUM).
4. CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) REGULATIONS.
5. CONTRACTOR SHALL CALL BLUESTAKE (1-800-STAKE-IT) TO VERIFY LOCATION OF UTILITIES TWO FULL WORKING DAYS PRIOR TO COMMENCEMENT OF ANY CONSTRUCTION.
6. CONTRACTOR SHALL OBTAIN ALL PERMITS REQUIRED BY GOVERNMENTAL AGENCIES.
7. ALL REVISIONS TO THESE PLANS MUST BE APPROVED BY TOWN ENGINEER PRIOR TO CONSTRUCTION.
8. ALL WORK SHALL CONFORM TO "STANDARDS FOR GRADING AND RELATED SITE WORK" TITLE 19 OF THE TOWN OF MARANA LAND DEVELOPMENT CODE.
9. ALL CONCRETE SHALL COMPLY WITH PC/COT SSPI SECTION 1006, CLASS S, 3,000 PSI COMPRESSIVE STRENGTH AT 28 DAYS, UNLESS OTHERWISE SPECIFIED.
10. CONTRACTOR SHALL GIVE FORTY-EIGHT (48) HOURS NOTICE WHEN HE SHALL REQUIRE SERVICES OF THE ENGINEER OR ANY OTHER PERSON PROPERLY AUTHORIZED FOR SUCH PURPOSE FOR LAYING OUT ANY PORTION OF THE WORK. HE SHALL ALSO SET ALL STAKE HOLES NECESSARY TO GIVE LINE AND LEVELS.
11. THE CONTRACTOR SHALL PRESERVE ALL STAKES SET FOR THE LINES, LEVELS OR MEASUREMENTS OF THE WORK IN EACH PARTICULAR PLACES UNTIL AUTHORIZED TO REMOVE THEM BY THE ENGINEER. ANY EXPENSE INCURRED IN REPLACING ANY STAKES WHICH THE CONTRACTOR OR HIS SUBORDINATES MAY HAVE FAILED TO PRESERVE SHALL BE CHARGED TO THE CONTRACTOR.
12. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO FURNISH, HAUL AND SUPPLY ALL WATER REQUIRED FOR COMPACTION AND FOR THE CONTROL OF DUST FROM CONSTRUCTION ACTIVITY. THE COST THEREOF IS TO BE INCLUDED IN THE CONSTRUCTION PRICE.
13. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CARE, MAINTENANCE, REPAIR OR REPLACEMENT OF EXISTING IMPROVEMENTS IN THE WORK AREA WHICH HAVE BEEN REMOVED OR DAMAGED DURING THE COURSE OF CONSTRUCTION. ALL REPAIR, REPLACEMENT OR CLEANUP SHALL BE DONE TO THE SATISFACTION OF THE OWNER.
14. OMISSIONS OR CONFLICTS BETWEEN VARIOUS ELEMENTS OF THE DRAWINGS, NOTES AND DETAILS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER AND RESOLVED BEFORE PROCEEDING WITH THE WORK.
15. UPON COMMENCEMENT OF WORK, TRAFFIC CONTROL DEVICES SHALL BE POSTED AND MAINTAINED BY THE CONTRACTOR UNTIL SUCH TIME AS THE WORK IS COMPLETED. ALL WARNING SIGNS, BARRICADES, ETC., SHALL BE IN ACCORDANCE WITH THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES ADOPTED BY THE STATE OF ARIZONA PURSUANT TO A.R.S. 28-650.
16. A COPY OF THE APPROVED PLAN SHALL BE KEPT IN AN EASILY ACCESSIBLE LOCATION ON THE SITE AT ALL TIMES DURING CONSTRUCTION.
17. IF UNANTICIPATED CONDITIONS ARE ENCOUNTERED DURING THE COURSE OF CONSTRUCTION AND ARE BEYOND THE SCOPE OF THE DESIGN, THE ENGINEER SHALL SUBMIT THE NECESSARY REVISED OR SUPPLEMENTAL IMPROVEMENT PLANS FOR REVIEW AND ACCEPTANCE BY THE TOWN ENGINEER.
18. 30 DAYS PRIOR TO DESTRUCTION OR REMOVAL OF CACTUS THE CONTRACTOR SHALL NOTIFY THE ARIZONA DEPARTMENT OF AGRICULTURE AT (520)626-6316.
19. REPORTS OF SOILS INVESTIGATION INCLUDING RECOMMENDATIONS FOR GRADING PROCEDURES HAVE BEEN PREPARED BY PATTISON ENVIROTECH ENGINEERING, LLC, AS FOLLOWS:
    PROJECT NO. 11-090, DOVE MOUNTAIN WEST PULTE HOMES, DATED 8/12/11 (& 1/13/13 UPDATE LETTER)
    ALL EARTHWORK SHALL CONFORM TO THE RECOMMENDATIONS CONTAINED IN SAID REPORTS.
20. THE SOILS ENGINEER SHALL OBSERVE, INSPECT AND TEST ALL EARTHWORK OPERATIONS INCLUDING, BUT NOT LIMITED TO, CLEARING, GRUBBING, SUBGRADE PREPARATION, STRUCTURAL AND TRENCH EXCAVATION AND BACKFILL, TOGETHER WITH PLACEMENT AND COMPACTION OF FILL.
21. IF ARCHAEOLOGICAL MATERIALS ARE DISCOVERED DURING THE COURSE OF CONSTRUCTION, THESE MUST BE HANDLED PER THE CONDITIONS OF THE ARMY CORPS OF ENGINEERS 404 PERMIT ISSUED FOR THIS PROJECT.
22. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO FULLY COMPLY WITH THE ARIZONA POLLUTANT DISCHARGE ELIMINATION SYSTEM CONSTRUCTION GENERAL PERMIT IN ACCORDANCE WITH THE STORMWATER POLLUTION PREVENTION PLAN (SWPPP) PREPARED FOR THIS PROJECT.
23. GRADING BOUNDARIES SHALL BE CLEARLY MARKED, AND ALL WORK WILL BE CONFINED TO THE APPROVED PROJECT DISTURBANCE LIMITS AS SHOWN ON THESE PLANS. NO WORK SHALL TAKE PLACE OUTSIDE OF THE LIMITS SHOWN ON THESE PLANS.
24. IF ANY HUMAN REMAINS OR FUNERARY ITEMS ARE DISCOVERED DURING CONSTRUCTION, ALL WORK MUST STOP IN THE AREA OF THE REMAINS AND THE ARIZONA STATE MUSEUM, MUST BE CONTACTED IMMEDIATELY, PURSUANT TO A.R.S. 41-865.
25. ALL ORGANIC MATERIAL SHALL BE REMOVED WITHIN THE CLEARING LIMITS FOR NECESSARY GRADING TO A DEPTH OF SIX(6) INCHES AND HAULED FROM THE SITE PRIOR TO GRADING.
26. BUILDING SITES SHALL BE CONSTRUCTED TO WITHIN 0.10 FEET OF FINISHED BUILDING PAD ELEVATIONS AS STAKED BY THE ENGINEER. STREETS AND PARKING AREAS SHALL BE CONSTRUCTED TO WITHIN 0.10 FEET OF FINISHED SUBGRADE AS STAKED BY THE ENGINEER.
27. ALL SLOPES WHICH ARE STEEPER THAN 3:1 WILL BE PROTECTED PER DETAILS INCLUDED AS PART OF THIS PLAN.
28. CONTRACTOR SHALL REFER TO STORM WATER POLLUTION PREVENTION PLANS TO CONTROL SEDIMENT POLLUTION DURING GRADING OPERATIONS.
29. A REGISTERED ENGINEER MUST CERTIFY THAT THIS PROJECT WAS CONSTRUCTED IN SUBSTANTIAL CONFORMANCE WITH THE APPROVED PLANS PRIOR TO THE REQUEST FOR FINAL INSPECTION/CERTIFICATE OF OCCUPANCY, RELEASE OF ASSURANCES OR MODULAR PERMITS.
30. CONTRACTOR SHALL FIELD VERIFY EXISTING GRADES PRIOR TO COMMENCEMENT OF CONSTRUCTION. ANY DISCREPANCIES SHALL BE COMMUNICATED TO THE OWNER PRIOR TO BEGINNING ANY EARTHWORK EFFORTS ON THE PROJECT SITE.
31. FOR A TYPE 2 GRADING PERMIT, THE PERMITTEE SHALL NOTIFY THE DEVELOPMENT ENGINEERING DIVISION PRIOR TO ANY PAVING TAKING PLACE.
32. A TURTLE CLEARANCE SURVEY SHALL BE COMPLETED BY A QUALIFIED BIOLOGIST, JUST PRIOR TO GROUND DISTURBANCE, FOR SONORAN DESERT TORTOISE.
33. ALL PROTOCOL OUTLINED IN THE DOVE MOUNTAIN CONSERVATION PLAN WILL BE FOLLOWED.
34. ALL DOVE MOUNTAIN PAVEMENT SECTIONS ARE TO COMPLY WITH THE PIMA COUNTY ROADWAY DESIGN MANUAL, SECTION 3.13, OR THE GEOTECHNICAL REPORT REQUIREMENTS, WHICHEVER IS MORE STRINGENT.





LOCATION PLAN

SECTION 22, T11S, R12E,
GILA & SALT RIVER BASE & MERIDIAN, TOWN OF MARANA, PIMA COUNTY, ARIZONA

SCALE: 1" = 1 MILE

LEGEND

- SUBDIVISION BOUNDARY
- LOTLINE
- STREET CENTERLINE
- PROPOSED EASEMENT PER FINAL PLAT
- NEW PAVEMENT (SEE PAVING PLANS)
- EXISTING PAVEMENT
- FOUND SURVEY MONUMENT
- NEW SURVEY MONUMENT PER T.O.M. M-103B(SEE PAVING PLANS)
- EXISTING CONTOURS
- FLOW ARROW
- DESIGN GRADE (BOTTOM OF CONCRETE TIEDOWN)
- DESIGN GRADE (TOP OF CURB ELEVATION)
- DESIGN SPOT GRADE (DRAINAGE INVERT)
- DESIGN SPOT GRADE
- PAD GRADE ELEVATION
- EXISTING GROUND ELEVATION (APPROXIMATE)
- DESIGN SPOT GRADE AT TOP OF WALL
- DESIGN SPOT GRADE AT BOTTOM OF WALL
- CROSS SECTION REFERENCE
- DEVELOPED CONDITION 100 YEAR FLOODPRONE LINE ("F.P.L.")
- EXISTING CONDITION FEMA 100 YEAR FLOODPRONE LINE
- EROSION SETBACK LINE ("E.S.L.")
- 404 LINE ("404 WASH")
- PROPOSED 5' SIDEWALK (SEE PAVING PLANS)
- PROPOSED HANDRAIL (SEE PAVING PLANS)
- EXISTING PUBLIC SEWER/MANHOLE (APPROXIMATE LOCATION)
- EXISTING UNDERGROUND ELECTRIC (APPROXIMATE LOCATION)
- PROPOSED SECONDARY ACCESS PATH (SEE PAVING PLANS)
- RETAINING WALL(PERMIT BY OTHERS)
- PLAN SHEET #

NOTE: PORTIONS OF THIS AREA HAVE BEEN GRADED BY PREVIOUS CONSTRUCTION PHASES AND THE EXISTING GROUND TOPOGRAPHY SHOWN MAY NOT ACCURATELY REFLECT FIELD CONDITIONS

SHEET INDEX

1	COVER SHEET, NOTES
2-4	PLAN SHEETS
5-7	DETAILS

NOTE: ALL SPOT GRADES ARE TOP OF PAVEMENT/FINISHED GRADE UNLESS OTHERWISE INDICATED. ADD 0.5' FOR TOP OF CURB ELEVATIONS WHERE APPLICABLE

ALL GRADES SHOWN ARE ON NGVD29 DATUM UNLESS SPECIFICALLY IDENTIFIED WITH (NAVD 88). A VERTCON NGS CONVERSION OF +2.15' SHALL BE USED TO CONVERT NVGD 29 ELEVATIONS TO NAVD 88.

CAUTION: CONTRACTOR TO VERIFY LOCATION (HORIZONTAL & VERTICAL, IF NECESSARY) OF ALL UNDERGROUND UTILITIES PRIOR TO CONSTRUCTION

SEE ONSITE PAVING PLANS FOR DETAILED GRADING, PAVING & DRAINAGE INFORMATION FOR ALL ONSITE STREETS AND DRAINAGE IMPROVEMENTS.

SEE FINAL PLAT FOR HORIZONTAL CONTROL FOR THIS PLAN

DEVELOPER:

PULTE GROUP, INC.
ATTN: TOM COLLINS
2840 N. COMMERCE CLUB DR., #105
TUCSON, ARIZONA 85716
PHONE: 520-229-6000

OWNERS:

DM PHASE IV
C/O: COTTONWOOD PROPERTIES, INC.
ATTN: WILLIAM HALLIHAN
3567 E. SUNRISE DRIVE, #219
TUCSON, ARIZONA 85718

LANDMARK TITLE, TRUST #16,500
C/O: PULTE GROUP, INC.
ATTN: TOM COLLINS
2840 N. COUNTRY CLUB DR., #105
TUCSON, ARIZONA 85716
PHONE: 520-229-6000

ALL LOTS ARE "A" LOTS (FRONT DRAINING) UNLESS OTHERWISE SHOWN (SEE PLAN VIEW).

ACCEPTANCE

BY: _____ P.E. DATE: 2-12-15
MARANA TOWN ENGINEER/SUBDIVISION ENGINEER

BY: _____ DATE: 2-12-15
MARANA PLANNING DIRECTOR

ENG1412-004 REFERENCE: #PIM-140359; PRV-080247; &; PRV-120117; PRV-130247

PRIVATE GRADING and DRAINAGE IMPROVEMENT PLANS
for
DEL WEBB AT DOVE MOUNTAIN III, LOTS 168 - 234
AND BLOCKS "A" & "B", COMMON AREAS "A" (OPEN SPACE/DRAINAGE), "D" (RECREATION AREA) AND "C" (OPEN SPACE/SEWER)
BEING A RESUBDIVISION OF BLOCK "1" OF DEL WEBB AT DOVE MOUNTAIN II, AS RECORDED IN SEQUENCE NO. 20141080105, AND A PORTION OF SECTION 22, T11S, R12E,
GILA & SALT RIVER BASE & MERIDIAN, TOWN OF MARANA, PIMA COUNTY, ARIZONA

Baker & Associates Engineering, Inc.
3584 E. Sunrise Drive, Suite #219, Tucson, Arizona 85718 (520) 318-1850 Fax (520) 818-1830

SCALE:	DESIGNED BY: WMH	DATE: 12/2014	DRAWING #
HORIZ: 1"=40'	DRAWN BY: WMH	REV. DATE: 1/2015	SHEET # 1 of 7
VERT: N/A	CHECKED BY: WMH	REV. DATE:	PLAN # 12462

NO.	DATE	REVISION	BY	ACH	WMH

EXHIBIT A

Council-Special Meeting **C5**

Meeting Date: 06/28/2016

To: Mayor and Council

From: Lisa Shafer, Community Development Director

Date: June 28, 2016

Strategic Plan Focus Area:
Not Applicable

Subject: Resolution No. 2016-072: Relating to Marana Regional Airport; authorizing the Town Manager to execute a grant agreement with the Federal Aviation Administration for funding in an amount not to exceed $375,664 for design of the Apron and Taxiway Rehabilitation project, FAA 21 Grant (Lisa Shafer)

Discussion:

In February of this year, staff submitted a grant request to the FAA to fund a design and construction project for the rehabilitation of multiple aprons as well as a portion of Taxiway B. This project is a complete removal and new construction of approximately one million square feet of pavement consisting of the Transient Open Tie-Downs, Terminal Aprons, west Helicopter Apron and 1600 feet of Taxiway B between Taxiway B2 and Taxiway A. These areas are in very poor condition and require constant repair by Airport staff and our Operation and Maintenance crews. Each of these aprons and taxiway fall below the threshold for the Arizona Department of Transportation's (ADOT) pavement preservation program, therefore they were not done with the ADOT project just completed at the airport. The strength of the existing pavement is not sufficient to support the weight of some of the private jets that park on the aprons. The new pavement will be designed to accommodate the weight of the aircraft that utilize this airport.

This design and construction project will be a multi-year phased project. The current FAA grant agreement for fiscal year 2017 is for the full design of the project with a total cost of $412,546. The FAA will reimburse 91.06% for a maximum obligation of $375,664, the State (ADOT) will reimburse at 4.47% for a maximum obligation of $18,441 and the Town, as the sponsor, has a required match of 4.47% for a total of $18,441. It is anticipated that the construction will be funded in the same fashion in the fiscal years following. Full construction estimates are expected to be just under $4 million.

The agreement included in the Council packet is a draft agreement that does not yet include firm dates. Staff anticipates receiving a final agreement for execution from the FAA shortly. Adoption of this resolution will approve the agreement in substantially the form of the draft agreement and authorize the Town Manager to execute it when the Town receives it.

Financial Impact:

Fiscal Year:	2017
Budgeted Y/N:	Yes
Amount:	$412,546

The amount for the entire design project will be $412,546. The FAA reimburses $375,664, the State reimburses $18,441, and the Town pays $18,441.

Staff Recommendation:

Staff recommends that the Town Manager be authorized to execute the grant agreement with the FAA.

Suggested Motion:

I move to adopt Resolution No. 2016-072, authorizing the Town Manager to execute a grant agreement with the Federal Aviation Administration for funding in an amount not to exceed $375,664 for design of the Apron and Taxiway Rehabilitation project, FAA 21 Grant.

Attachments

Resolution No. 2016-072
Agreement
Exhibit A to Agreement
Project Area Map

MARANA RESOLUTION NO. 2016-072

RELATING TO MARANA REGIONAL AIRPORT; AUTHORIZING THE TOWN MANAGER TO EXECUTE A GRANT AGREEMENT WITH THE FEDERAL AVIATION ADMINISTRATION FOR FUNDING IN AN AMOUNT NOT TO EXCEED $375,664 FOR DESIGN OF THE APRON AND TAXIWAY REHABILITATION PROJECT, FAA 21 GRANT

WHEREAS A.R.S. § 28-8411 authorizes the Town Council of the Town of Marana to undertake all activities necessary to acquire, establish, construct, own, control, lease, equip, improve, maintain, operate and regulate an airport; and

WHEREAS A.R.S. § 28-8413 authorizes the Town of Marana to accept and receive federal and other monies for the acquisition, construction, enlargement, improvement, maintenance, equipment or operation of an airport; and

WHEREAS the Town of Marana submitted a grant request to the Federal Aviation Administration (FAA) under the Airport Improvement Program (AIP) to fund a design and construction project for the rehabilitation of multiple aprons as well as a portion of Taxiway B; and

WHEREAS the FAA has approved an award of $375,664 to fund the design of the apron and taxiway rehabilitation project; and

WHEREAS the Town Council finds that authorizing the Town Manager to execute a grant agreement with the FAA for funding of the project is in the best interests of the Town and its citizens.

NOW, THEREFORE, BE IT RESOLVED by the Mayor and Council of the Town of Marana, Arizona, authorizing the Town Manager to execute the FAA grant agreement in substantially the form attached to and incorporated in this resolution as Exhibit A, and authorizing the Town's Manager and staff to undertake all other and further tasks required or beneficial to carry out this resolution, including the expenditure of matching funds as required by the AIP program, and taking any further appropriate and necessary actions to complete the requirements for funding under the FAA AIP.

PASSED AND ADOPTED BY THE MAYOR AND COUNCIL OF THE TOWN OF MARANA, ARIZONA, this 28th day of June, 2016.

Mayor Ed Honea

ATTEST:

Jocelyn C. Bronson, Town Clerk

APPROVED AS TO FORM:

Frank Cassidy, Town Attorney

U.S. Department of Transportation Federal Aviation Administration

DRAFT/GRANT AGREEMENT/DRAFT

PART I – OFFER

Date of Offer	June XX, XXXX
Airport/Planning Area	Marana Regional
AIP Grant Number	3-04-0058-021-2016
DUNS Number	017203188

TO: Town of Marana
(herein called the "Sponsor")

FROM: **The United States of America** (acting through the Federal Aviation Administration, herein called the "FAA")

WHEREAS, the Sponsor has submitted to the FAA a Project Application dated , for a grant of Federal funds for a project at or associated with the Marana Regional Airport, which is included as part of this Grant Agreement; and

WHEREAS, the FAA has approved a project for the Marana Regional Airport (herein called the "Project") consisting of the following:

Rehabilitate Apron, Rehabilitate Taxiway – Design Only

which is more fully described in the Project Application.

NOW THEREFORE, According to the applicable provisions of the former Federal Aviation Act of 1958, as amended and recodified, 49 U.S.C. 40101, et seq., and the former Airport and Airway Improvement Act of 1982 (AAIA), as amended and recodified, 49 U.S.C. 47101, et seq., (herein the AAIA grant statute is referred to as "the Act"), the representations contained in the Project Application, and in consideration of (a) the Sponsor's adoption and ratification of the Grant Assurances dated March 2014, and the Sponsor's acceptance of this Offer, and (b) the benefits to accrue to the United States and the public from the accomplishment of the Project and compliance with the Grant Assurances and conditions as herein provided,

THE FEDERAL AVIATION ADMINISTRATION, FOR AND ON BEHALF OF THE UNITED STATES, HEREBY OFFERS AND AGREES to pay 91.06 percent of the allowable costs incurred accomplishing the Project as the United States share of the Project.

This Offer is made on and **SUBJECT TO THE FOLLOWING TERMS AND CONDITIONS**:

CONDITIONS

1. **Maximum Obligation.** The maximum obligation of the United States payable under this Offer is $375,664.

   The following amounts represent a breakdown of the maximum obligation for the purpose of establishing allowable amounts for any future grant amendment, which may increase the foregoing maximum obligation of the United States under the provisions of 49 U.S.C. § 47108(b):

   $0 for planning
   $375,664 for airport development or noise program implementation
   $0 for land acquisition.

2. **Period of Performance**. The period of performance begins on the date the Sponsor formally accepts this agreement. Unless explicitly stated otherwise in an amendment from the FAA, the end date of the project period of performance is 4 years (1,460 calendar days) from the date of formal grant acceptance by the Sponsor.

   The Sponsor may only charge allowable costs for obligations incurred prior to the end date of the period of performance (2 CFR § 200.309). Unless the FAA authorizes a written extension, the sponsor must submit all project closeout documentation and liquidate (pay off) all obligations incurred under this award no later than 90 calendar days after the end date of the period of performance (2 CFR § 200.343).

   The period of performance end date does not relieve or reduce Sponsor obligations and assurances that extend beyond the closeout of a grant agreement.

3. **Ineligible or Unallowable Costs**. The Sponsor must not include any costs in the project that the FAA has determined to be ineligible or unallowable.

4. **Indirect Costs – Sponsor.** Sponsor may charge indirect costs under this award by applying the indirect cost rate identified in the project application and as accepted by the FAA to allowable costs for Sponsor direct salaries and wages.

5. **Determining the Final Federal Share of Costs.** The United States' share of allowable project costs will be made in accordance with the regulations, policies and procedures of the Secretary. Final determination of the United States' share will be based upon the final audit of the total amount of allowable project costs and settlement will be made for any upward or downward adjustments to the Federal share of costs.

6. **Completing the Project Without Delay and in Conformance with Requirements**. The Sponsor must carry out and complete the project without undue delays and in accordance with this agreement, and the regulations, policies and procedures of the Secretary. The Sponsor also agrees to comply with the assurances which are part of this agreement.

7. **Amendments or Withdrawals before Grant Acceptance.** The FAA reserves the right to amend or withdraw this offer at any time prior to its acceptance by the Sponsor.

8. **Offer Expiration Date.** This offer will expire and the United States will not be obligated to pay any part of the costs of the project unless this offer has been accepted by the Sponsor on or before June XX, XXXX, or such subsequent date as may be prescribed in writing by the FAA.

9. **Improper Use of Federal Funds.** The Sponsor must take all steps, including litigation if necessary, to recover Federal funds spent fraudulently, wastefully, or in violation of Federal antitrust statutes, or misused in any other manner in any project upon which Federal funds have been expended. For the purposes of this grant agreement, the term "Federal funds" means funds however used or dispersed by the Sponsor that were originally paid pursuant to this or any other Federal grant agreement. The Sponsor must obtain the approval of the Secretary as to any determination of the amount of the Federal share of such funds. The Sponsor must return the recovered Federal share, including funds recovered by

settlement, order, or judgment, to the Secretary. The Sponsor must furnish to the Secretary, upon request, all documents and records pertaining to the determination of the amount of the Federal share or to any settlement, litigation, negotiation, or other efforts taken to recover such funds. All settlements or other final positions of the Sponsor, in court or otherwise, involving the recovery of such Federal share require advance approval by the Secretary.

10. **United States Not Liable for Damage or Injury.** The United States is not responsible or liable for damage to property or injury to persons which may arise from, or be incident to, compliance with this grant agreement.

11. **System for Award Management (SAM) Registration And Universal Identifier.**

    A. Requirement for System for Award Management (SAM): Unless the Sponsor is exempted from this requirement under 2 CFR 25.110, the Sponsor must maintain the currency of its information in the SAM until the Sponsor submits the final financial report required under this grant, or receives the final payment, whichever is later. This requires that the Sponsor review and update the information at least annually after the initial registration and more frequently if required by changes in information or another award term. Additional information about registration procedures may be found at the SAM website (currently at http://www.sam.gov).

    B. Requirement for Data Universal Numbering System (DUNS) Numbers

        1. The Sponsor must notify potential subrecipient that it cannot receive a contract unless it has provided its DUNS number to the Sponsor. A subrecipient means a consultant, contractor, or other entity that enters into an agreement with the Sponsor to provide services or other work to further this project, and is accountable to the Sponsor for the use of the Federal funds provided by the agreement, which may be provided through any legal agreement, including a contract.

        2. The Sponsor may not make an award to a subrecipient unless the subrecipient has provided its DUNS number to the Sponsor.

        3. Data Universal Numbering System: DUNS number means the nine-digit number established and assigned by Dun and Bradstreet, Inc. (D & B) to uniquely identify business entities. A DUNS number may be obtained from D & B by telephone (currently 866–705–5771) or on the web (currently at http://fedgov.dnb.com/webform).

12. **Electronic Grant Payment(s).** Unless otherwise directed by the FAA, the Sponsor must make each payment request under this agreement electronically via the Delphi eInvoicing System for Department of Transportation (DOT) Financial Assistance Awardees.

13. **Informal Letter Amendment of AIP Projects.** If, during the life of the project, the FAA determines that the maximum grant obligation of the United States exceeds the expected needs of the Sponsor by $25,000 or five percent (5%), whichever is greater, the FAA can issue a letter amendment to the Sponsor unilaterally reducing the maximum obligation.

    The FAA can also issue a letter to the Sponsor increasing the maximum obligation if there is an overrun in the total actual eligible and allowable project costs to cover the amount of the overrun provided it will not exceed the statutory limitations for grant amendments. The FAA's authority to increase the maximum obligation does not apply to the "planning" component of condition No. 1.

    The FAA can also issue an informal letter amendment that modifies the grant description to correct administrative errors or to delete work items if the FAA finds it advantageous and in the best interests of the United States.

    An informal letter amendment has the same force and effect as a formal grant amendment.

14. **Air and Water Quality.** The Sponsor is required to comply with all applicable air and water quality

standards for all projects in this grant. If the Sponsor fails to comply with this requirement, the FAA may suspend, cancel, or terminate this grant.

15. **Financial Reporting and Payment Requirements.** The Sponsor will comply with all federal financial reporting requirements and payment requirements, including submittal of timely and accurate reports.

16. **Buy American.** Unless otherwise approved in advance by the FAA, the Sponsor will not acquire or permit any contractor or subcontractor to acquire any steel or manufactured products produced outside the United States to be used for any project for which funds are provided under this grant. The Sponsor will include a provision implementing Buy American in every contract.

17. **Maximum Obligation Increase For Nonprimary Airports.** In accordance with 49 U.S.C. § 47108(b), as amended, the maximum obligation of the United States, as stated in Condition No. 1 of this Grant Offer:

    A. May not be increased for a planning project;

    B. May be increased by not more than 15 percent for development projects;

    C. May be increased by not more than 15 percent or by an amount not to exceed 25 percent of the total increase in allowable costs attributable to the acquisition of land or interests in land, whichever is greater, based on current credible appraisals or a court award in a condemnation proceeding.

18. **Audits for Public Sponsors.** The Sponsor must provide for a Single Audit in accordance with 2 CFR Part 200. The Sponsor must submit the Single Audit reporting package to the Federal Audit Clearinghouse on the Federal Audit Clearinghouse's Internet Data Entry System at http://harvester.census.gov/facweb/. The Sponsor must also provide one copy of the completed 2 CFR Part 200 audit to the Airports District Office.

19. **Suspension or Debarment.** When entering into a "covered transaction" as defined by 2 CFR § 180.200, the Sponsor must:

    A. Verify the non-federal entity is eligible to participate in this Federal program by:

        1. Checking the excluded parties list system (EPLS) as maintained within the System for Award Management (SAM) to determine if non-federal entity is excluded or disqualified; or

        2. Collecting a certification statement from the non-federal entity attesting they are not excluded or disqualified from participating; or

        3. Adding a clause or condition to covered transactions attesting individual or firm are not excluded or disqualified from participating.

    B. Require prime contractors to comply with 2 CFR § 180.330 when entering into lower-tier transactions (e.g. Sub-contracts).

    C. Immediately disclose to the FAA whenever the Sponsor: (1) learns they have entered into a covered transaction with an ineligible entity or (2) suspends or debars a contractor, person, or entity.

20. **Ban on Texting While Driving.**

    A. In accordance with Executive Order 13513, Federal Leadership on Reducing Text Messaging While Driving, October 1, 2009, and DOT Order 3902.10, Text Messaging While Driving, December 30, 2009, the Sponsor is encouraged to:

        1. Adopt and enforce workplace safety policies to decrease crashes caused by distracted drivers including policies to ban text messaging while driving when performing any work for, or on behalf of, the Federal government, including work relating to a grant or subgrant.

2. Conduct workplace safety initiatives in a manner commensurate with the size of the business, such as:

   a. Establishment of new rules and programs or re-evaluation of existing programs to prohibit text messaging while driving; and

   b. Education, awareness, and other outreach to employees about the safety risks associated with texting while driving.

B. The Sponsor must insert the substance of this clause on banning texting while driving in all subgrants, contracts and subcontracts.

21. Trafficking in Persons.

A. Prohibitions: The prohibitions against trafficking in persons (Prohibitions) apply to any entity other than a State, local government, Indian tribe, or foreign public entity. This includes private Sponsors, public Sponsor employees, subrecipients of private or public Sponsors (private entity). Prohibitions include:

1. Engaging in severe forms of trafficking in persons during the period of time that the agreement is in effect;

2. Procuring a commercial sex act during the period of time that the agreement is in effect; or

3. Using forced labor in the performance of the agreement, including subcontracts or subagreements under the agreement.

B. In addition to all other remedies for noncompliance that are available to the FAA, Section 106(g) of the Trafficking Victims Protection Act of 2000 (TVPA), as amended (22 U.S.C. 7104(g)), allows the FAA to unilaterally terminate this agreement, without penalty, if a private entity –

1. Is determined to have violated the Prohibitions; or

2. Has an employee who the FAA determines has violated the Prohibitions through conduct that is either:

   a. Associated with performance under this agreement; or

   b. Imputed to the Sponsor or subrecipient using 2 CFR part 180, "OMB Guidelines to Agencies on Government wide Debarment and Suspension (Nonprocurement)," as implemented by the FAA at 2 CFR part 1200.

22. AIP Funded Work Included in a PFC Application:

Within 90 days of acceptance of this award, Sponsor must submit to the Federal Aviation Administration an amendment to any approved Passenger Facility Charge (PFC) application that contains an approved PFC project also covered under this grant award. The airport sponsor may not make any expenditure under this award until project work addressed under this award is removed from an approved PFC application by amendment.

23. Exhibit "A" Property Map. The Exhibit "A" Property Map dated May 11, 2007, is incorporated herein by reference or is submitted with the project application and made part of this grant agreement.

24. Design Grant. This grant agreement is being issued in order to complete the design of the project. The Sponsor understands and agrees that within 2 years after the design is completed that the Sponsor will accept, subject to the availability of the amount of federal funding identified in the Airport Capital Improvement Plan (ACIP), a grant to complete the construction of the project in order to provide a useful and useable unit of work. The Sponsor also understands that if the FAA has provided federal funding to complete the design for the project, and the Sponsor has not completed the design within four (4) years

from the execution of this grant agreement, the FAA may suspend or terminate grants related to the design.

The Sponsor's acceptance of this Offer and ratification and adoption of the Project Application incorporated herein shall be evidenced by execution of this instrument by the Sponsor, as hereinafter provided, and this Offer and Acceptance shall comprise a Grant Agreement, as provided by the Act, constituting the contractual obligations and rights of the United States and the Sponsor with respect to the accomplishment of the Project and compliance with the assurances and conditions as provided herein. Such Grant Agreement shall become effective upon the Sponsor's acceptance of this Offer.

UNITED STATES OF AMERICA
FEDERAL AVIATION ADMINISTRATION

_____
(Signature)

_____
(Typed Name)

_____
(Title of FAA Official)

PART II - ACCEPTANCE

The Sponsor does hereby ratify and adopt all assurances, statements, representations, warranties, covenants, and agreements contained in the Project Application and incorporated materials referred to in the foregoing Offer, and does hereby accept this Offer and by such acceptance agrees to comply with all of the terms and conditions in this Offer and in the Project Application.

I declare under penalty of perjury that the foregoing is true and correct.[1]
Executed this_____day of _____,_____.

Town of Marana
(Name of Sponsor)

(Signature of Sponsor's Authorized Official)

By: Gilbert Davidson
(Typed Name of Sponsor's Authorized Official)

Title: Town Manager
(Title of Sponsor's Authorized Official

CERTIFICATE OF SPONSOR'S ATTORNEY

I, _____, acting as Attorney for the Sponsor do hereby certify:

That in my opinion the Sponsor is empowered to enter into the foregoing Grant Agreement under the laws of the State of_____. Further, I have examined the foregoing Grant Agreement and the actions taken by said Sponsor and Sponsor's official representative has been duly authorized and that the execution thereof is in all respects due and proper and in accordance with the laws of the said State and the Act. In addition, for grants involving projects to be carried out on property not owned by the Sponsor, there are no legal impediments that will prevent full performance by the Sponsor. Further, it is my opinion that the said Grant Agreement constitutes a legal and binding obligation of the Sponsor in accordance with the terms thereof.

Dated at _____ (location) this _____ day of _____,_____.

By: _____
(Signature of Sponsor's Attorney)

[1] Knowingly and willfully providing false information to the Federal government is a violation of 18 U.S.C. Section 1001 (False Statements) and could subject you to fines, imprisonment, or both.

ASSURANCES

AIRPORT SPONSORS

A. General.

a. 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.

b. 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.

c. 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, 25, 30, 32, 33, and 34 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 project including but not limited to the following:

FEDERAL LEGISLATION

a. Title 49, U.S.C., subtitle VII, as amended.

b. Davis-Bacon Act - 40 U.S.C. 276(a), 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 Title 42 U.S.C. 4601, et seq.[1 2]

f. National Historic Preservation Act of 1966 - Section 106 - 16 U.S.C. 470(f).[1]

g. Archeological and Historic Preservation Act of 1974 - 16 U.S.C. 469 through 469c.[1]

h. Native Americans Grave Repatriation Act - 25 U.S.C. Section 3001, et seq.

i. Clean Air Act, P.L. 90-148, as amended.

j. Coastal Zone Management Act, P.L. 93-205, as amended.

k. Flood Disaster Protection Act of 1973 - Section 102(a) - 42 U.S.C. 4012a.[1]

l. Title 49, U.S.C., Section 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 -42 U.S.C. 4151, et seq.[1]

s. Power plant and Industrial Fuel Use Act of 1978 - Section 403- 2 U.S.C. 8373.[1]

t. Contract Work Hours and Safety Standards Act - 40 U.S.C. 327, 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.

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. 702 through 706.

z. The Federal Funding Accountability and Transparency Act of 2006, as amended (Pub. L. 109-282, as amended by section 6202 of Pub. L. 110-252).

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

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. [OMB Circular A-87 Cost Principles Applicable to Grants and Contracts with State and Local Governments, and OMB Circular A-133 - Audits of States, Local Governments, and Non-Profit Organizations].[4, 5, 6]

c. 2 CFR Part 1200 – Nonprocurement Suspension and Debarment

d. 14 CFR Part 13 - Investigative and Enforcement Procedures14 CFR Part 16 - Rules of Practice For Federally Assisted Airport Enforcement Proceedings.

e. 14 CFR Part 150 - Airport noise compatibility planning.

f. 28 CFR Part 35- Discrimination on the Basis of Disability in State and Local Government Services.

g. 28 CFR § 50.3 - U.S. Department of Justice Guidelines for Enforcement of Title VI of the Civil Rights Act of 1964.

h. 29 CFR Part 1 - Procedures for predetermination of wage rates.[1]

i. 29 CFR Part 3 - Contractors and subcontractors on public building or public work financed in whole or part by loans or grants from the United States.[1]

j. 29 CFR Part 5 - Labor standards provisions applicable to contracts covering federally financed and assisted construction (also labor standards provisions applicable to non-construction contracts subject to the Contract Work Hours and Safety Standards Act).[1]

k. 41 CFR Part 60 - Office of Federal Contract Compliance Programs, Equal Employment Opportunity, Department of Labor (Federal and federally assisted contracting requirements).[1]

l. 49 CFR Part 18 - Uniform administrative requirements for grants and cooperative agreements to state and local governments.[3]

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 Programs.

r. 49 CFR Part 27 – Nondiscrimination on the Basis of Handicap in Programs and Activities Receiving or Benefiting from 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 41 - Seismic safety of Federal and federally assisted or regulated new building construction.

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.

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] 49 CFR Part 18 and 2 CFR Part 200 contain requirements for State and Local Governments receiving Federal assistance. Any requirement levied upon State and Local Governments by this regulation and circular shall also be applicable to private sponsors receiving Federal assistance under Title 49, United States Code.

[4] On December 26, 2013 at 78 FR 78590, the Office of Management and Budget (OMB) issued the Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards in 2 CFR Part 200. 2 CFR Part 200 replaces and combines the former Uniform Administrative Requirements for Grants (OMB Circular A-102 and Circular A-110 or 2 CFR Part 215 or Circular) as well as the Cost Principles (Circulars A-21 or 2 CFR part 220; Circular A-87 or 2 CFR part 225; and A-122, 2 CFR part 230). Additionally it replaces Circular A-133 guidance on the Single Annual Audit. In accordance with 2 CFR section 200.110, the standards set forth in Part 200 which affect administration of Federal awards issued by Federal agencies become effective once implemented by Federal agencies or when any future amendment to this Part becomes final. Federal agencies, including the Department of Transportation, must implement the policies and procedures applicable to Federal awards by promulgating a regulation to be effective by December 26, 2014 unless different provisions are required by statute or approved by OMB.

[5] Cost principles established in 2 CFR part 200 subpart E must be used as guidelines for determining the eligibility of specific types of expenses.

[6] Audit requirements established in 2 CFR part 200 subpart F are the guidelines for audits.

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. 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 insure that the airport will be operated and maintained in accordance Title 49, United States Code, the regulations and the terms, conditions and assurances in this grant agreement and shall insure 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.**

    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 section 44706 of Title 49, United States Code, 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, in accordance with the Davis-Bacon Act, as amended (40 U.S.C. 276a-276a-5), 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 Section 47112 of Title

49, United States Code. 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 airmen 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.

a.) 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.

b.) 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.

c.) 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.

d.) 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.

e.) 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.

f.) 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.

g.) 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 Section 47102 of title 49 United States Code), if the FAA determines the airport sponsor meets the requirements set forth in Sec. 813 of Public Law 112-95.

a.) 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.

b.) Any civil penalties or other sanctions will be imposed for violation of this assurance in accordance with the provisions of Section 47107 of Title 49, United States Code.

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. by gross weights of such aircraft) is in excess of five million pounds 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.

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, or rights in buildings of the sponsor 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. 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 nonaviation 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.

            a.) 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, creed, color, national origin, sex, age, or disability be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination in any 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 §§ 21.23 (b) and 21.23 (e) of 49 CFR § 21, 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 **(Name of Sponsor)**, 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 that it will affirmatively ensure that any contract entered into pursuant to this advertisement, disadvantaged business enterprises and airport concession disadvantaged business enterprises will be afforded full and fair opportunity to submit bids in response to this invitation and will not be discriminated against on the grounds of race, color, or national origin 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 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, creed, sex, age, or handicap 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 Section 47117(e) of title 49 United States Code, (3) reinvestment in an approved airport development project that is eligible for grant funding under Sections 47114, 47115, or 47117 of title 49 United States Code, (4) transferred to an eligible sponsor of another public airport to be reinvested in an approved noise compatibility project at that airport, and (5) paid 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, (1) 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 Section 47117(e) of title 49 United States Code, (3) reinvestment in an approved airport development project that is eligible for grant funding under Sections 47114, 47115, or 47117 of title 49 United States Code, (4) transferred to an eligible sponsor of another public airport to be reinvested in an approved noise compatibility project at that airport, and (5) paid 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.**

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 with respect to the project in the same manner as a contract for architectural and engineering services is negotiated under Title IX of the Federal Property and Administrative Services Act of 1949 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 the project in accordance with policies, standards, and specifications approved by the Secretary including, but not limited to, the advisory circulars listed in the Current FAA Advisory Circulars for AIP projects, dated December 31, 2015 and included in this grant, and in accordance with applicable state policies, standards, and specifications approved by the Secretary.

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 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 DBE and 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 1936 (31 U.S.C. 3801).

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 section 47102 of title 49, U.S.C.) 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.

FAA
Airports

Current FAA Advisory Circulars Required for Use in AIP Funded and PFC Approved Projects

Updated: 12/31/2015

View the most current versions of these ACs and any associated changes at:
http://www.faa.gov/airports/resources/advisorycirculars

NUMBER	TITLE
70/7460-1L	Obstruction Marking and Lighting
150/5020-1	Noise Control and Compatibility Planning for Airports
150/5070-6B Changes 1- 2	Airport Master Plans
150/5070-7 Change 1	The Airport System Planning Process
150/5100-13B	Development of State Standards for Nonprimary Airports
150/5200-28E	Notices to Airmen (NOTAMS) for Airport Operators
150/5200-30C Change 1	Airport Winter Safety And Operations
150/5200-31C Changes 1-2	Airport Emergency Plan
150/5210-5D	Painting, Marking, and Lighting of Vehicles Used on an Airport
150/5210-7D	Aircraft Rescue and Fire Fighting Communications
150/5210-13C	Airport Water Rescue Plans and Equipment
150/5210-14B	Aircraft Rescue Fire Fighting Equipment, Tools and Clothing
150/5210-15A	Aircraft Rescue and Firefighting Station Building Design
150/5210-18A	Systems for Interactive Training of Airport Personnel

NUMBER	TITLE
150/5210-19A	Driver's Enhanced Vision System (DEVS) Ground Vehicle Operations on Airports
150/5220-10E	Guide Specification for Aircraft Rescue and Fire Fighting (ARFF) Vehicles
150/5220-16D	Automated Weather Observing Systems (AWOS) for Non-Federal Applications
150/5220-17B	Aircraft Rescue and Fire Fighting (ARFF) Training Facilities
150/5220-18A	Buildings for Storage and Maintenance of Airport Snow and Ice Control Equipment and Materials
150/5220-20A	Airport Snow and Ice Control Equipment
150/5220-21C	Aircraft Boarding Equipment
150/5220-22B	Engineered Materials Arresting Systems (EMAS) for Aircraft Overruns
150/5220-23	Frangible Connections
150/5220-24	Foreign Object Debris Detection Equipment
150/5220-25	Airport Avian Radar Systems
150/5220-26 Change 1	Airport Ground Vehicle Automatic Dependent Surveillance - Broadcast (ADS-B) Out Squitter Equipment
150/5300-7B	FAA Policy on Facility Relocations Occasioned by Airport Improvements of Changes
150/5300-13A Change 1	Airport Design
150/5300-14C	Design of Aircraft Deicing Facilities
150/5300-16A	General Guidance and Specifications for Aeronautical Surveys: Establishment of Geodetic Control and Submission to the National Geodetic Survey
150/5300-17C	Standards for Using Remote Sensing Technologies in Airport Surveys
150/5300-18C	Survey and Data Standards for Submission of Aeronautical Data Using Airports GIS
150/5300-18B Change 1	General Guidance and Specifications for Submission of Aeronautical Surveys to NGS: Field Data Collection and Geographic Information System (GIS) Standards
150/5320-5D	Airport Drainage Design
150/5320-6E	Airport Pavement Design and Evaluation

NUMBER	TITLE
150/5320-12C Changes 1-8	Measurement, Construction, and Maintenance of Skid Resistant Airport Pavement Surfaces
150/5320-15A	Management of Airport Industrial Waste
150/5235-4B	Runway Length Requirements for Airport Design
150/5335-5C	Standardized Method of Reporting Airport Pavement Strength - PCN
150/5340-1L	Standards for Airport Markings
150/5340-5D	Segmented Circle Airport Marker System
150/5340-18F	Standards for Airport Sign Systems
150/5340-26C	Maintenance of Airport Visual Aid Facilities
150/5340-30H	Design and Installation Details for Airport Visual Aids
150/5345-3G	Specification for L-821, Panels for the Control of Airport Lighting
150/5345-5B	Circuit Selector Switch
150/5345-7F	Specification for L-824 Underground Electrical Cable for Airport Lighting Circuits
150/5345-10H	Specification for Constant Current Regulators and Regulator Monitors
150/5345-12F	Specification for Airport and Heliport Beacons
150/5345-13B	Specification for L-841 Auxiliary Relay Cabinet Assembly for Pilot Control of Airport Lighting Circuits
150/5345-26D	FAA Specification For L-823 Plug and Receptacle, Cable Connectors
150/5345-27E	Specification for Wind Cone Assemblies
150/5345-28G	Precision Approach Path Indicator (PAPI) Systems
150/5345-39D	Specification for L-853, Runway and Taxiway Retro reflective Markers
150/5345-42H	Specification for Airport Light Bases, Transformer Housings, Junction Boxes, and Accessories
150/5345-43G	Specification for Obstruction Lighting Equipment
150/5345-44K	Specification for Runway and Taxiway Signs
150/5345-45C	Low-Impact Resistant (LIR) Structures

NUMBER	TITLE
150/5345-46D	Specification for Runway and Taxiway Light Fixtures
150/5345-47C	Specification for Series to Series Isolation Transformers for Airport Lighting Systems
150/5345-49C	Specification L-854, Radio Control Equipment
150/5345-50B	Specification for Portable Runway and Taxiway Lights
150/5345-51B	Specification for Discharge-Type Flashing Light Equipment
150/5345-52A	Generic Visual Glideslope Indicators (GVGI)
150/5345-53D	Airport Lighting Equipment Certification Program
150/5345-54B	Specification for L-884, Power and Control Unit for Land and Hold Short Lighting Systems
150/5345-55A	Specification for L-893, Lighted Visual Aid to Indicate Temporary Runway Closure
150/5345-56B	Specification for L-890 Airport Lighting Control and Monitoring System (ALCMS)
150/5360-12F	Airport Signing and Graphics
150/5360-13 Change 1	Planning and Design Guidelines for Airport Terminal Facilities
150/5360-14	Access to Airports By Individuals With Disabilities
150/5370-2F	Operational Safety on Airports During Construction
150/5370-10G	Standards for Specifying Construction of Airports
150/5370-11B	Use of Nondestructive Testing in the Evaluation of Airport Pavements
150/5370-13A	Off-Peak Construction of Airport Pavements Using Hot-Mix Asphalt
150/5370-15B	Airside Applications for Artificial Turf
150/5370-16	Rapid Construction of Rigid (Portland Cement Concrete) Airfield Pavements
150/5370-17	Airside Use of Heated Pavement Systems
150/5380-6C	Guidelines and Procedures for Maintenance of Airport Pavements
150/5380-9	Guidelines and Procedures for Measuring Airfield Pavement Roughness
150/5390-2C	Heliport Design

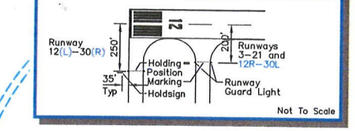
NUMBER	TITLE
150/5395-1A	Seaplane Bases

THE FOLLOWING ADDITIONAL APPLY TO AIP PROJECTS ONLY

Updated: 12/31/2015

NUMBER	TITLE
150/5100-14E, Change 1	Architectural, Engineering, and Planning Consultant Services for Airport Grant Projects
150/5100-17 Changes 1 - 6	Land Acquisition and Relocation Assistance for Airport Improvement Program Assisted Projects
150/5300-15A	Use of Value Engineering for Engineering Design of Airports Grant Projects
150/5320-17A	Airfield Pavement Surface Evaluation and Rating (PASER) Manuals
150/5370-12B	Quality Management for Federally Funded Airport Construction Projects
150/5380-6C	Guidelines and Procedures for Maintenance of Airport Pavements
150/5380-7B	Airport Pavement Management Program
150/5380-9	Guidelines and Procedures for Measuring Airfield Pavement Roughness

HOLDING POSITION MARKINGS/SIGN



Not To Scale

ULTIMATE BUILDINGS/FACILITIES

BLDG. NO.	DESCRIPTION
101	TERMINAL/AIRPORT ADMINISTRATION
102	RESTAURANT
103	AIRPORT CONTROL TOWER
104	AIRCRAFT RESCUE and FIREFIGHTING (ARFF)
105	WASH RACK
106	FUEL FACILITY PARCEL
107	FIXED BASE OPERATION (250'x150')
108	CONVENTIONAL HANGAR (200'x200')
109	EXECUTIVE HANGAR (100'x100')
110	EXECUTIVE HANGAR (80'x80')
111	T-HANGAR (12 Unit)
112	T-HANGAR (10 Unit)
113	T-HANGAR (8 Unit)
114	AVIATION PARCEL (150'x150')
115	AVIATION PARCEL (200'x150')
116	AVIATION PARCEL (150'x300')
117	AVIATION PARCEL (400'x400')
118	AVIATION PARCEL (400'x300')
119	AVIATION PARCEL (365'x400')
120	AVIATION PARCEL (500'x400')

EXISTING BUILDINGS/FACILITIES

BLDG. NO.	DESCRIPTION	TOP ELEV.
1	TERMINAL (Tucson Aeroservice Center)	2037
2	CONVENTIONAL HANGAR (Pima Aviating, Inc.)	2049
3	FIXED BASE OPERATION (Tucson Aeroservice Center)	2049
4	CONVENTIONAL HANGAR (Skywords Aviation)	2042
5	CONVENTIONAL HANGAR (Tucson Aeroservice Center)	2047
6	RESTAURANT (Sky Rider)	2037
7	CONVENTIONAL HANGAR (Pacific Aero Ventures)	2043
8	CONVENTIONAL HANGAR (Marana Skydiving)	2039
9	CONVENTIONAL HANGAR (ATW Aviation, Inc.)	2039
10	FUEL FACILITY	N/A
11	T-HANGAR	2045
12	T-HANGAR	2044
13	T-HANGAR	2044
14	T-HANGAR	2049
15	T-HANGAR	2045
16	T-HANGAR	2041
17	T-HANGAR	2041
18	T-HANGAR	2039
19	T-HANGAR	2039
20	T-HANGAR	2039
21	T-HANGAR	2042
22	T-HANGAR	2036
23	T-HANGAR	2036
24	T-HANGAR	2036
25	T-HANGAR	2036
26	T-HANGAR	2036
27	T-HANGAR	2036
28	T-HANGAR	2036
29	T-HANGAR	2043
30	SHADE HANGAR	2040
31	FIRE SUPPRESSION STORAGE TANK	
32	FIRE SUPPRESSION BUILDING	

LEGEND

EXISTING	ULTIMATE	DESCRIPTION
		AIRPORT PROPERTY LINE
		AIRPORT PARCEL LINE
		AIRPORT REFERENCE POINT (ARP)
		AIRPORT ROTATING BEACON
		AVIGATION EASEMENT (if applicable)
		BUILDING REMOVAL
		BUILDING CONSTRUCTION (On/Off Airport)
BRL	BRL	BUILDING RESTRICTION LINE (BRL)
		FACILITY (PAVEMENT) CONSTRUCTION
		FENCING
H	H	HELIPORT
		LOCALIZER ANTENNA
C	C	MEDIUM-INTENSITY APPROACH LIGHTING SYSTEM WITH RUNWAY ALIGNMENT INDICATOR (MALSR)
Critical Area	Critical Area	NAVAID CRITICAL AREA (Localizer/Glide Slope)
VASI-4	VASI-4	NAVIGATIONAL AID INSTALLATION
PAPI-4	PAPI-4	PRECISION APPROACH PATH INDICATOR
POFZ	POFZ	PRECISION OBJECT FREE ZONE
		PRIMARY/SECONDARY AIRPORT CONTROL STATION
ROFA	ROFA	RUNWAY OBJECT FREE AREA
ROFZ	ROFZ	RUNWAY OBSTACLE FREE ZONE
RPZ	RPZ	RUNWAY PROTECTION ZONE (RPZ)
RSA	RSA	RUNWAY SAFETY AREA
		RUNWAY END IDENTIFICATION LIGHTS (REIL)
		RUNWAY THRESHOLD LIGHTS
RVZ	RVZ	RUNWAY VISIBILITY ZONE
24/06 2415/2415	24/06 2415/2415	SECTION CORNER
		SEGMENTED CIRCLE/WIND INDICATOR
A	A	TAXIWAY DESIGNATION
		TAXIWAY HOLD LINE
1580	1580	TOPOGRAPHY
		WIND INDICATOR (Lighted)

Magnetic Variance 11° 04' East (May 2006) Annual Rate of Change 00° 06' West (May 2006)

0 500 1,000

SCALE IN FEET

GENERAL NOTES:

1. Depiction of features and objects, including related elevations and clearances, within the runway depicted on the INNER PORTION APPROACH SURFACE DRAWINGS.
2. Details concerning terminal improvements are depicted on the TERMINAL AREA DRAWING.
3. Recommended land uses are depicted on the AIRPORT LAND USE DRAWING.
4. Building Restriction Line (BRL) is established in accordance with F.A.R. Part 77 criteria. Location utilizes 35 foot vertical object height.
5. All Elevations are in NAVD 88.
6. No Threshold Siting Surface Object Penetrations.
7. No Obstacle Free Zone (OFZ) Object Penetrations.
8. PACS Setting is a Concrete Monument, SACS settings are 10 Foot Steel Rods without Sleeve.
9. Base Map provide by Z&H Engineering, dated January 19, 2006.

No.	REVISIONS	DATE	BY	APP'D.
3	MASTER PLAN	5/10/07	CA	--
2	UPDATE AIRPORT MASTER PLAN	8/9/99	CA	--
1	UPDATE BASED ON SIGNIFICANT AIRPORT CHANGES SINCE 8/21/91 APPROVAL	2/18/98	FAA	--

THE CONTENTS OF THIS PLAN DO NOT NECESSARILY REFLECT THE OFFICIAL VIEWS OR POLICIES OF THE FAA OR ADOT AERONAUTICS. ACCEPTANCE OF THESE DOCUMENTS BY ADOT AERONAUTICS DOES NOT IN ANY WAY CONSTITUTE A COMMITMENT ON THE PART OF THE STATE OF ARIZONA TO PARTICIPATE IN ANY DEVELOPMENT DEPICTED HEREIN NOR DOES IT INDICATE THAT THE PROPOSED DEVELOPMENT IS ENVIRONMENTALLY ACCEPTABLE IN ACCORDANCE WITH APPROPRIATE PUBLIC OR STATE LAWS.

FOR APPROVAL BY:

Town of Marana

APPROVED BY: _____ ON THE DATE OF: 5/15/07

Charles Mangum
Airport Director

FAA APPROVAL STAMP

Approved conditionally JUL 19 2007

Subject to comments contained in our letter dated: JUL 19 2007

FEDERAL AVIATION ADMINISTRATION
Western-Pacific Region

By _____
Manager - PAS/ADO

MARANA REGIONAL AIRPORT (AVQ)

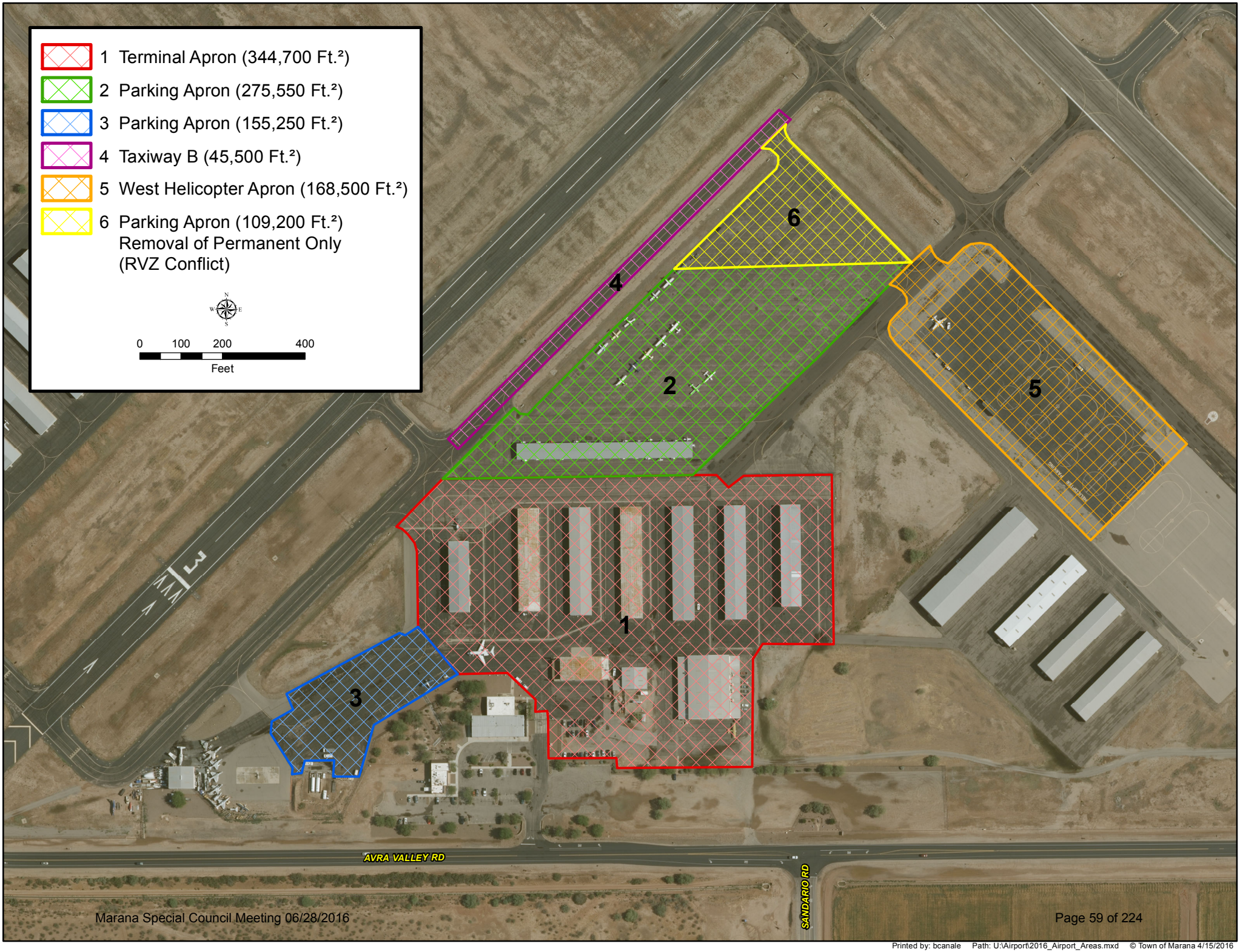
AIRPORT LAYOUT DRAWING

MARANA, ARIZONA

PLANNED BY: Eric S. Pfeifer
DETAILED BY: Richard A. Lally
APPROVED BY: Steven G. Benson

May 11, 2007 SHEET 2 OF 12

Coffman Associates Airport Consultants



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Council-Special Meeting **C6**

Meeting Date: 06/28/2016

To: Mayor and Council

From: Jane Fairall, Deputy Town Attorney

Date: June 28, 2016

Strategic Plan Focus Area:
Not Applicable

Subject: Ordinance No. 2016.010: Relating to Business Regulations; amending Town Code Title 9 (Business Regulations) by revising section 9-4-9 (Massage establishment license application; separate license; husband and wife; additional requirements) to amend requirements for proof of land ownership in massage establishment license applications; and designating an effective date (Jane Fairall)

Discussion:

On February 15, 2011, the Town Council adopted Ordinance No. 2011.01, amending the Town Code to add Chapter 9-4 related to the regulation and licensing of massage establishments. Subsequently, in 2011 and 2012, the Council revised Chapter 9-4 in response to enforcement issues and a comprehensive review of the Code provisions by the Police, Finance and Legal Departments. The purpose of Chapter 9-4 is to continue to enhance the professionalism of the massage service industry, to protect the health and safety of the public, and to assure the integrity of the massage service industry by reducing unprofessional practices.

The proposed ordinance on tonight's agenda would remove a requirement that all massage establishment applicants provide a copy of the recorded deed for the property where the business operates to the Town as part of the application packet. Town staff has found that this requirement is unnecessary in most cases, as long as the applicant is able to provide a lease agreement or other documentation evidencing the applicant's right to use the property for a massage establishment. The proposed revision would allow the Town's license inspector to require a copy of the deed if necessary, but would no longer make it a mandatory part of the application.

Staff Recommendation:

Staff recommends approval of the revision to Town Code section 9-4-9.

Suggested Motion:

I move to adopt Ordinance No. 2016.010, amending Town Code Title 9 by revising section 9-4-9 to update requirements for proof of land ownership in massage establishment license applications; and designating an effective date.

Attachments

Ordinance No. 2016.010

MARANA ORDINANCE NO. 2016.010

RELATING TO BUSINESS REGULATIONS; AMENDING TOWN CODE TITLE 9 (BUSINESS REGULATIONS) BY REVISING SECTION 9-4-9 (MASSAGE ESTABLISHMENT LICENSE APPLICATION; SEPARATE LICENSE; HUSBAND AND WIFE; ADDITIONAL REQUIREMENTS) TO AMEND REQUIREMENTS FOR PROOF OF LAND OWNERSHIP IN MASSAGE ESTABLISHMENT LICENSE APPLICATIONS; AND DESIGNATING AN EFFECTIVE DATE

WHEREAS the Town is authorized by A.R.S. § 32-4258 to adopt and enforce regulations affecting the establishments, locations and settings in which individuals, entities and businesses engage in the practice of massage therapy; and

WHEREAS the Town Council finds that the regulations established by this ordinance are necessary for the public health, safety and general welfare of the Town of Marana.

NOW, THEREFORE, BE IT ORDAINED BY THE MAYOR AND COUNCIL OF THE TOWN OF MARANA, as follows:

SECTION 1. Marana Town Code Title 9 (Business Regulations) is hereby amended to revise section 9-4-9 (Massage establishment license application; separate license; husband and wife; additional requirements) as follows (with deletions shown with ~~strikeouts~~ and additions shown with double underlining):

9-4-9 Massage establishment license application; separate license; husband and wife; additional requirements

A. Each application for a massage establishment license shall consist of, as applicable, the following:

[Subparagraphs 1 through 20 remain unchanged]

21. Written ~~proof of the current fee ownership of the tract of land on which the establishment is to be situated in the form of a copy of the recorded deed. If the persons identified as the fee owners of the tract of land are not also the owners of the massage establishment, then written~~ proof evidencing the legally enforceable right of the applicant to have or obtain the use and possession of the tract of land on which the establishment is to be situated for the purpose of the operation of the massage establishment, in the form of a lease, purchase contract, purchase option contract, lease option contract or other similar documents. The license

inspector may also require proof of the current fee ownership of the tract of land in the form of a copy of the recorded deed.

[Paragraphs B and C remain unchanged]

SECTION 2. The various town officers and employees are authorized and directed to perform all acts necessary or desirable to give effect to this ordinance.

SECTION 3. All ordinances, resolutions, or motions and parts of ordinances, resolutions, or motions of the Council in conflict with the provisions of this ordinance are hereby repealed, effective as of the effective date of this ordinance.

SECTION 4. If any section, subsection, sentence, clause, phrase or portion of this ordinance is for any reason held to be invalid or unconstitutional by the decision of any court of competent jurisdiction, the decision shall not affect the validity of the remaining portions of this ordinance.

SECTION 5. This ordinance shall become effective on the thirty-first day after its adoption.

PASSED AND ADOPTED BY THE MAYOR AND COUNCIL OF THE TOWN OF MARANA, ARIZONA, this 28th day of June, 2016.

_____
Mayor Ed Honea

ATTEST:

_____
Jocelyn C. Bronson, Town Clerk

APPROVED AS TO FORM:

_____
Frank Cassidy, Town Attorney

Council-Special Meeting **A1**

Meeting Date: 06/28/2016

To: Mayor and Council

From: Keith Brann, Town Engineer

Date: June 28, 2016

Strategic Plan Focus Area:
Commerce, Community, Progress & Innovation

Strategic Plan Focus Area Additional Info:
Commerce
1.1 Update the Land Development Code to enhance simplicity, understanding and ease of use
The subdivision street standards are a key companion document to the land development code
Community
1.6 Explore and research innovative community planning ideas for incorporation into processes, procedures, and codes
The subdivision street standards achieve these goals
Innovation
1.5 Research and develop policies that support choices for environmental design and energy efficient construction
The new subdivision street standards include a narrowed local street section, saving construction costs, maintenance costs, and reducing the heat island effect
2.1 Create and engage multi-disciplinary work teams to ensure that in-house and external projects incorporate best practices, effective communications, and serve multiple service delivery goals
2.2 Facilitate formal and informal two-way communication with employees and among and between departments to ensure better outcomes and avoid missed opportunities
The team assembled to revise the standards included engineering, public works, and planning. We additionally met with stakeholders that included SAHBA, MPA, developers, NWFD, and the consulting community.

Subject: Ordinance No. 2016.011: Relating to Development; adopting the 2016 Marana Subdivision Street Standards and the 2016 Marana Standard Details; and establishing an effective date (Keith Brann)

Resolution No. 2016-073: Relating to Development; declaring as a public record filed

with the Town Clerk the amendments adopted by Ordinance No. 2016.011, adopting the 2016 Marana Subdivision Street Standards and the 2016 Marana Standard Details (Keith Brann)

Discussion:

This item was presented at the June 21 council meeting, and was continued to tonight's meeting to address an issue raised by the Southern Arizona Home Builders Association (SAHBA) and some of its members. The concern is based on lower local drainage capacity of subdivision streets under the new standards. The 2004 standards allowed the use of a five-inch rolled curb. The new standards allow no higher than a four-inch rolled curb, to accommodate lower clearances on newer cars. The lost inch of curb height in the new standards significantly reduces the streets' drainage capacity.

To address SAHBA's concerns, staff has proposed the addition of a new Section 8 of the adopting ordinance, allowing five-inch rolled curbs in subdivisions constructed pursuant to a preliminary plat submitted on or before today -- June 28, 2016. With this change, already-designed and submitted preliminary plats will avoid having to be redesigned to address the change in drainage capacity of subdivision streets. If adopted in this form, the ordinance will require subdivisions submitted after today to meet the four-inch rolled curb requirement.

The only other change to the ordinance is the effective date, which has now been moved back one week to August 1, 2016.

The Marana subdivision street standards were originally adopted by council in May of 2004. The section dealing with alternative access was updated in April of 2013. Town staff has been working internally for some time to update the entire street standards manual. A presentation of substantive changes was made to the council at its April 19th session. Staff has also met with the technical advisory committees of SAHBA and the MPA as well as holding an open technical comment session at Town hall. In general, most of the comments received have not caused significant changes to the draft text first sent to stakeholders in March of 2016. There have been further refinements by staff in a few areas. Final substantive changes will be discussed tonight.

Staff Recommendation:

Staff recommends adoption of Ordinance 2016.011 and Resolution 2016-073, adopting the 2016 Marana Subdivision Street Standards and Marana Standard Details and making them a public record.

Suggested Motion:

I move to adopt Ordinance 2016.011 and Resolution 2016-073, adopting the 2016 Marana Subdivision Street Standards and Marana Standard Details and making them a public record.

Attachments

Ordinance No. 2016.011

Resolution No. 2016-073

Rso Exh A Standards
Rso ExhB1 details cover
Rso ExhB2 details 100 series
Rso ExhB3 details 500 series
Rso ExhB4 details 600 series
Rso ExhB5 details 700 series
Substantive Changes
Comments
Redline old to new standards

MARANA ORDINANCE NO. 2016.011

RELATING TO DEVELOPMENT; ADOPTING THE 2016 MARANA SUBDIVISION STREET STANDARDS AND THE 2016 MARANA STANDARD DETAILS; AND ESTABLISHING AN EFFECTIVE DATE

WHEREAS the Marana subdivision street standards were originally adopted on May 4, 2004, by Marana Ordinance No. 2004.08; and

WHEREAS Section 4.14 ("Subdivision Access") of the 2004 subdivision street standards was amended by Marana Ordinance No. 2013.008 adopted April 16, 2013; and

WHEREAS Town staff has been working internally and with external stakeholders for some time to update the entire street standards manual and to create a set of Town standard details; and

WHEREAS the Mayor and Council of the Town of Marana find that the standard details and the revised subdivision street standards adopted by this ordinance are in the best interests of the Town of Marana and the general public.

NOW, THEREFORE, BE IT ORDAINED BY THE MAYOR AND COUNCIL OF THE TOWN OF MARANA, as follows:

SECTION 1. The 2016 Marana Subdivision Street Standards and the 2016 Marana Standard Details; three copies of each of which are on file in the office of the Town Clerk of the Town of Marana, Arizona; which were made a public record by and are attached as Exhibit A and Exhibit B, respectively, to Marana Resolution No. 2016-073; are hereby referred to, adopted and made a part of this ordinance as if fully set out here.

SECTION 2. The Town Engineer is authorized to make changes to the 2016 Marana Standard Details of a clarifying or clerical nature.

SECTION 3. The various Town officers and employees are authorized and directed to perform all acts necessary or desirable to give effect to this ordinance.

SECTION 4. All ordinances or parts of ordinances in conflict with the provisions of this ordinance are repealed as of the effective date of this ordinance.

SECTION 5. If any section, subsection, sentence, clause, phrase or portion of this ordinance is for any reason held to be invalid or unconstitutional by the decision of any court of competent jurisdiction, the decision shall not affect the validity of the remaining portions of this ordinance.

SECTION 6. Except as set forth in Section 8 below, all engineering plans in conflict with the 2016 Subdivision Street Standards Manual and 2016 Marana Standard Details that have not been approved as of the effective date of this ordinance shall be revised to bring them into

compliance with the 2016 Subdivision Street Standards Manual and 2016 Marana Standard Details.

SECTION 7. Except as set forth in Section 8 below, all engineering plans in conflict with the 2016 Subdivision Street Standards Manual and 2016 Marana Standard Details that have been approved on or before the effective date of this ordinance shall be exempt from this ordinance if construction of the improvements shown on the plans is begun no later than October 31, 2016, and is thereafter diligently pursued to completion. Otherwise, the plans shall be revised to bring them into compliance with the 2016 Subdivision Street Standards Manual and 2016 Marana Standard Details.

SECTION 8. Any subdivision constructed pursuant to a preliminary plat submitted on or before June 28, 2016 may continue to utilize the five-inch rolled curb option from the 2004 subdivision street standards, so long as no substantive changes are made to the preliminary plat after June 28, 2016.

SECTION 9. This ordinance is effective on August 1, 2016.

PASSED AND ADOPTED BY THE MAYOR AND COUNCIL OF THE TOWN OF MARANA, ARIZONA, this 28th day of June, 2016.

Mayor Ed Honea

ATTEST:

Jocelyn C. Bronson, Town Clerk

APPROVED AS TO FORM:

Frank Cassidy, Town Attorney

MARANA RESOLUTION NO. 2016-073

RELATING TO DEVELOPMENT; DECLARING AS A PUBLIC RECORD FILED WITH THE TOWN CLERK THE AMENDMENTS ADOPTED BY ORDINANCE NO. 2016.011, ADOPTING THE 2016 MARANA SUBDIVISION STREET STANDARDS AND THE 2016 MARANA STANDARD DETAILS

BE IT RESOLVED BY THE MAYOR AND COUNCIL OF THE TOWN OF MARANA, ARIZONA, that the 2016 Marana Subdivision Street Standards, a copy of which is attached to and incorporated in this resolution as Exhibit A, and the 2016 Marana Standard Details, a copy of which is attached to and incorporated in this resolution as Exhibit B; and three copies of each of which are on file in the office of the Town Clerk, are hereby declared to be a public record and ordered to remain on file with the Town Clerk.

PASSED AND ADOPTED BY THE MAYOR AND COUNCIL OF THE TOWN OF MARANA, ARIZONA, this 28th day of June, 2016.

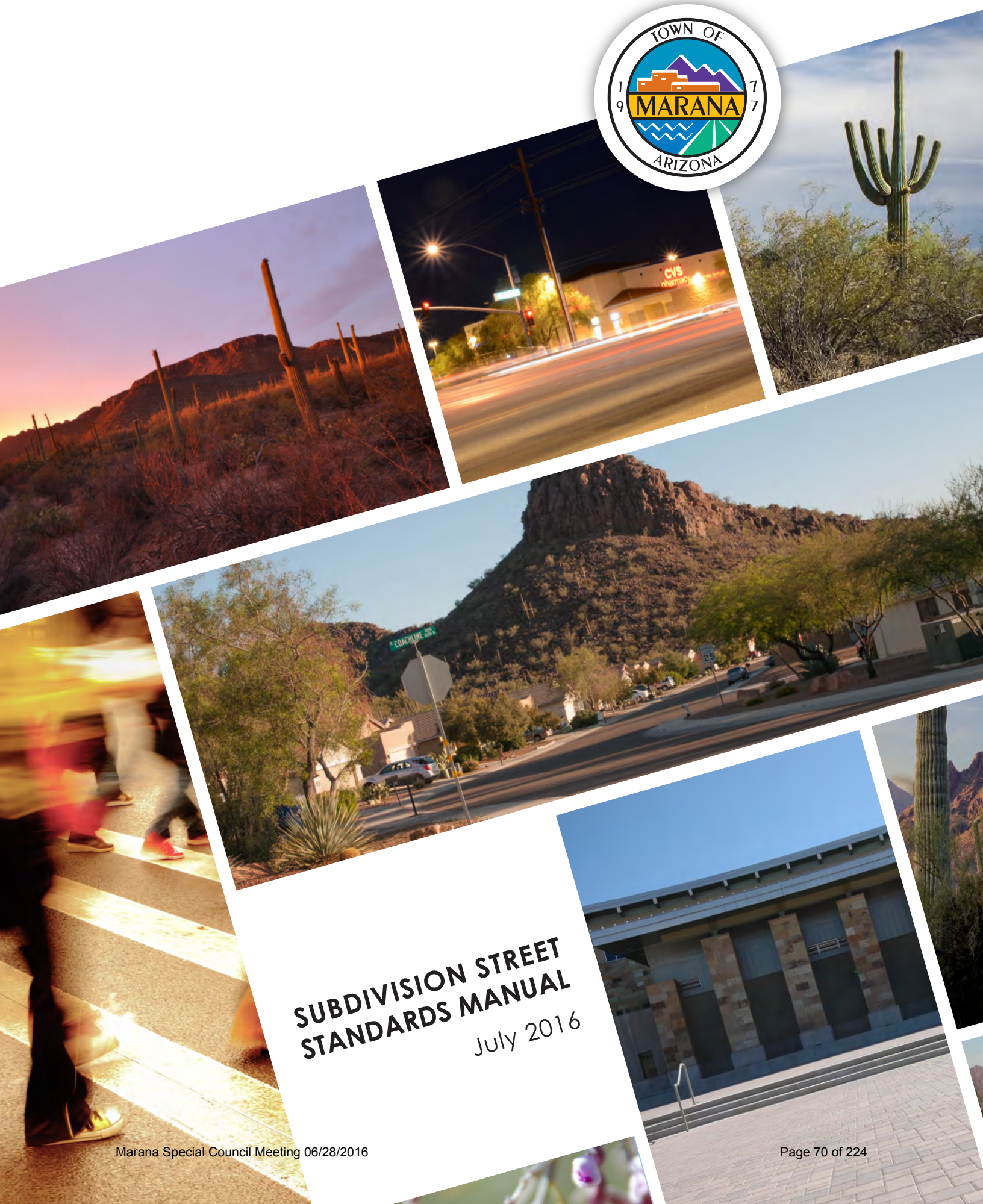
Mayor Ed Honea

ATTEST:

Jocelyn C. Bronson, Town Clerk

APPROVED AS TO FORM:

Frank Cassidy, Town Attorney



SUBDIVISION STREET STANDARDS MANUAL

July 2016



TOWN OF MARANA
11555 West Civic Center Drive
Marana, AZ 85653
(520) 382-1999 | maranaaz.gov

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1.0 INTRODUCTION & PURPOSE

1.1 Introduction

The majority of these standards were originally prepared by the Pima County Department of Transportation and Flood Control District (PCDOT & FCD). They were modified to address the specific conditions and needs of the Town of Marana, and were first adopted by Mayor and Council under Marana Ordinance 2004.08 in May of 2004. These standards, as presented in this manual, represent requirements for the preparation of subdivision plats, development plans, improvement plans and master planning documents. These standards apply equally to both public and private local roadways within all subdivisions and land development roadway construction or reconstruction within the Town of Marana, and are intended to be consistent with national standards and local policies and procedures. These standards are guidelines, which will be enforced as written; however, it is recognized that there are situations for which these standards may not be applicable. In these cases, and in cases of conflict or contradiction, sound engineering judgment consistent with accepted practice and approved in writing by the Town Engineer shall be used.

Those portions of these standards prepared by PCDOT & FCD ("Subdivision Street Standards", Oct. 1989) have been reproduced herein under permission by Pima County.

1.2 Purpose

These standards are intended to provide for the public health, safety and welfare of the traveling public. They are minimum standards for local streets which, if not met or exceeded, could create deficiencies resulting in a threat to public health, safety and welfare, as well as higher user costs and public losses. They have been adopted to reduce maintenance and liability costs borne by the residents of Marana.

In order to be responsive to the needs of roadway users within proposed and existing residential neighborhoods, these street development standards have been established to:

- Provide for streets of suitable location, width, and improvement to safely accommodate vehicular, cyclist, and pedestrian, traffic;
- Afford satisfactory access to emergency services, sanitation, school bus, street maintenance, and utility equipment;
- Coordinate street improvements, both public and private, so as to create a convenient system and avoid undue hardships to adjoining properties;
- Establish safe, effective, efficient, sustainable and attractive multi-modal transportation systems, which provide linkages and interconnectivity of developments;
- Provide adequate continuity, length, and width for walkways;
- Provide for visual and functional enhancement of streets and walkways through the use of natural and introduced landscapes;
- Encourage traffic management plans by private developers;
- Design streets to balance traffic between vehicular, cyclist, and pedestrian traffic; and

- Provide a street network design that includes enhanced safety and aesthetic characteristics and encourages curvilinear streets, streetscaping, and route continuity between neighborhoods.

1.3 Applicability

These standards are intended to apply to all residential subdivisions in the Town.

2.0 FUNCTIONAL CLASSIFICATION AND INCORPORATED REGULATIONS

2.1 Functional Classification

There are four broad functional classifications of streets as defined by the American Association of State Highway and Transportation Officials (AASHTO): local, collector, arterial, and freeway (limited access). This document is limited in concern to the design characteristics of local streets associated with subdivisions and developments, with particular attention to residential land development.

1. Local Streets: Local streets serve as access to residences, businesses or other abutting properties. Local streets are generally two-lane undivided roads with at-grade intersections and may have frequent driveway access. Local streets are intended and designed to provide access to abutting residential areas and carry this traffic to collector roadway systems. The design volume of these streets should be less than 1000 average trips per day (Average Daily Traffic (ADT)). Local streets must be designed for and posted with a minimum speed of 25 miles-per-hour (mph). Lower design speeds may be used for mountainous private roadways (see Chapter 4.12).

2. Commercial and Industrial Subdivision Streets: Commercial and industrial subdivision streets are to be designed in accordance with the above criteria, with special consideration of expected wheel loads, vehicle dimensions, and proposed use. Please refer to AASHTO's "*A Policy on the Geometric Design of Highways and Streets*" as well as the project's Traffic Impact Analysis for further design guidelines and data pertinent to these facilities.

3. Local Collectors: Local collectors are generally limited-access two-lane roadways that are striped with centerline and multi-use lanes. These streets are intended to serve as the main access point for a subdivision. The design speed for this type of street should be 35 MPH (to be posted at 30 MPH). The parking of vehicles and residential driveway access should be prohibited on these streets at all times.

It is recognized that there are specialized types of developments such as retail, office, industrial, mobile home parks, recreational, and cluster housing which vary widely in operational requirements. Design of these projects has been provided for as much as possible within this document.

2.2 Incorporated Regulations Adopted by Reference

This manual establishes engineering design practices for local roadway construction associated with land development within the Town of Marana. For items not covered herein, such as collector and arterial roadway designs, the engineer shall design in accordance with the latest Town of Marana Typical Roadway sections.

The following adopted standards, ordinances, or policies are also applicable and should be referred to by the design engineer as appropriate:

1. Marana Land Development Code;
2. Town of Marana Master Transportation Plan;
3. Town of Marana General Plan;
4. Adopted Area, Community, Neighborhood and Specific plans;
5. Conditions of zoning and rezoning;
6. Conditions of adopted Development Agreements;
7. Marana Standard Details; and
8. All reference materials as listed in Section 15-references

3.0 TRAFFIC STUDIES

Functional classification, roadway ADT, determination of number of lanes, design speed, required off-site improvements and design level of service shall be determined at the time of preliminary plat or development plan review, or master development plan preparation, as applicable (or rezoning if feasible) by the design engineer subject to approval by the Town of Marana. All projects that generate peak-hour trips of at least 100 vehicles are required to perform a Traffic Impact Study as a condition of development plan, preliminary plat, or rezoning. For developments producing less than 100 vehicular trips during the peak hour, the Traffic Engineering Manager will determine whether a Traffic Impact Study or Statement will be required. This study or statement must be signed and sealed by an engineer licensed to practice in the State of Arizona, and must include, at a minimum, peak-hour traffic generation figures. For the preparation of traffic impact study or statement, the guidelines contained within the Town of Marana's Procedures for Preparation of Transportation Impact Studies shall be followed.

1. For local streets, in the absence of more detailed information, ADT may be estimated from the number of units and the land use according to ITE's *Trip Generation Manual*.

2. The potential for cut-through traffic using neighborhood streets shall be addressed. Cut-through traffic is defined as traffic that uses a residential street (or a route consisting of more than one street) solely for the purpose of connecting between two major (arterial or collector) streets. If it is expected that the volume of cut-through traffic may be significant, consideration shall be given to the use of traffic calming measures on the potentially impacted street(s). See the section in Chapter 12.0, herein, on traffic calming devices.

The increase of proposed traffic through existing neighborhoods shall be addressed. In such cases, the new traffic forecasts are to be considered as "cut-through" traffic and the impacts on existing roadways examined. Appropriate traffic calming devices and techniques shall be identified and implemented upon approval of the Town Engineer.

3. Non-residential ADT may be estimated using ITE's *Trip Generation Handbook*.

4. Traffic demand forecasts must be made, including a summary of existing traffic plus approved, not-yet built development traffic, and proposed project traffic.

5. Any project proposal, which would degrade an existing roadway below a Level of Service (LOS) D, must mitigate to maintain a minimum LOS D.

6. A LOS of D or better shall be maintained on all off-site roadways and intersections that fall within the development's area of significant traffic impact (as designated by the Town and as depicted in the Traffic Impact Study prepared for the development). Improvements are required if the roadway segment or the intersection will operate below LOS D due to traffic generated by the development. Such improvements shall upgrade the LOS to D or better.

4.0 STREET LAYOUT & GEOMETRIC DESIGN

All subdivision and development related street designs shall conform to this document. Where not provided for herein, design engineers shall refer to those supplementary standards listed in Chapter 2.2.

4.1 Street Layout

1. All rights-of-way and street sections shall be designed and constructed to the full dimensions as shown in the Town of Marana Standard Details.

2. Where partial streets exist adjacent to the tract being developed, the remaining right-of-way must be dedicated and improvements must be made to the street as required by the Town Engineer.

3. Proposed developments shall provide for the continuation of Town of Marana Major Routes (as depicted in the circulation element of the Town's General Plan), existing arterials and collector street right(s)-of-way where appropriate.

4. The local street system shall be arranged to encourage traffic connectivity within the development and region. Circuitous through routings are to be encouraged.

5. Residential lots are not allowed to have direct access to collector and arterial streets.

    a. If frontage roads are used to provide access, they shall be designed such that improper intersections with streets do not occur. Frontage roads, by their nature,

intersect with entrance drives at close distances. However, they shall not intersect with new or existing streets at points less than that specified by Town Code (see off street parking requirements in the Marana Land Development Code).

b. Frontage roads shall have adequate turn-around areas for the design vehicle at roadway termini.

6. The proposed development shall provide streets in conformance with the Town of Marana Major Routes Plan (as depicted in the circulation element of the Town's General Plan), all existing specific plans, residential design guidelines, and other plans that are approved and adopted by the Town Council.

7. Stub streets required for future extension shall provide temporary turnaround areas at the stub end

8. If private streets are used as part of a development, entrances to gated, private streets shall include a turn-around area entirely contained between the ultimate public right-of-way and the proposed gate. The turn-around area shall be designed to accommodate a design vehicle of WB-40 or larger.

9. In order to maintain an 85^{th} percentile speed of 25-30 MPH, it is recommended that local street tangents be no longer than 500 feet between speed control points. A speed control point is defined as a break in continuity (such as a stop-controlled intersection), a properly designed horizontal curve, or a traffic calming device approved by the Town.

4.2 Cul-de-sacs

Permanent dead-end streets shall be designed with an adequate turnaround area at the roadway terminus. In accordance with Town standards, the turnaround area may not be required on dead-end streets less than 150 feet in length if services, such as fire, sanitation, school buses, maintenance equipment, delivery and repair vehicles, and postal service, can be provided without the use of the street. Cul-de-sac/dead-end length is measured from the curbline of the last street intersection to center point of turnaround. Turnarounds may be designed as cul-de-sacs, "T" or "Y" shaped configurations..

1. The cul-de-sac is preferred at all times for local street turnarounds because of its overall efficiency and maintainability, as well as for operational considerations pertaining to certain types of vehicles (e.g., fire trucks & school buses).

   The paved turnaround's geometry and right(s)-of-way shall conform to the standards set by the Town's Standard Details.

2. "T" and "Y" shaped turnarounds may be used for dead-end streets which have a projected ADT of 80 or less. Vertical curb is required in this type of turn-around area and driveways are not permitted.

3. Improvements to existing dead-end streets on abutting properties may be required during rezoning or subdivision platting. The purpose of these improvements is to allow proper through connection of future streets. Through connections may require the developer to remove abandoned cul-de-sac pavement on the abutting property, and that the full pavement section be carried to property line.

4. Where temporary turnarounds or cul-de-sacs are designed for a future extension to abutting properties, a note shall appear on the final plat listing the street name and indicating the temporary nature of the cul-de-sac condition.

5. Permanent dead-end streets longer than 1200 feet in length shall have turnarounds throughout the total length so the distance between turnarounds is no greater than 600 feet.

6. Cul-de-sacs may contain landscaping within a center area island if:

    a. Vertical curb is used around the entire center landscaped area;
    b. The radius of the landscaped center shall conform to the geometric layout as provided in the standard drawings;
    c. The cul-de-sac is large enough to allow passage of the design vehicle without wheel paths encountering the curb;
    d. The cul-de-sac is not proposed to be a future through street;
    e. The landscaping does not obstruct sight visibility;
    f. The Town of Marana shall not be responsible for maintaining cul-de-sac landscaping and a note to this effect shall be on the final plat. If landscaping is provided, the developer or homeowners association shall obtain a license agreement from the Town prior to the installation of landscaping. Landscaping irrigation runoff shall not be permitted to drain onto the roadway surface.
    g. The entire inside perimeter of the landscaped cul-de-sac shall be protected by a 36" deep root barrier.

4.3 Design Speed

The minimum design speed for local streets is 25 MPH. The minimum design speed for collector streets is 35 MPH. Higher design speeds may be warranted for certain roadways, and lower design speeds may be used for mountainous roadways per Chapter 4.12.

4.4 Design Vehicle

All local streets shall be designed for a WB-40 vehicle as defined by AASHTO or other design vehicle as approved by the Town Engineer.

Non-residential subdivision streets and parking area access lanes (PAAL) shall be designed for the largest vehicles (including service and delivery vehicles) anticipated to use the facilities, all in consultation with the Town Engineer. Delivery and service routes are to be clearly shown on

the development plan and/or preliminary plat, as applicable. A note shall be provided designating the design vehicle.

4.5 Horizontal Alignment

Minimum horizontal curve design criteria are shown in Table 1.

TABLE 1

Criteria	Local	Residential Collector
Design Speed (mph)	25	35
Minimum Center Line Radius (ft) (assumes 2% normal crown)	181	480
Minimum Horizontal Stopping Sight Distance (ft)	150	250

Consideration of driver expectancy and coordinated horizontal and vertical geometry shall occur in subdivision roadway design.

When two local road tangents are connected by a curve of less than the minimum radius, a "knuckle" or "eyebrow" intersection shall be constructed as shown in the Town of Marana Standard Details.

Compound and reverse curves are discouraged for local roads. Where this type of configuration is absolutely needed, it is recommended that tangents be placed between the curves. Tangents increase driver comfort, expectancy and safety. Where tangents are used, a minimum tangent length of 100 feet is required.

4.6 Vertical Alignment

Vertical alignment shall generally conform to the natural topography within the following limits:

TABLE 2

Criteria	Slope
Max. Gradient – Local Driveway	14 % (in R/W)
Max. Gradient – Local Streets	7 % Level, 11% Rolling Terrain
Max. Gradient – Collector Streets except Mountainous	8 %
Minimum Gradient	0.5%

In mountainous terrain (see Chapter 4.12), local street gradients may be up to 15 percent, upon approval by the Town Engineer.

1. Normal roadway cross slope shall be minimum two percent for crowned roadways and minimum one percent for non-crowned roadways.

2. Cross slope for drainage design may be up to four percent, at drainage crossings only.

3. Cul-de-sac cross-slopes shall not exceed eight percent.

4. Inverted crown streets are not acceptable for local streets. Inverted crowns may be used for Parking Area Access Lanes (PAALs) and alleys. Any inverted crown section with a longitudinal slope less than one percent requires a four foot wide concrete valley gutter, per Pima Association of Government standard details.

5. Minimum vertical (stopping) sight distance shall be in accordance with AASHTO's "*A Policy on Geometric Design of Highways and Streets*" guidelines, or 150 feet, whichever is more restrictive. For other design speeds and grade conditions, refer to AASHTO's "*A Policy on the Geometric Design of Highways and Streets*".

6. Landing areas are required for all stopped conditions. The maximum allowable grade for this landing area (on approaches to unsignalized intersections) is 3% (6% in mountainous terrain, see Chapter 4.12), and this grade must extend at least 20 feet in each direction from the outside edge of curb line of the intersecting street.

7. Vertical curves shall be required on local streets where the algebraic difference in grade exceeds one percent. When the algebraic difference is one percent or less, a grade break may be used. Use of the AASHTO vertical curve equation is preferred; however, a simplified method as shown below may be used. Using this method, the minimum lengths of vertical curves shall be determined by multiplying the algebraic difference in grades by the appropriate 'K' factor in Table 3:

Vertical Curve Criteria (for grades less than 10 percent)

TABLE 3

Design Speed	K Factor Crest Vert. Curve	K Factor Sag Vert. Curve	Minimum Length Curve
25	12	26	75
30	19	37	90
35	29	49	105

All vertical curves shall be symmetrical parabolic curves. The minimum length of a vertical curve in feet shall be three times the design speed in miles per hour.

When grades are greater than 10 percent, vertical curves shall be lengthened in accordance with AASHTO's "A Policy on Geometric Design of Highways and Streets" design guidelines, to account for the increased stopping distance requirements.

4.7 Intersection Alignments

1. The centerlines of intersecting streets shall have an angle of intersection of as close to 90°as is practical. In no case will the angle of intersection be less than 75° for local street-collector/arterial intersections and 70° for local street-local street intersections.

2. Right-of-way lines at the corners of street intersections will be rounded with a curve radius of 25 feet, or greater, as conditions may warrant. The radii must be adjusted at skew intersections to provide sufficient curvature. In all cases, adequate sight distance shall be maintained.

3. Intersections of arterial and major collectors shall have a minimum curve radius of 40 feet, except when acceleration/deceleration lanes are required. Where acceleration/deceleration lanes are used, the curve radius may be reduced to 25 feet on the acceleration/deceleration lane or as dictated by the turning radius of the design vehicle not encroaching on the opposing lane. -

4. Uncurbed intersections shall only occur where a new street intersects an existing uncurbed roadway. Uncurbed intersections shall have concrete headers installed to protect the pavement edge. A transition to full height curb (if applicable) shall occur beyond the right of way or clear zone, whichever is greater.

5. Street jogs with centerline offsets of less than 135 feet shall not be allowed.

4.8 Intersection Sight Distance

Clear lines of sight shall be maintained along all streets and driveways (including PAALs) to provide for the safety of motorized and non-motorized vehicles and pedestrians. Sight visibility triangles shall be depicted in accordance with AASHTO criteria or as shown in the Town of Marana's Standard Details based on the design speed of the through street and the near side and far side distance requirements from the following table:

TABLE 4

Design Speed of Through Street (mph)	Near Side Requirement (ft)	Far Side Requirement (ft)
20	180	140
25	240	190
30	300	240
35	380	300
40	480	370
45	600	470
50	740	580
55	890	690

On streets with one-way traffic and on streets with two-way traffic separated by raised median islands (i.e. no opening) only the near side sight visibility triangle is required; however, a

pedestrian visibility triangle shall be maintained in place of the far side triangle as shown in the Town of Marana's Standard Details.

Where streets intersect in a cross configuration, each street is considered the intersecting street with the other street and shall be considered the through street for purposes of determining sight lines.

The near side and far side distance requirements of sight triangles along a horizontal curve shall be measured along the chord of the curve (not along the arc)-Refer to the Town of Marana's Standard Details. The sight line of the sight triangles shall supersede standard building setback lines where the sight line requires a greater setback distance. Sight visibility triangles shall be depicted to scale and in a surveyable manner on all final plats, development plans, plot plans and landscape plans. The area within the sight visibility triangle must be entirely enclosed by the right-of-way, easement, or common area.

The following restrictive note pertinent to sight visibility triangles shall be required on plats, development plans, plot plans and landscape plans.

"No improvements and/or landscape materials measuring vertically between 30 and 72 inches in height relative to the adjacent roadways that might interfere with sight visibility shall be placed and/or maintained within the sight visibility triangle."

4.9 Driveway Access Requirements

Driveway entrances are to be designed for the rapid ingress and egress of vehicles from the traveling roadway.

1. All streets with vertical curbs shall use driveway aprons. Driveway aprons shall be of portland cement concrete constructed to Town standards with a minimum length running from curb location to back of sidewalk location.

2. On streets designed with mountable curb, driveways shall abut the back of curb or sidewalk, and shall not have curve radii, and shall be constructed of Portland cement concrete or asphalt.

3. Commercial and Industrial driveways will be treated the same as street intersections with connections to arterials and major collectors with regards to driveway radii in accordance with section 4.7.3 unless the driveway is located within an auxiliary lane. Depressed curb driveways without radii may be used for driveways within auxiliary lanes.

4. Depressed curb driveways without radii may be used for service entrances, provided these entrances are clearly depicted as a "service entrance" on plats and development plans.

5. Driveways shall not be located where conflicts will be created with drainage facilities, intersections, deceleration/right-turn lanes, roadway tapers and/or other improvements.

6. No residential driveways shall encroach into an intersection curb radius where residential streets intersect.

4.10 Roadway Superelevation

Superelevation is generally not necessary on streets designed for travel speeds of 35 mph or less. Maximum superelevation shall be four percent and runoff lengths shall be computed in accordance with AASHTO's "A Policy on Geometric Design of Highways and Streets".

4.11 Roadway Drainage Crossings

The cross-slope of roadways for drainage purposes shall not exceed four percent, and comfortable speed as well as design speed must be maintained throughout the cross-slope.

Minimum cross-slopes shall maintain a two foot per second velocity for the 2-year peak flow, to reduce potential deposition of material in the roadway.

4.12 Mountainous Terrain

Mountainous terrain is that condition where longitudinal and transverse differentials in ground elevation with respect to the roadway are such that:

1. Benching, hill-side excavation, or other cuts and fills are needed; or

2. Excessive rights-of-way for either cut and fill slopes (multiple cuts and/or fills exceeding 15 feet of vertical change) or for roadway alignment are required; or

3. Significantly lengthened roadway sections and increases in right-of-way are necessary in order to obtain acceptable horizontal and vertical alignment; or

4. Terrain with an average cross slope of 15 percent (as defined within the Town of Marana's Land Development Code) or greater are present.

Roadways above the alluvial fan break of the Tortolita Fan are an example of the mountainous terrain classification.

For private local streets subject to this section, a design speed lower than 25 mph may be used, provided emergency services and school vehicles can safely traverse the roadway(s).

With prior written approval by the Town Engineer, the design engineer may utilize four foot shoulder widths and steeper longitudinal slopes (private streets only). Roadside drainage provisions shall be incorporated to minimize cross-flows and material deposition within the travel way. Particular attention shall be given to stopping sight distance and sight visibility during the roadway and grading design. Positive gradient slopes (those rising above the roadway) shall not be permitted within sight visibility triangles unless they conform to Chapter 4.8.

4.13 Environmentally Sensitive Roadways [RESERVED]

4.14 Alternative Access

1. Alternative Access requirements
   a. Subdivisions of more than 30 and not more than 80 lots shall in addition to the primary access have either an emergency access drive with a stabilized surface capable of supporting fire apparatus or another permanent roadway.

      i. Portions of a subdivision (such as cul-de-sacs and other no-outlet areas) must also meet this requirement.

      ii. In areas where it is determined by the Town Engineer that the provision of a secondary access is not practicable based on topography or other access constraints, the Town Engineer, in conjunction with the Fire Marshall may allow a single point of access provided that other mitigating requirements such as intermittent turn-around areas, fire sprinkler protection systems and/or other similar measures.

   b. Subdivisions of more than 80 lots shall have a minimum of two permanent roadway accesses.

      i. In areas where it is determined by the Town Engineer that the provision of a secondary permanent roadway access is not practicable, the Town Engineer may allow a single permanent roadway access provided that other mitigating requirements such as secondary emergency access, intermittent turn-around areas, fire sprinkler protection systems, and/or other similar measures.

   c. Phased subdivisions that will ultimately have a secondary compliant access must comply with one of the following requirements:

      i. At close-out of subdivision permitting and final release of assurances, a subsequent phase must already be under permit; or

      ii. At close-out of subdivision permitting and release of final assurances, a temporary roadway capable of supporting fire apparatus must be in place.

2. Entry roadway width requirements:

   a. Entry roadways with medians are required to have a minimum inside curb-to-curb entry width of 20 feet.

   b. Gated entry roadways are required to have a minimum inside curb-to-curb and/or open gate width of 20 feet. Gates must be accessible to the satisfaction of the Fire Marshall.

3. Any deviations from these requirements will require a design exception in accordance with Chapter 13.

5.0 RIGHT-OF-WAY

1. Local street rights-of-way shall be in conformance with the cross sections provided within the Town of Marana's Standard Details. Rights-of-way must be wide enough to encompass all publicly maintained facilities, clear zones, road side ditches, cut and fill slopes, and access to maintain such facilities.

2. Where not otherwise required by the Land Development Code, easements may be granted in lieu of right-of-way for certain cross section elements that are not to be maintained by the Town of Marana such as utilities, sidewalk/pedestrian/equestrian ways and slopes. Such easements must specifically grant right of entry to the Town of Marana and the public. Such right of entry shall include auxiliary areas as necessary to allow maintenance of facilities and to enable remedy of hazards to the public.

3. Additional rights-of-way may be required by the Town at intersections identified on the Major Routes Plan (as depicted in the Town's General Plan circulation element) or at intersections with collectors or arterials where it is deemed necessary to provide sufficient width for turning lanes, traffic interchanges, clear zones, sight visibility, and other design and safety considerations.

4. Should alternative sidewalk locations be approved, or if no sidewalk construction is required, the street(s) shall require a minimum of six feet of right-of-way adjacent to the back of curb on each side of the street for purposes of pedestrian refuge, meters, street furniture, public infrastructure, or other such uses (see Chapter 6.3).

5. When it is determined by the Town that, in the public interest or for the health, welfare or safety of same, access to or from a development or subdivision at a particular location should be prohibited, a one foot wide no-access easement shall be dedicated to the public. Physical barriers may also be required.

6. Supplemental right-of-way, common area and/or easements may be required at all intersections where standard right-of-way widths are unable to completely enclose sight distance triangles.

7. Where parking is designed to be between the sidewalk/pedestrian way and the garage, it must be designed to avoid encroachment onto the sidewalk by providing a minimum distance of 20 feet between sidewalk and garage.

6.0 ELEMENTS IN THE CROSS SECTION

Typical cross sections are shown in the Town of Marana's Standard Details. Selection of the appropriate cross section is dependent upon the functional classification of the roadway, the

ADT on the street, and the adjacent land use density. Additional pavement width may be provided, upon approval or requirement of the Town Engineer.

6.1 Travel Lanes

Specific applications of various lane width requirements are shown in the Town of Marana's Standard Details. The design engineer shall use these figures as the basis for design considerations.

6.2 Curbing

1. Curbing shall be required on all public streets as shown in the Town of Marana's Standard Details. The purpose of curbing shall be to adequately control drainage within the street, prevent moisture from entering the subgrade, control access to abutting property, separate the roadway from pedestrian areas, delineate the traveled roadway (in lieu of edge striping), control dust, and provide adequate lateral support for the pavement structure.

2. Curbing shall be six inch vertical curb and gutter (PAG standard detail 209 Type 1(G)) on collector and arterial roadway sections. Local streets shall use four inch roll type curb and gutter (MAG Detail 220 Type C).

3. At local street to local street intersections, the minimum curb radius shall be 25 feet to face of curb. At local street to collector/arterial intersections, the minimum curb radius shall be 40 feet. The curb radius of each intersection shall accommodate the design vehicle, and shall provide a turning diagram with the improvement plans showing that the design vehicle will not encroach into opposing lanes (included as part of the review documents or as separate exhibit)

4. Americans with Disabilities Act (ADA) compliant ramps shall be provided at all curb returns and shall be in accordance with Town of Marana standard details. Detectable warning surfaces (truncated domes per the Town of Marana standard details) shall be constructed at all ramps and at all pedestrian refuge areas at raised islands and medians.

6.3 Sidewalks

Sidewalks are required within all public and private roadways as shown on the Town of Marana's Standard Details

Sidewalks shall be constructed of Portland cement concrete with a minimum width of five feet if abutting a curb on local streets and a minimum width of four feet when a curbway is used. Additional sidewalk width may be required for special pedestrian generators, such as schools, recreation sites, and certain businesses.

1. Sidewalks shall be required along both sides of local streets where the minimum lot size is less than 16,000 square feet in accordance with the cross-sections in the Town of

Marana's Standard Details. For subdivisions with a minimum lot size of 16,000 square feet or greater, sidewalk shall be required on at least one side of the roadway.

2. Sidewalks shall run the entire length of the street unless authorized by the Town Engineer.

3. Streets may have sidewalks in an alternative location provided it is designed in a manner and location acceptable to the Town Engineer and the Planning Director.

4. In the event a curbway is used, the minimum width for the curbway is six feet, in accordance with the cross-sections in the Town of Marana's Standard Details.

5. A 10' public utility, roadway maintenance, and signage easement shall be granted behind all sidewalks where no curbway is present. At locations where public utility easements are not required (such as side yards), a five foot roadway maintenance and signage easement shall be required.

6. In pedestrian areas having curbways, the developer, owner, or private association having a Recorded License Agreement may allow abutting property owners to place decorative rock gravel, decomposed granite, ground cover, brick in sand, and/or other similar items in the curbway, medians, and ground slope areas without a permit from the Town of Marana. The property owner shall be responsible for the maintenance and replacement of said items placed within the curbway. Street trees must adhere to AASHTO's "*Roadside Design Guidelines*". Installation of street trees will require an approved Landscape Plan and License Agreement. All trees within a curbway must comply with section 6.10.f herein.

7. Neighborhood postal box units (NBU's) shall be designed and located in such a manner as to not present a hazard to the motoring public, cyclists, or pedestrians.

6.4 Shoulders

Uncurbed roadways in subdivisions are only allowed for temporary access roads. Where uncurbed roadways are used, the cross-slope of the shoulder shall match the roadway cross-section. Where infeasible due to topography and roadside drainage considerations, adjustments to the cross-slope may be made in accordance with AASHTO guidelines upon approval by the Town Engineer. Refer to AASHTO design guidelines for foreslope and backslope in cut and fill conditions.

6.5 Roadside Clear Zone

Clear zones shall be provided on all streets and shall be provided in accordance with the requirements stipulated within AASHTO, "Roadside Design Guide". Sufficient right-of-way or easements shall be granted to the Town for all clear zones.

If it is infeasible to provide this clear zone, a suitable traffic barrier as defined in the AASHTO publication "Roadside Design Guide", shall be provided.

6.6 Roadside Vehicle Barriers

Determination of warrants for the installation of roadside vehicle barriers (barriers) shall be in accordance with AASHTO's "Roadside Design Guide. Barriers shall be installed in accordance with current ADOT Standard Specifications and Drawings.

Obstructions may also require barriers to provide for motorist safety. Refer to AASHTO's "A Policy on Geometric Design of Highways and Streets" and "Roadside Design Guide", for definitions of obstructions and applications of barriers.

6.7 Pedestrian Barricade Railing

Barricade railing shall be installed for protection of pedestrians whenever slopes are steeper than three-to-one (3:1) within three feet of the sidewalk and the embankment height is three feet or greater. The Town Engineer may determine whether the elevation differences between the sidewalk and nearby terrain warrant pedestrian barricade railing or if other special circumstances may also warrant the installation of barricade railing. Barricade railing shall be required on the sheer/vertical side of all scuppers abutting pedestrian walkway areas where the vertical step is greater than six inches in vertical distance

6.8 Roadside Ditches

Roadside ditches shall not be constructed within the shoulder area. Ditches constructed within the clear zone (outside the shoulder) shall be in accordance with AASHTO's "Roadside Design Guide", and "A Policy on Geometric Design of Highways and Streets", in addition to applicable Chapters herein.

6.9 Cut and Fill Slopes

All cut and fill slopes shall be constructed in accordance with the Marana Land Development Code Grading Standards and AASHTO, and shall be either revegetated or stabilized as follows:

1. Cut or fill slopes three-to-one (3:1) (horizontal: vertical) or flatter, shall at a minimum, be revegetated or use other suitable ground cover as determined by the Town Engineer.

2. Cut or fill slopes two-to-one (2:1) or flatter, but steeper than three-to-one (3:1) shall be rock rip-rapped with filter fabric installed beneath the rock per PAG Standard Specifications.

3. Cut or fill slopes steeper than two-to-one (2:1) shall have grouted rip-rap, mechanically stabilized earth retaining measures, concrete, shot-crete, or retaining walls as appropriate.

4. Alternative methods of stabilization may be allowed if certified by a registered geotechnical engineer, subject to approval by the Town Engineer.

5. Terracing may be constructed in accordance with the Marana Land Development Code Grading Standards.

6.10 Landscaping in the Public Right-of-Way

1. Bufferyards where required by the Marana Land Development Code may be allowed in public right(s)-of-way. The Town Engineer and Planning Director will consider project safety, future expansion of the roadway, drainage concerns, adjoining land uses, and other criteria on a case-by-case basis during the review process. If a landscape bufferyard is requested within the Town right(s)-of-way, the developer and/or design engineer shall obtain approval from the Town Engineer prior to design approval and acceptance. If approved, a landscape bufferyard shall be subject to the following conditions:

    a. Not more than 50 percent of the required bufferyard width may be allowed the public right(s)-of-way, except along major routes having a designated buffer;

    b. The location and size of landscape elements shall be in conformance with standards available from the Town Engineer and Planning Director and are subject to the Town Engineer's and Planning Director's approval;

    c. The installation and maintenance of landscaping in the public right(s)-of-way shall be accomplished by the developer, owner or private association as agreed to in the approved, recorded covenants, conditions and restrictions. Assurances and insurance policies, in a form acceptable to the Town, shall be required for all landscaping constructed within the public right(s)-of-way;

    d. A perpetual License Agreement shall be required for landscaping items within the public right(s)-of-way

    e. Turf landscaping shall not be permitted within the right-of-way, nor shall it be permitted to drain onto pedestrian ways or pavement; and

    f. All trees installed within six feet of the edge of a street shoulder or curb shall be planted with a root barrier/well extending a minimum of three feet below the top of grade as shown in the Town of Marana standard details.

    g. Irrigation lines larger than ¾" diameter shall be placed as far as practicable from the street shoulder or curb. When placed within a curbway, irrigation lines are to be placed close to the sidewalk. When placed within a median, irrigation lines are to be placed in the center of the median.

7.0 SUPPLEMENTAL ELEMENTS

7.1 Turning Lanes

Pavement widening for turning movements onto arterial and collector streets may be required by the Town Engineer. Turning lanes shall be a minimum of twelve feet in width, but may be wider as required by the Town Engineer. Pavement tapers required for any roadway improvements, herein, shall be designed in conformance with Pima County's "*Roadway Design Manual*", and as determined by the Town Engineer.

8.0 UTILITIES

The main lines of electric, gas, water, telephone and communications, sanitary sewer, and drainage facilities shall be located as shown in the Town of Marana Standard Details. Alternate locations may be used with the written permission of the affected utility and the Town Engineer. Utility companies franchised to operate in Town of Marana right(s)-of-way for electric, telephone, and communications may be permitted under the terms of adopted franchise agreements. Utility easements are required where applicable and shall allow for public access.

With the exception of minor service extensions to individual parcels, all longitudinal utility facilities between service points to individual parcels shall be located within street right-of-way. Strip easements may be provided along streets in lieu of right-of-way for utility purposes, and for other uses compatible with utility needs (subject to utility company approval). Access between the street and the private property shall not be denied, unless unsafe conditions will occur.

All sanitary sewer facilities shall be provided in accordance with the current Pima County Regional Wastewater Reclamation Department's (RWRD) or Marana design standards, specifications, and details.

All services shall be provided or stubbed out into existing or planned parcels with all new street construction to avoid the need to remove and replace new pavement within the five year pavement cut moratorium (Per Town Code 12-7-9). Sewer connection stub-outs are to extend a minimum of ten feet beyond the right(s)-of-way, while other service connection stub-outs are to extend a minimum of five feet beyond the right-of-way.

Service extensions (sewer and water) shall be backfilled and compacted (within the curbway and sidewalk area) to a minimum of 95 percent of the maximum density at optimum moisture (per Arizona Modified Test Method 225a). All utilities are to be installed in accordance with applicable utility company standards, or the Pima Association of Government's "Standard Specifications and details for Public Improvements", whichever is more restrictive. All utilities installed beneath the pavement or curb and gutter shall be backfilled and compacted to a minimum of 95 percent of the maximum density at optimum moisture in accordance with the approved Grading and Paving Plans and Arizona Modified Test Method 225a.

9.0 DRAINAGE

9.1 Street Drainage

Street drainage shall not exceed 50 cubic feet per second (cfs) from the base flood without authorization by the Town Engineer and in no case shall street flows exceed 100 cfs at the confluence point exiting the roadway. The runoff from a 10 -year storm must be contained between the street curbs. The based flood (100-year storm) discharge must be contained within the right(s)-of-way.

Outlet structures for private retention/detention facilities, or other private drainage systems, shall not be permitted to discharge into the public right(s)-of-way without authorization by the Town Engineer. Should the outlet be allowed, outlet protection and energy dissipation will be required as directed.

Offsite drainage flows are not allowed to be accepted into and carried by the street drainage system.

9.2 Storm Drain Design

All catch basins with curb inlets shall have formed concrete gutters. The minimum diameter of a storm drain is 24" for mains and 18" for laterals connecting a single catch basin.

All storm drain pipes and culverts installed in public right(s)-of-way shall be made of reinforced concrete (pipes and/or boxes).

Longitudinal slotted drain is permitted in conjunction with curb and gutter. Transverse installation of slotted drain is prohibited.

The energy grade-line of a storm drain shall be below finished grade of the associated roadway gutterline.

9.3 Erosion Control Cut-off Walls

Required erosion control cut-off wall depths shall be designed one foot deeper than the scour depth as determined by the use of the approved local scour equations and as required in the approved Drainage Report. However, in no case shall cut-off walls be less than three feet in depth. Sliding and overturning moments shall be analyzed for cut-off wall protected dip sections on all-weather access streets. Cut-off walls shall be placed a minimum of four feet out from the upstream roadway edge of pavement line, and to the edge of the shoulder downstream. Cut-off walls shall extend a minimum of five feet beyond each side of the calculated drainage opening and scour limits parallel to the roadway as determined by the approved local scour equations and the approved drainage report. The pavement shall be widened to the upstream and downstream cut-off walls.

9.4 Curb Openings

Drainage conveyed within the street while being delivered to channels or outlets may be disposed of through depressed curb openings no greater than ten feet in length unless approved by the Town Engineer. These openings shall be fitted with outlet aprons. When stormwater runoff is crossing a pedestrian–way, scuppers shall be used. Should the hydraulic design require greater conveyance than can be provided by such an opening, some other structure must be used as approved by the Town Engineer. Roadway curb openings and drainage inlets shall be fitted with appropriate barricades as necessary, and the pavement-to-inlet grade shall not be less than two percent.

At locations where runoff leaves the roadway, physical means of earth stabilization or pavement protection must not interfere with clear zone requirements, and must be traversable by errant vehicles without risk of damage to those vehicles.

10.0 Pavement Design

1. These pavement design standards apply to all local street improvement projects designed as a part of development. Each development that involves street construction shall submit for approval a Pavement Design Report containing the following information for each street: a tabulation of results of soil subgrade tests; projected ADTs (construction traffic; equivalent single axle loads (ESAL) used, and construction traffic); structural numbers (SN); and pavement thickness for each street. A minimum 20-year pavement design life is required. The 20-year design life is to be computed beginning in the build-out year. The build-out year is defined as that year when all homes/buildings are projected to be completed within the proposed development. Estimated construction traffic through build-out must be considered.

2. The following ESALs, based on the 20-year projected ADT, will be accepted for pavement design:

TABLE 5

20-Year ADT	ESAL
<500	40,000
500-1,000	70,000
1,000-1,500	100,000
1,500-2,500	150,000

When the projected 20-year ADT exceeds 2500, or when the engineer desires to calculate his/her own ESALs, complete calculations, including a breakdown of the traffic by vehicle type, shall be included in the Pavement Design Report. The ESAL calculations shall be based on the 20-year design period and the following ESAL factors (originally from City of Tucson pavement active practice guidelines):

TABLE 6

Vehicle Type	Symbol	ESAL Factor
Passenger Car	P	0.0008
Bus	BUS	3.8580
Single Truck	LT	0.0120
Single Truck (Dual rear or 3 axle)	MT	0.4000
Tractor-Trailer	TS	1.8690
Truck-Tandem Trailer	TT	2.1250
Tractor-Tandem Trailer	TST	2.9880

Refer to "Materials - Preliminary Engineering and Design Manual", ADOT and, "*Guide for Design of Pavement Structures*", AASHTO for information pertaining to the requirements herein.

3. Subgrade sampling and testing for roadways shall be accomplished in accordance with standard ADOT procedures and the results tabulated in the Pavement Design Report. Soil support values shall be calculated in accordance with ADOT's "*Materials – Preliminary Engineering and Design Manual*" and the selection of a design soil support value shall be fully documented in the Pavement Design Report.

4. Weighted structural numbers shall be calculated using the design soil support value, the appropriate ESAL, and a regional factor of 1.7. The minimum weighted structural number is to be 1.75. A minimum terminal serviceability index of 2.0 (ADOT) is acceptable for design of local streets.

5. Pavement thicknesses shall be calculated in accordance with the design equations in the ADOT manual. The layer coefficient for asphaltic concrete shall be 0.44. The layer coefficient for aggregate base course shall be 0.11. Minimum thicknesses are to be as follows (or greater as determined by pavement design report):

TABLE 7

Roadway Type	AC	ABC
Local	3.0"PAG2	4.0"
Local Collector	3.0"PAG2	6.0"
Commercial/Industrial Collector	2.0"PAG2over 4"PAG1	6.0"

6. Sub-base material shall be engineered to the specifications required by Pima County/City of Tucson "*Standard Specifications for Public Improvements"* and/or the Pima Association of Governments Standard Specifications, and should be of significantly higher quality than native soil. Sub-base may not be used as part of the pavement section when the subgrade soil has an R-value of 30 or greater. In addition, when sub-base material is used, the thickness of the sub-base may not be more than one-and-a half (1.5) times the combined thickness of the asphalt and aggregate base courses. The layer coefficient for material, which meets minimum Town of Marana standards for subbase, is 0.05. If better quality material is used, a larger layer coefficient may be used in accordance with the ADOT manual.

7. When existing streets are widened, the new pavement section shall either match the existing pavement section or meet minimum thicknesses as required in paragraph 5 above, whichever is greater. Upon completion of a pavement widening, the complete roadway cross section may be required to receive a rubberized stress absorbing membrane chip seal, asphaltic-concrete overlay, or a combination of treatments thereof, at the discretion of the Town Engineer, for the entire length of the pavement widening. Appropriate pavement markings and traffic control signage will be required with the seal coat/overlay application.

8. When streets are designed which may ultimately connect to future developments, pavement design shall accommodate future wheel loads, including construction traffic, to account for use of the roadway as a haul-road.

9. Subsequent to subdivision buildout (but no later than 2 years after paving), the developer shall perform a pavement surface seal of the subdivision streets and any offsite roads improved as a part of the subdivision development. Local streets are to be sealed with a high density mineral bond or approved equal. Roadways that are classified as collectors and above are to be sealed with Tire Rubber Modified Surface Seal or approved equal. At the time of subdivision closeout and acceptance of streets, the developer shall either post an assurance in a form acceptable to the Town or pay an in lieu fee to secure such work.

11.0 TRAFFIC CONTROL SIGNAGE AND PAVEMENT MARKINGS

1. All traffic control signage and pavement markings within new subdivisions shall be posted and installed in accordance with the Manual on Uniform Traffic Control Devices (Latest Edition), Town of Marana standard details and notes, and the latest edition of the Pima County/City of Tucson's "*Pavement Marking Design Manual*" and "*Signing Manual*" (latest editions) as appropriate and as approved by the Town Engineer. A signage and/or striping plan shall be submitted as part of any roadway improvement plan.

2. All temporary ends of road shall be posted with post barricades or end of road markers as approved by the Town Engineer. If grading has occurred in the alignment beyond the end of road, at least two permanent Type 3 barricades as described within FHWA's "*Manual on Uniform Traffic Control Devices*" shall be added to the roadway end, with a minimum of two Type 4 End of Roadway object markers (OM4-1). The object markers shall be mounted on each Type 3 barricade. A warning sign (W14-1) and a specialty warning sign stating, "Future Roadway Extension" with a minimum size of 24" x 24" shall be installed at the temporary end of roadway.

3. Upon review of traffic operational conditions and within the one year warranty period, the Town Engineer may require additional signage or pavement markings by the developer. Said additions shall be provided at no cost to the Town.

4. All private streets shall be posted "NOT A TOWN MAINTAINED STREET - PRIVATE" where they intersect public streets unless the private streets are part of a gated community.

5. Pavement markings shall be extruded or ribbon dispensed thermoplastic paint (pressure sensitive tape shall be used for legends and arrows) and meet the Pima Association of Government's "Standard Specifications and details for Public Improvements". Seal coated streets with pavement markings are to have two applications, one of temporary paint, the other of thermoplastic paint.

6. Street name signs shall be diamond grade reflective, shall state the direction of the street, and shall comply with FHWA's "*Manual on Uniform Traffic Control Devices*" and Town standard details.

12.0 NEIGHBORHOOD TRAFFIC MANAGEMENT

Traffic calming measures consist of traffic control devices and physical elements constructed in the roadway that control access to neighborhoods, change travel patterns or regulate the flow of traffic through a neighborhood.

The need for traffic calming measures should be considered when addressing the potential for cut-through traffic in a new subdivision. If it appears that the volume of cut-through traffic may be significant, The Town should be consulted with prior to designing traffic calming measures on the impacted streets.

The traffic calming measures can include speed humps, traffic circles, chicanes, oval medians and other measures as approved by the Town Engineer.

13.0 DESIGN EXCEPTIONS

It is recognized that land is unique, and there may be alternative design solutions to those mandated by these standards that will satisfy AASHTO, Fire Code, and other standards.

In the event an engineer wishes to employ alternative standards, a design exception report may be submitted to the Town to substantiate the proposal. As required, the design exception report must, at a minimum, provide:

- The section of these standards from which relief is desired;
- The supporting standards for the proposed alternative;
- An approval letter from the local fire district;
- Approvals from any affected utilities; and
- Other justification, as deemed appropriate by the Town.

The design exception report must be sealed by an engineer registered in the state of Arizona and will be reviewed by the Town Engineer in consultation with the Planning Director.

The Town Engineer may grant or deny the design exception. If the applicant wishes to appeal the decision of the Town Engineer, the decision will be forwarded to the next reasonably available planning commission meeting. The planning commission will decide whether to uphold or overturn the Town Engineer's denial of the design exception.

14.0 DEFINITIONS AND ACRONYMS

AASHTO: The American Association of State Highway and Transportation Officials.

ADOT: Arizona Department of Transportation

AVERAGE DAILY TRAFFIC (ADT): The volume of traffic on a street on a typical weekday.

ALL-WEATHER ACCESS: Access considered traversable by normal passenger vehicles, defined as a permanent, durable material with adequate protection against scour and erosion and having a depth of water no more than 12 inches above the roadway surface during a Base Flood. Asphalt, Concrete, and traffic rated pavers are considered durable surfaces. All other surfaces must be approved by the Town Engineer. See also the Floodplain and Erosion Hazard Management Code, Chapter 17-15 of the Town Code.

BUILDING SETBACK: The minimum distance from a point on a property line to the closest point of any building.

CC & Rs: An acronym for Covenants, Conditions and Restrictions.

COLLECTOR STREET: A street designed to distribute traffic between local streets and arterial streets. See PCDOT's "Roadway Design Manual" for further discussion.

CROWN: A cross-slope of difference in elevation between the high point of a street and the gutter line, adjacent to the pavement edge, for any given cross section. Crown is normally expressed as a percentage.

CURB CUT: A depressed segment of a vertical roadway curb.

CURB RETURN: A curved segment of a curb used at each end of an opening in the roadway curb.

CURBWAY: The area between the back of curb and the roadway edge of the sidewalk.

DESIGN YEAR: The year during which the roadway improvements shall reach life expectancy with normal maintenance, generally 20 years.

DEVELOPER: The private party in whose interest engineering documents, plats and plans are submitted for the purposes of review and regulation of private land development in the Town of Marana.

DRIVEWAY: A point of vehicular access between a street and an abutting property.

ENGINEER: The design engineer or engineer of record.

FHWA: U.S. Department of Transportation, Federal Highway Administration

FIRE APPARATUS ACCESS ROAD: Per the International Fire Code (IFC), *a road that provides fire apparatus access from a fire station to a facility, building or portion thereof. This is a general term inclusive of all other terms such as fire lane, public street, private street, parking lot lane and access roadway* Per Appendix D of the IFC, the fire apparatus access road must have *an asphalt, concrete or other approved driving surface capable of supporting the imposed load of fire apparatus weighing at least 75,000 pounds.*. For the purposes of these street standards, all roadways defined by these standards are considered fire apparatus access roads.

FRONTAGE ROAD: A local street or road auxiliary, located on the side of a collector or arterial street, which provides service to abutting property and adjacent areas while controlling access.

FUNCTIONAL CLASSIFICATION: A way of distinguishing between street types by the function each serves, such as freeway (limited access), arterial, collector, and local streets.

HOMEOWNERS' ASSOCIATION (HOA): A legal entity established for the purpose of owning and maintaining commonly held private real property.

INTERIM PAVING: Paving placed to designed grades that can be expanded to a permanent improvement at a future time.

INVERT: The difference in elevation between the low point of a street and a chord line connecting the outer edges of pavement or gutter lines.

ITE: Institute of Transportation Engineers

LEVEL OF SERVICE (LOS): A general term describing the operating conditions a driver will experience while traveling on a particular roadway facility. Where roadway conditions are fixed, level of service varies primarily with volume.

LOCAL STREET: A street that primarily serves as access to residences or other abutting properties.

MAJOR ROUTES PLAN: The most recent version of the Plan, as adopted by the Mayor and Council. As of this printing the major routes plan is contained in the Town's General Plan as its circulation element.

MINIMUM: The least quantity or amount allowable for a singular design condition, and may not be an acceptable state in consideration of other aspects of project design.

MUTCD: Federal Highway Administration's "Manual on Uniform Traffic Control Devices"

NO-ACCESS EASEMENT: A strip of land across which vehicular traffic is prohibited, except emergency and utility vehicles. No-access easements, unless specifically overridden by plat conditions, also prohibit access such as driveways, sidewalks, paths, and gates.

OFF-STREET PARKING: Any space provided for vehicular parking not within the street right-of-way.

ON-STREET PARKING: The parking lane adjacent to travel lanes in a traveled roadway.

ONE-WAY STREET: A street that has only one legal direction of travel.

PAG: Pima Association of Governments

PC/COT: Pima County/City of Tucson

PCDOT: Pima County Department of Transportation

TOWN: Town of Marana, a political subdivision of the State of Arizona.

TOWN ENGINEER: An officer of Town created by the Marana Town Code. The Town Engineer has the powers and duties set forth by state law as well as town ordinance, resolution, order or directive. Notwithstanding the above, the Town Engineer has charge of the Town streets and public works and performs those duties as may be required by law and any other duties as the Town manager may deem necessary. The Town Engineer may delegate duties to other responsible staff.

15.0 REFERENCES

1. "*A Policy on Geometric Design of Highways and Streets*", American Association of State Highway and Transportation Officials (AASHTO).
2. "*Roadside Design Guide*", AASHTO.
3. "*Manual on Uniform Traffic Control Devices*", United States Department of Transportation, Federal Highways Administration, (FHWA).
4. "*Guide for Design of Pavement Structures*", AASHTO.
5. "*Guidelines for Geometric Design of Very Low-Volume Local Roads (ADT≤400)*", AASHTO.
6. "*Highway Capacity Manual*", Transportation Research Board, (TRB).
7. "*Trip Generation*", Institute of Transportation Engineers (ITE).
8. "*Trip Generation Handbook*", ITE.
9. "*Traffic Engineering Manual of Approved Signs*", Arizona Department of Transportation (ADOT).
10. "*Materials-Preliminary Engineering and Design Manual*", ADOT.
11. "*Traffic Impact Analysis for Proposed Developments*", ADOT; or as superseded by the Town of Marana.
12. "*Bridge Design and Detailing Manual*", ADOT.
13. "*Construction Standards – Construction, Bridge, Signing and Marking*", ADOT.
14. "*Construction Standard Drawings*", ADOT.
15. "*Signing and Marking Standard Drawings*", ADOT.
16. "*Pima County Roadway Design Manual*", and applicable references therein, Pima County Department of Transportation & Flood Control District, (PCDOT & FCD).
17. "*Standard Specifications for Public Improvements*", Pima County/City of Tucson, (PC/COT).
18. "*Standard Details for Public Improvements*", PC/COT.
19. "*Pavement Marking Design Manual*", PC/COT.
20. "*Traffic Signing Manual*", PC/DOT.
21. "*Drainage and Channel Design Standards for Local Drainage for Floodplain Management within Pima County, Arizona*", PCDOT & FCD.
22. "*Stormdrain Design Guidelines and Standard Plans*", Pima County Department of Transportation (PCDOT) & Pima County Flood Control District (FCD).
23. "*Manual of Engineering Standards and Procedures*", Pima County Wastewater Management Department (PCWMD).
24. "*Standard Specifications and Details*", City of Tucson Water Department, (COTWD).
25. "*Procedures for Preparation of: Transportation Impact Studies",* Town of Marana .
26. The Town of Marana Neighborhood Traffic Management Program Manual (proposed).
27. Marana Standard Details
28. Pima Association of Government's "Standard Specifications and Details for Public Improvements"

All references refer to the latest edition unless otherwise noted

Town of Marana Standard Details

SECTION 100 STREETS

100-1	LOCAL STREET
100-2	LOCAL STREET MOUNTAINOUS TERRAIN
100-3	ALLEY
100-4	NO LONGER USED
100-5	MINOR COLLECTOR
100-6	SMALL RURAL SUBDIVISION STREET
110-1	2-LANE RURAL COLLECTOR
110-2	2-LANE URBAN COLLECTOR -MEDIAN
110-3	2-LANE URBAN COLLECTOR -CONT. LT TURN LANE
120-1	4-LANE COLLECTOR OR ARTERIAL
120-2	6-LANE ARTERIAL
170-1	EYEBROW KNUCKLE
170-2	EYEBROW CUL-DE-SAC
170-3	STANDARD CUL-DE-SAC
170-4	OFFSET CUL-DE-SAC
170-5	LANDSCAPED CUL-DE-SAC
170-6	TEMPORARY CUL-DE-SAC
170-7	TURNAROUNDS
190-1	LOCAL STREET JOGS
190-2	LOCAL STREET INTERSECTIONS
190-3	TYPICAL SIGHT VISIBILITY TRIANGLES
190-4	TYPICAL EASEMENTS

SECTION 500 UTILITIES

500-1	TYPICAL UTILITY EASEMENTS

SECTION 600 MISCELLANEOUS DETAILS

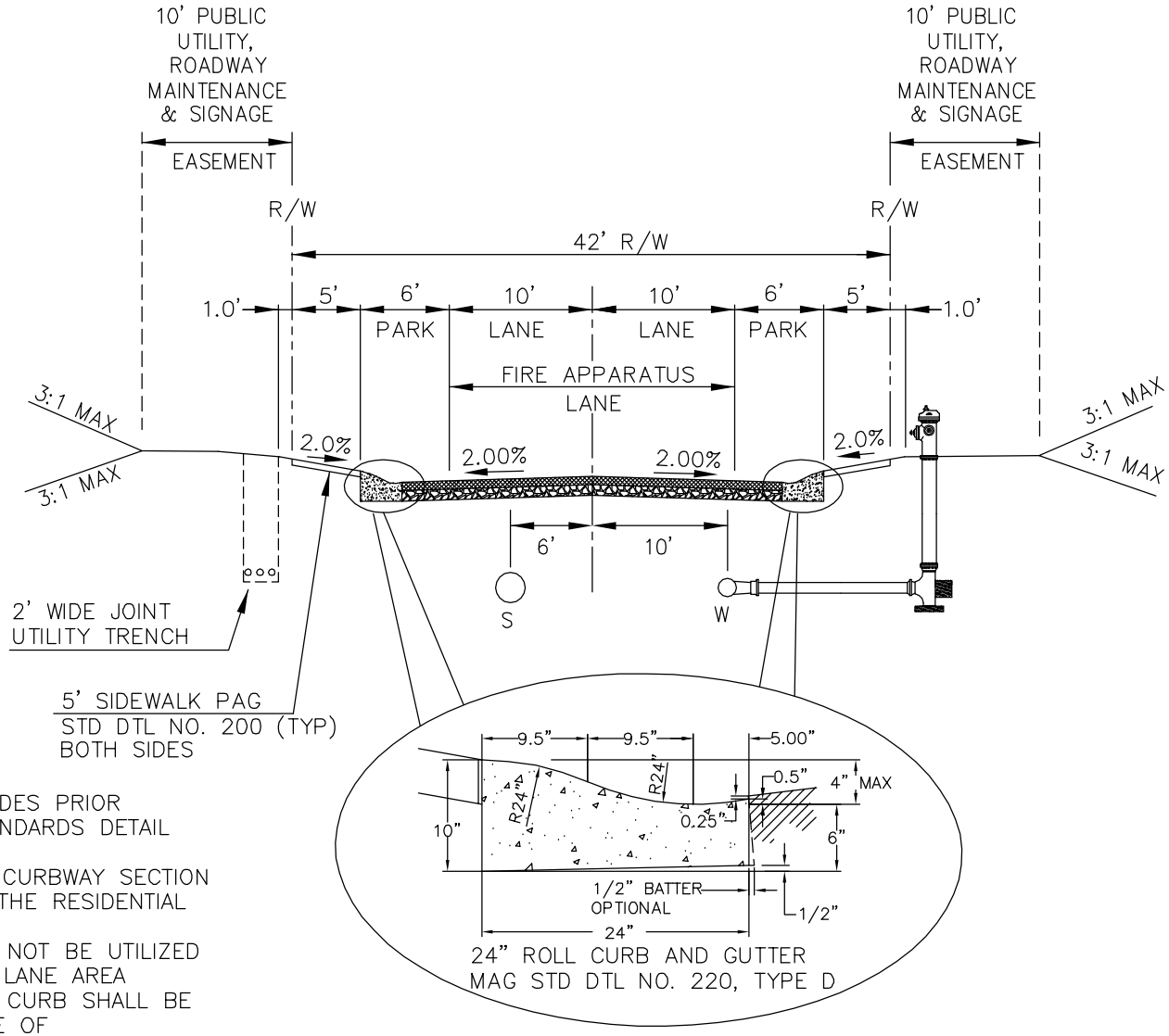
600-1	TYPE 1 CURB RAMPS
600-2	TYPE 2 CURB RAMPS
600-3	TYPE 3 CURB RAMPS
610-1	LANDSCAPING PROTECTION

APPROVED FOR DISTRIBUTION:
AUGUST 1, 2016

Keith E. Brann, P.E.,
Town Engineer

SECTION 700 TRAFFIC CONTROL

700-1	ROUNDABOUT
730-210	FOUNDATION FOR TYPE IV,V CONTROLLER CABINETS
730-400	GENERAL TRAFFIC SIGNAL RESPONSIBILITIES
730-401	GENERAL TRAFFIC SIGNAL NOTES
730-408	POLE LOADING DETAIL TYPE A POLE
730-409	POLE AND MAST ARM LOADING DETAIL TYPE G POLE WITH 20FT MAST ARM
730-410	MAST ARM LOADING DETAIL TYPE K AND R POLE WITH 55FT MAST ARM
730-411	MAST ARM LOADING DETAIL TYPE K AND R POLE WITH 50FT MAST ARM
730-412	MAST ARM LOADING DETAIL TYPE K AND R POLE WITH 45FT MAST ARM
730-413	MAST ARM LOADING DETAIL TYPE J AND Q POLE WITH 40FT MAST ARM
730-414	MAST ARM LOADING DETAIL TYPE J AND Q POLE WITH 35FT MAST ARM
730-415	MAST ARM LOADING DETAIL TYPE J AND Q POLE WITH 30FT MAST ARM
730-416	MAST ARM LOADING DETAIL TYPE J AND Q POLE WITH 25FT MAST ARM
730-417	MAST ARM LOADING DETAIL TYPE E AND F POLE WITH 20FT MAST ARM
730-701	TYPICAL TRAFFIC SIGNAL CONDUIT SCHEMATIC
730-702	TYPICAL TRAFFIC SIGNAL CABLE SCHEMATIC
730-703	TRAFFIC SIGNAL WIRING SCHEMATIC
730-710	6' X 6' LOOP DETECTOR
730-712	PRESENCE LOOP DETECTOR
730-800	STANDARD TRAFFIC SIGNAL PHASING
730-901	TYPE I AND II MOUNTING ASSEMBLIES
730-902	TYPE III AND IV MOUNTING ASSEMBLIES
730-903	TYPE V MOUNTING ASSEMBLY
730-904	TYPE VI MOUNTING ASSEMBLY
730-905	TYPE VII MOUNTING ASSEMBLY
730-906	TYPE VIII MOUNTING ASSEMBLY
730-907	TYPE IX MOUNTING ASSEMBLY
730-908	TYPE X MOUNTING ASSEMBLY
730-1810	UPS AND ELECTRIC SERVICE
730-1910	PRE-EMPTION MOUNTING DETAIL
730-1911	CAMERA AND MOUNT ASSEMBLY
730-1912	RECEPTACLE AND WREATH MOUNT
740-1	WAYFINDING SIGN



1. THIS DETAIL SUPERSEDES PRIOR SUBDIVISION STREET STANDARDS DETAIL NUMBER 1.
2. THE USE OF A NON-CURBWAY SECTION MAY NOT COMPLY WITH THE RESIDENTIAL DESIGN GUIDELINES.
3. ROLLED CURB SHALL NOT BE UTILIZED WITHIN FIRE APPARATUS LANE AREA
4. MAG TYPE C ROLLED CURB SHALL BE USED ON THE HIGH SIDE OF SUPERELEVATED SECTIONS

EXPIRES 6/30/2019

NOT TO SCALE

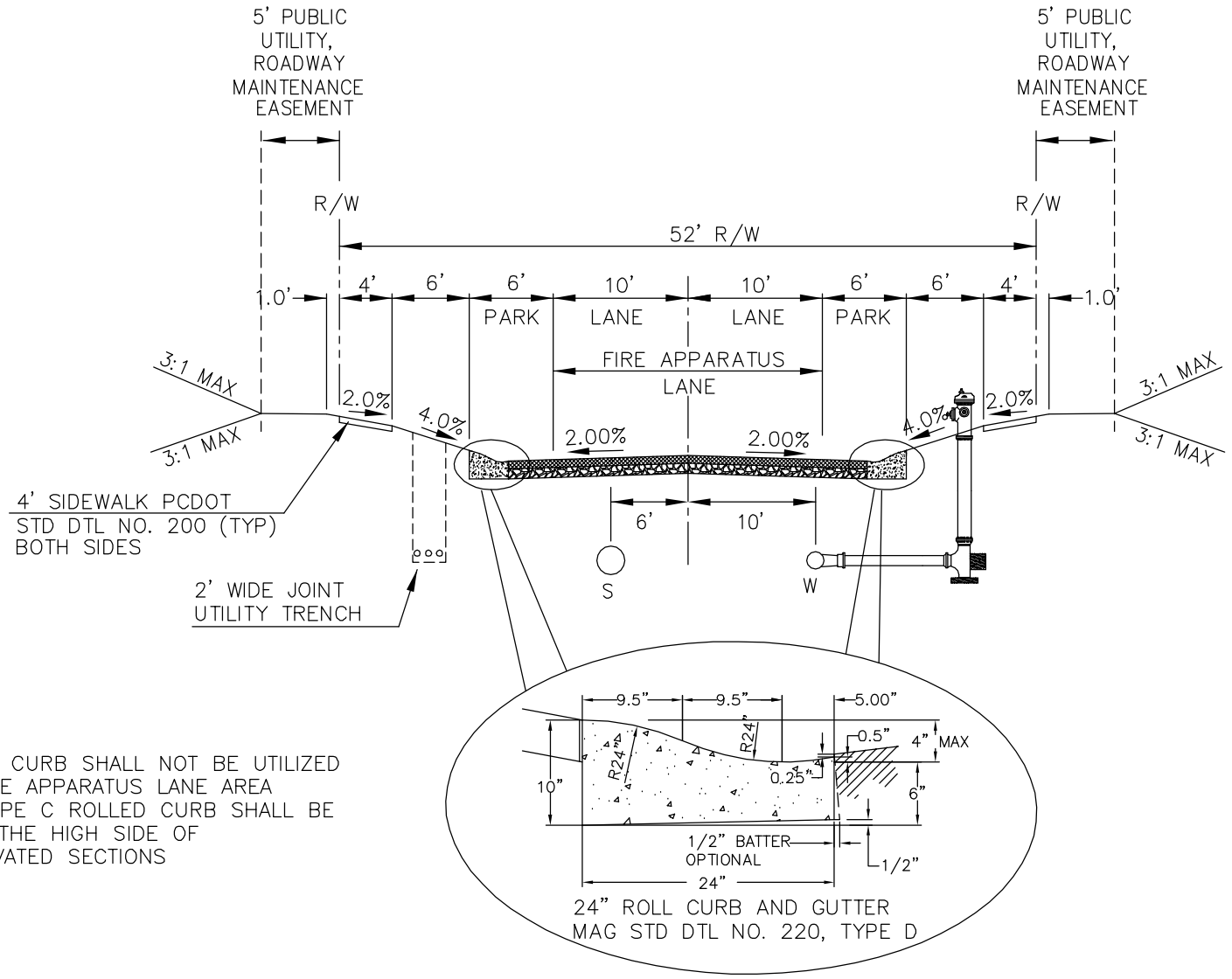
APPROVED FOR DISTRIBUTION:

Keith E. Brann, P.E.,
Town Engineer

Registered Professional Engineer (Civil) CERTIFICATE NO. 40845 KEITH EDWARD BRANN Date Signed 4-18-16 ARIZONA, U.S.A.

TOWN OF MARANA 1977 ARIZONA

STANDARD DETAIL		DETAIL NO:
LOCAL STREET		100-1
DATE: 3/4/2004	REVISED: 8/1/2016	SHEET 1 OF 2



1. ROLLED CURB SHALL NOT BE UTILIZED WITHIN FIRE APPARATUS LANE AREA
2. MAG TYPE C ROLLED CURB SHALL BE USED ON THE HIGH SIDE OF SUPERELEVATED SECTIONS

NOT TO SCALE

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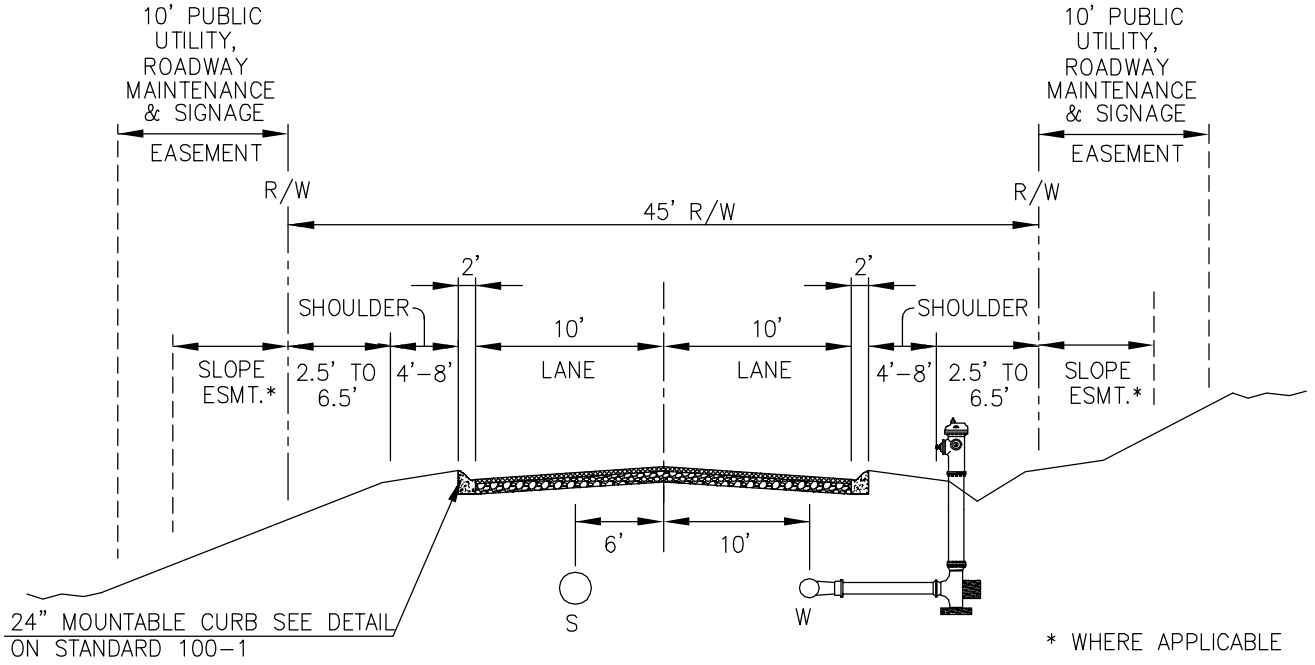
Keith E. Brann, P.E.,
Town Engineer

EXPIRES 6/30/2019

Registered Professional Engineer (Civil) CERTIFICATE NO. 40845 KEITH EDWARD BRANN Date Signed 4-18-16 ARIZONA, U.S.A.

TOWN OF MARANA 1977 ARIZONA

STANDARD DETAIL		DETAIL NO:
LOCAL STREET WITH CURBWAY		100-1
DATE: 3/4/2005	REVISED: 8/1/2016	SHEET 2 OF 2



1. THIS DETAIL SUPERSEDES PRIOR SUBDIVISION STREET STANDARDS DETAIL NUMBER 2.
2. DIVIDED ROADWAYS OR ISLANDS ARE NOT PERMITTED. SEE CHAPTER 4.12 OF THE SUBDIVISION STREET STANDARDS MANUAL FOR APPLICATION.
3. 8' SHOULDERS ARE TO BE USED EXCEPT AS NOTED BELOW AND IN CHAPTER 4.12 OF THE SUBDIVISION STREET STANDARDS MANUAL.
4. SHOULDER WIDTH MAY BE VARIED BY THE ENGINEER TO SAVE NATIVE GROWTH. HOWEVER, IT MUST CONFORM TO CHAPTER 6 OF THE SUBDIVISION STREET STANDARDS MANUAL.

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Keith E. Brann, P.E.,
Town Engineer

EXPIRES 6/30/2019

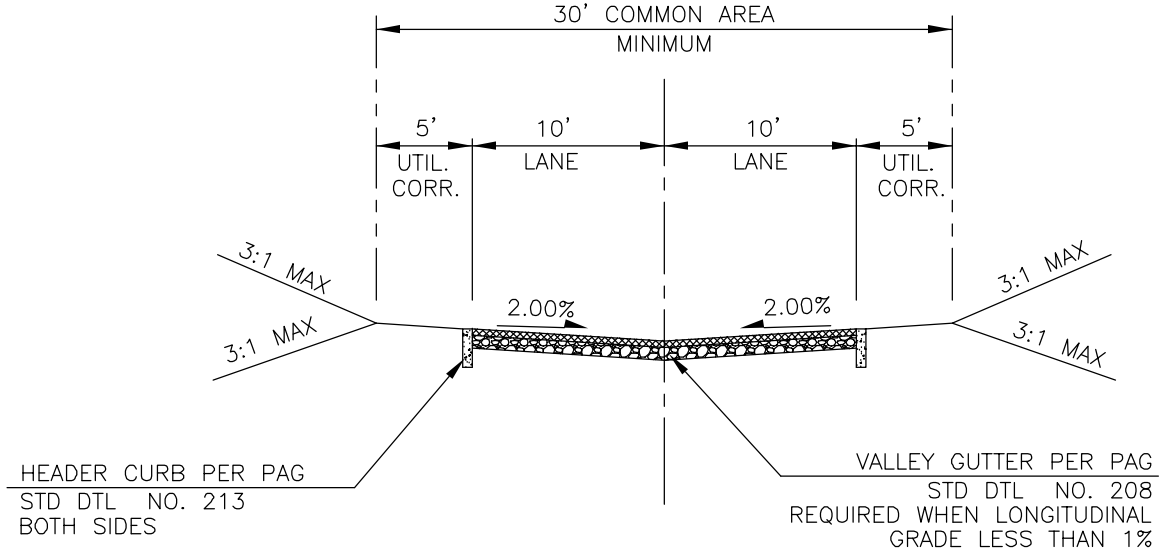
Registered Professional Engineer (Civil) CERTIFICATE NO. 40845 KEITH EDWARD BRANN Date Signed 1-18-16 ARIZONA, U.S.A.

TOWN OF MARANA 1977 ARIZONA

NOT TO SCALE

STANDARD DETAIL		DETAIL NO:
LOCAL STREET MOUNTAINOUS TERRAIN		100-2
DATE: 3/4/2004	REVISED: 8/1/2016	SHEET 1 OF 1

Marana Special Council Meeting 06/28/2016



1. FOR COMMNUNITIES REQUESTING "NEW URBANISM"/"NEO TRADITIONAL" DESIGN
2. ALLEYS ARE NOT TO BE MAINTAINED BY TOWN OF MARANA

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Town Engineer

EXPIRES 6/30/2019

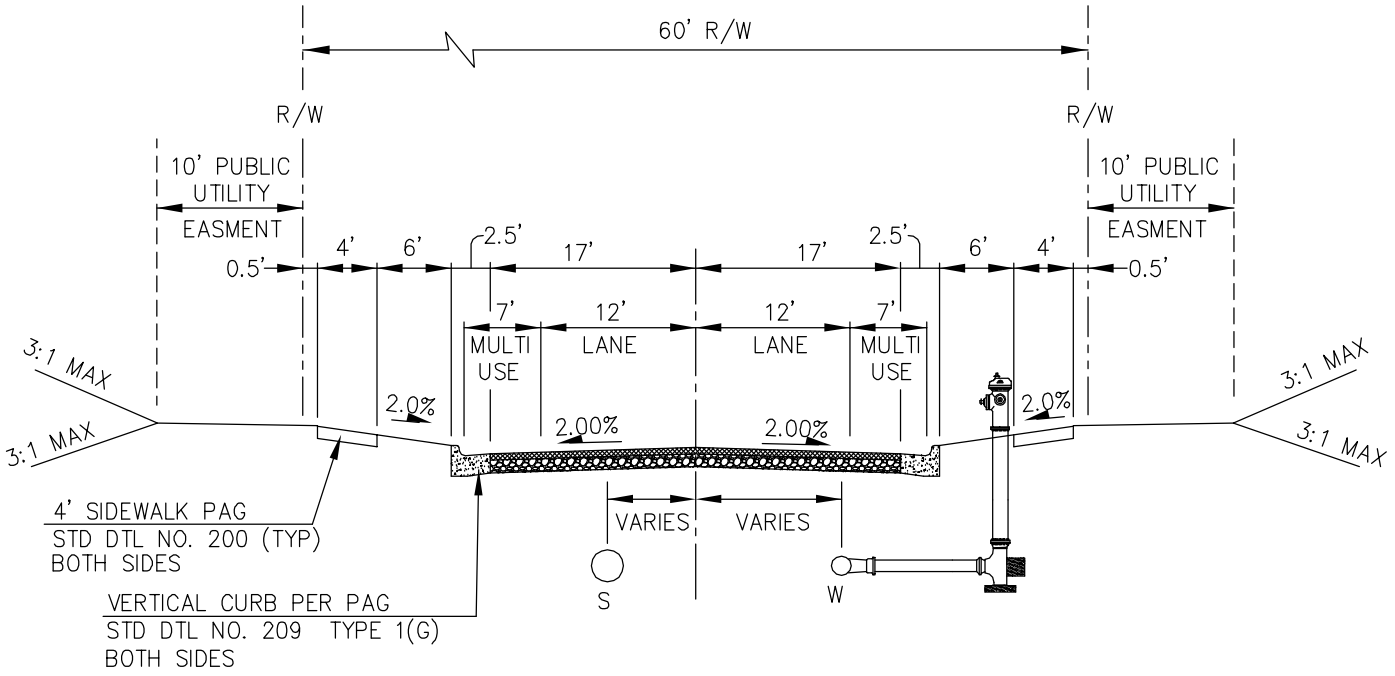
Registered Professional Engineer (Civil) CERTIFICATE NO. 40845 KEITH EDWARD BRANN Date Signed 4-18-16 ARIZONA, U.S.A.

TOWN OF MARANA 19 77 ARIZONA

NOT TO SCALE

STANDARD DETAIL		DETAIL NO:
ALLEY		100-3
DATE: 2/16/2007	REVISED: 8/1/2016	SHEET 1 OF 1

Marana Special Council Meeting 06/28/2016



1. THIS DETAIL SUPERSEDES PRIOR SUBDIVISION STREET STANDARDS DETAIL NUMBERS 3 AND 4.
2. NO ON STREET PARKING SUPPORTED.

NOT TO SCALE

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Keith E. Brann, P.E.,
Town Engineer

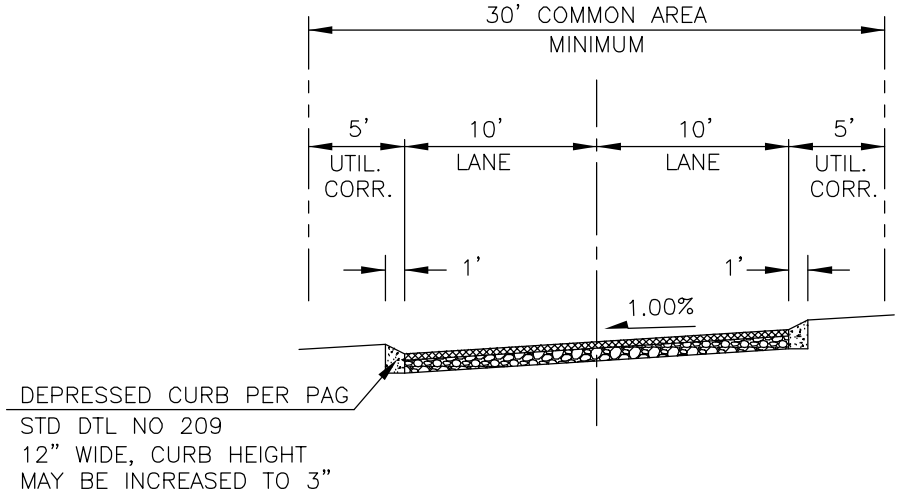
EXPIRES 6/30/2019

Registered Professional Engineer (Civil) CERTIFICATE NO. 40845 KEITH EDWARD BRANN Date Signed 4-18-16 ARIZONA, U.S.A.

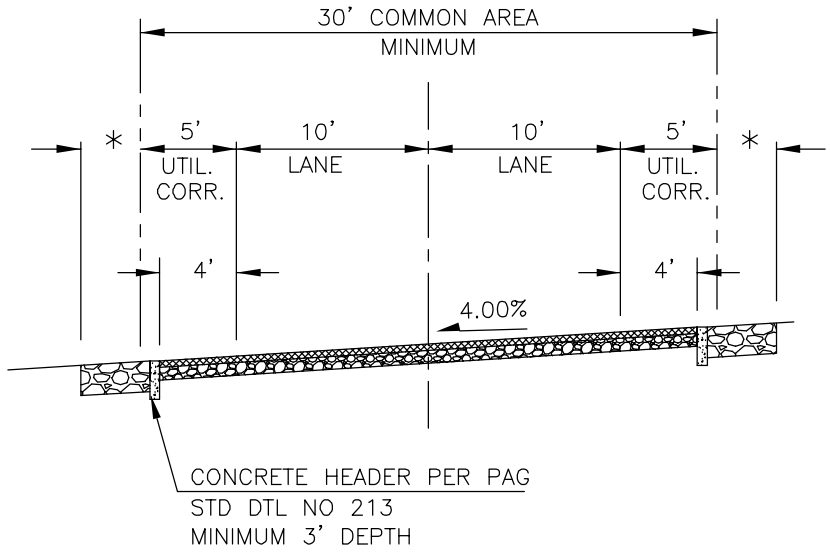
TOWN OF MARANA 1977 ARIZONA

STANDARD DETAIL		DETAIL NO:
MINOR COLLECTOR		100-5
DATE: 3/4/2004	REVISED: 8/1/2016	SHEET 1 OF 1

NORMAL STREET SECTION



DIP CROSSING/DRAINAGE OUTLET



* DRAINAGE EASEMENT AND RIP RAP AS APPROPRIATE

1. FOR SUBDIVISIONS THAT FALL UNDER SMALL SUBDIVISION OF 10 LOTS OR LESS
2. MINIMUM LOT SIZE IN SUBDIVISION MUST BE 36,000 SF
3. STREET CROSS SLOPE TO ALIGN WITH NATURAL FALL OF LAND
4. ALL WEATHER ACCESS TO BE MAINTAINED
5. SECTION DOES NOT SUPPORT ON STREET PARKING

NOT TO SCALE

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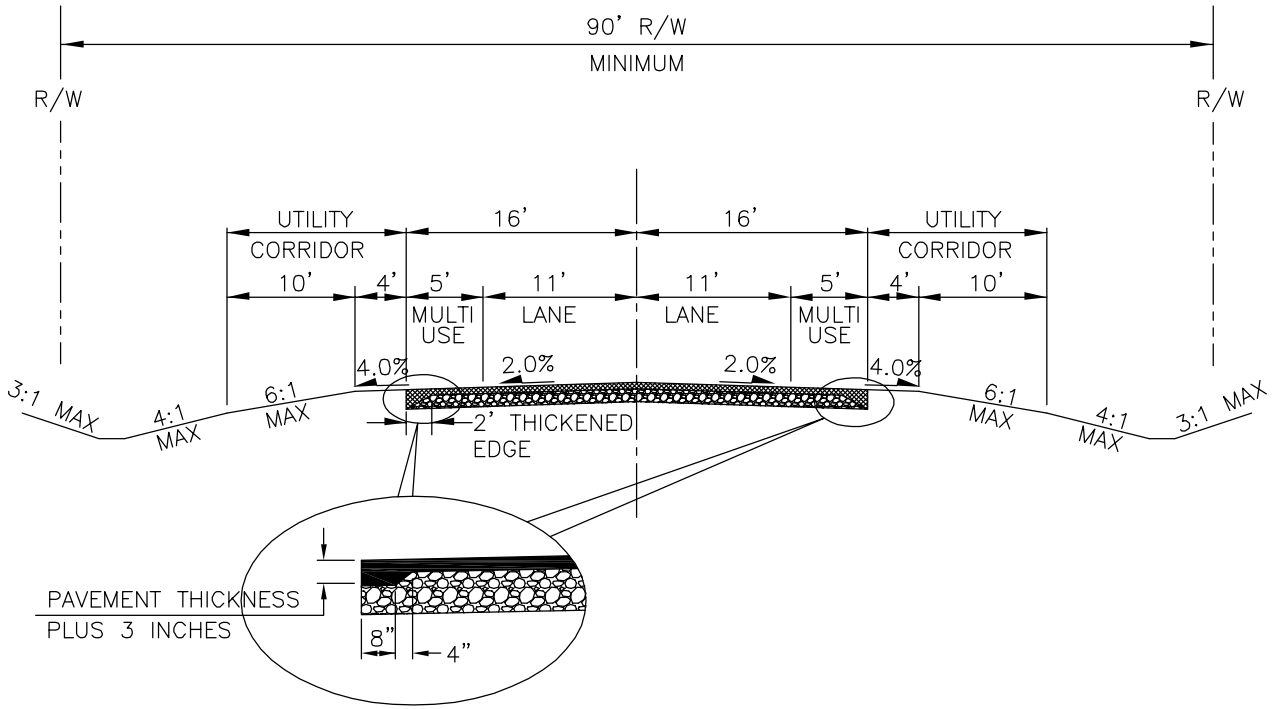
Keith E. Brann, P.E.,
Town Engineer

EXPIRES 6/30/2019

Registered Professional Engineer (Civil) CERTIFICATE NO. 40845 KEITH EDWARD BRANN Date Signed 6-18-16 ARIZONA, U.S.A.

TOWN OF MARANA 1977 ARIZONA

STANDARD DETAIL		DETAIL NO:
SMALL RURAL SUBDIVISION STREET		100-6
DATE: 2/16/2007	REVISED: 8/1/2016	SHEET 1 OF 1



1. RIGHT OF WAY WIDTHS FROM THE MAJOR ROUTES RIGHT OF WAY PLAN SUPERCEDE RIGHT OF WAY WIDTHS SHOWN ON THIS STANDARD

NOT TO SCALE

APPROVED FOR DISTRIBUTION:

Keith E. Brann, P.E.,
Town Engineer

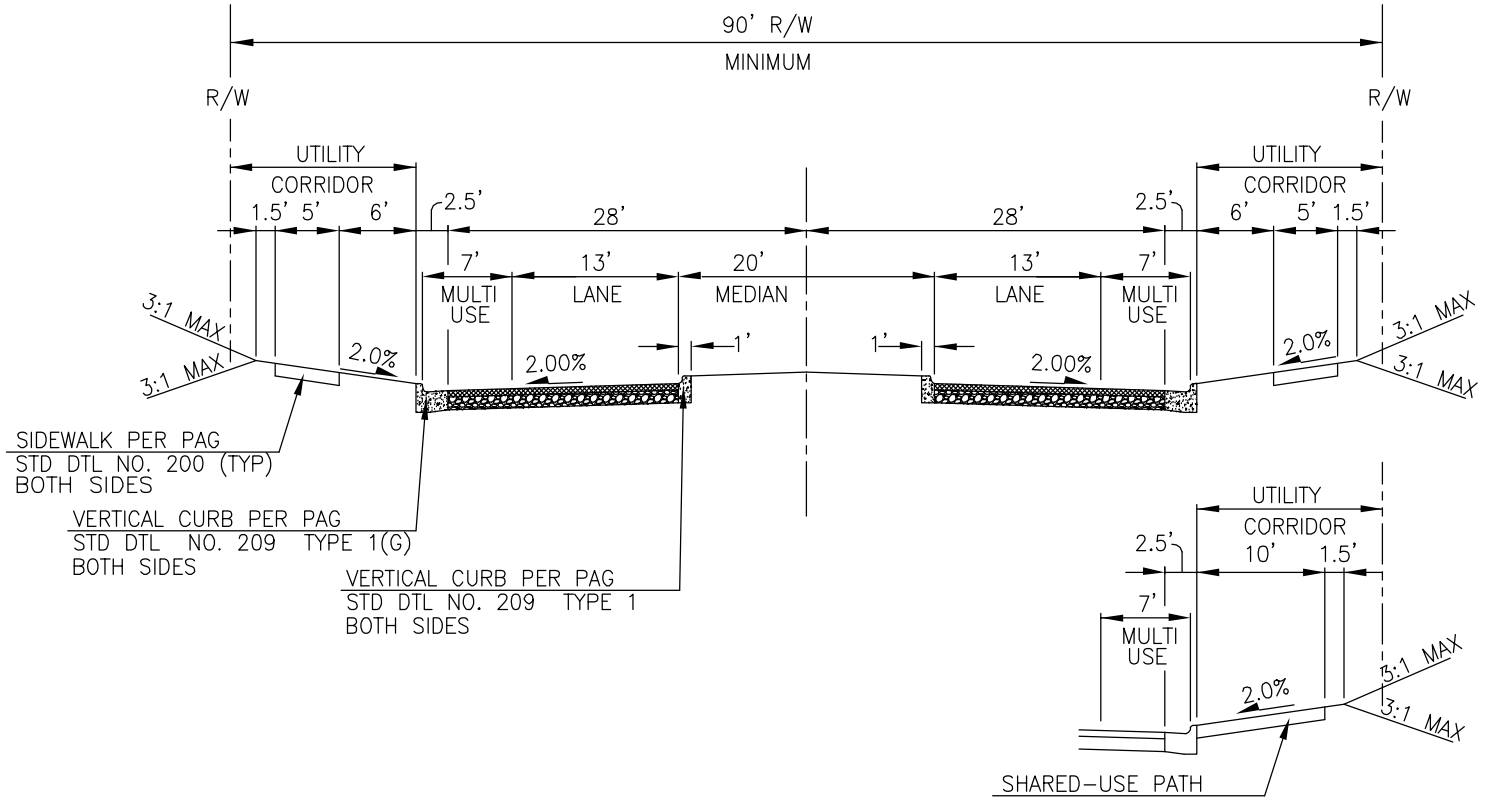
EXPIRES 6/30/2019

Registered Professional Engineer (Civil) CERTIFICATE NO. 40845 KEITH EDWARD BRANN Date Signed 4-18-16 ARIZONA, U.S.A.

TOWN OF MARANA 1977 ARIZONA

STANDARD DETAIL		DETAIL NO:
2-LANE RURAL COLLECTOR		110-1
DATE: 2/16/2007	REVISED: 8/1/2016	SHEET 1 OF 1

Marana Special Council Meeting 06/28/2016



ALTERNATE SHARED-USE PATH

1. RIGHT OF WAY WIDTHS FROM THE MAJOR ROUTES RIGHT OF WAY PLAN SUPERCEDE RIGHT OF WAY WIDTHS SHOWN ON THIS STANDARD

NOT TO SCALE

APPROVED FOR DISTRIBUTION:

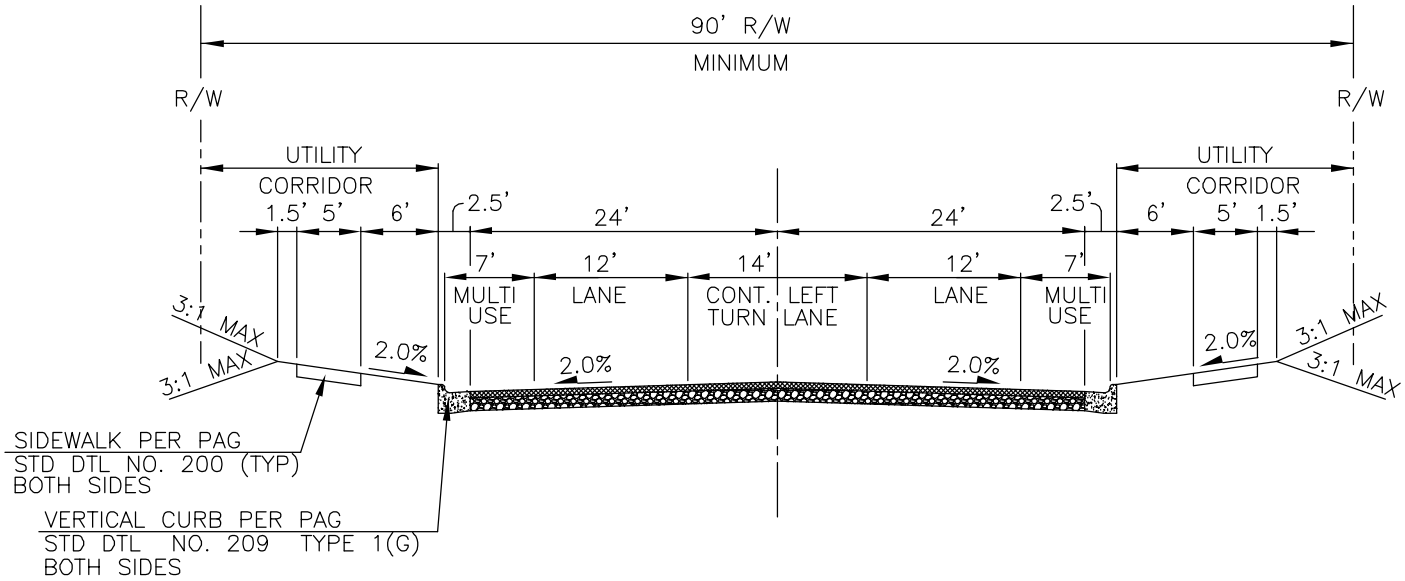
Keith E. Brann, P.E.,
Town Engineer

EXPIRES 6/30/2019

Registered Professional Engineer (Civil) CERTIFICATE NO. 40845 KEITH EDWARD BRANN Date Signed 6-18-16 ARIZONA, U.S.A.

TOWN OF MARANA 1977 ARIZONA

STANDARD DETAIL		DETAIL NO:
2-LANE URBAN COLLECTOR MEDIAN		110-2
DATE: 2/16/2007	REVISED: 8/1/2016	SHEET 1 OF 1



1. RIGHT OF WAY WIDTHS FROM THE MAJOR ROUTES RIGHT OF WAY PLAN SUPERCEDE RIGHT OF WAY WIDTHS SHOWN ON THIS STANDARD

EXPIRES 6/30/2019

NOT TO SCALE

APPROVED FOR DISTRIBUTION:

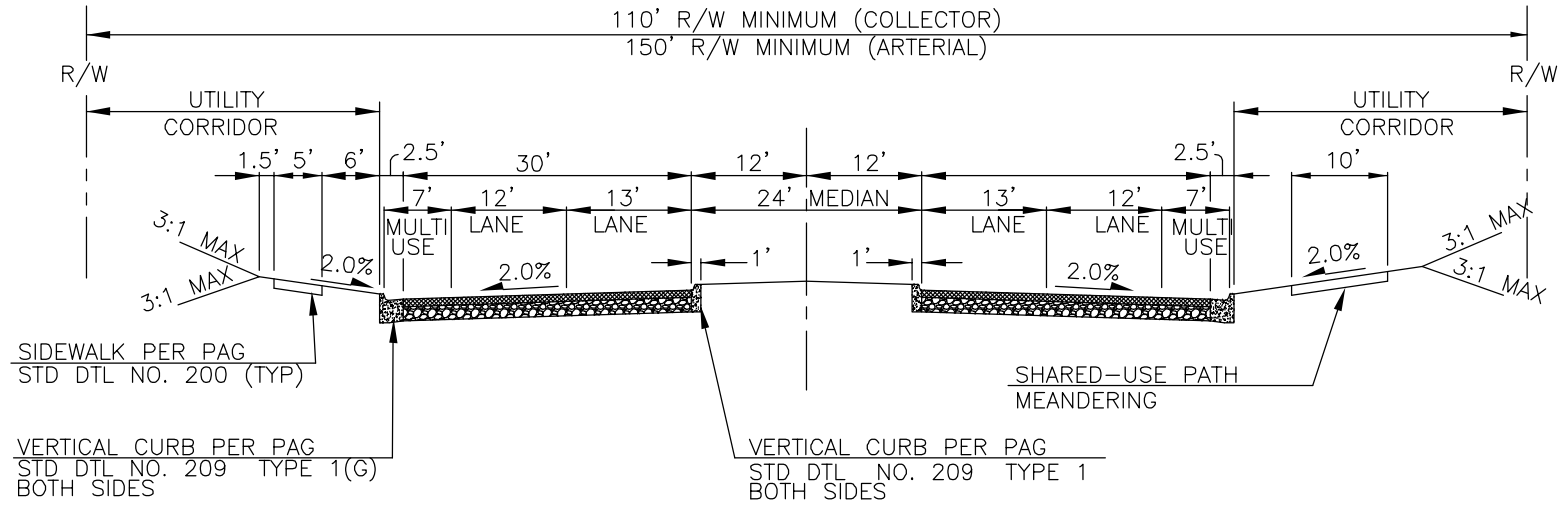
Keith E. Brann, P.E.,
Town Engineer

Registered Professional Engineer (Civil) CERTIFICATE NO. 40845 KEITH EDWARD BRANN Date Signed 4-18-16 ARIZONA, U.S.A.

TOWN OF MARANA 1977 ARIZONA

STANDARD DETAIL		DETAIL NO:
2-LANE URBAN COLLECTOR CONTINUOUS LEFT TURN LANE		110-3
DATE: 2/16/2007	REVISED: 8/1/2016	SHEET 1 OF 1

Marana Special Council Meeting 06/28/2016



1. RIGHT OF WAY WIDTHS FROM THE MAJOR ROUTES RIGHT OF WAY PLAN SUPERCEDE RIGHT OF WAY WIDTHS SHOWN ON THIS STANDARD
2. ARTERIALS IN URBAN SETTINGS MAY UTILIZE SIDEWALK ON BOTH SIDES OF ROADWAY

NOT TO SCALE

APPROVED FOR DISTRIBUTION:

Keith E. Brann, P.E.,
Town Engineer

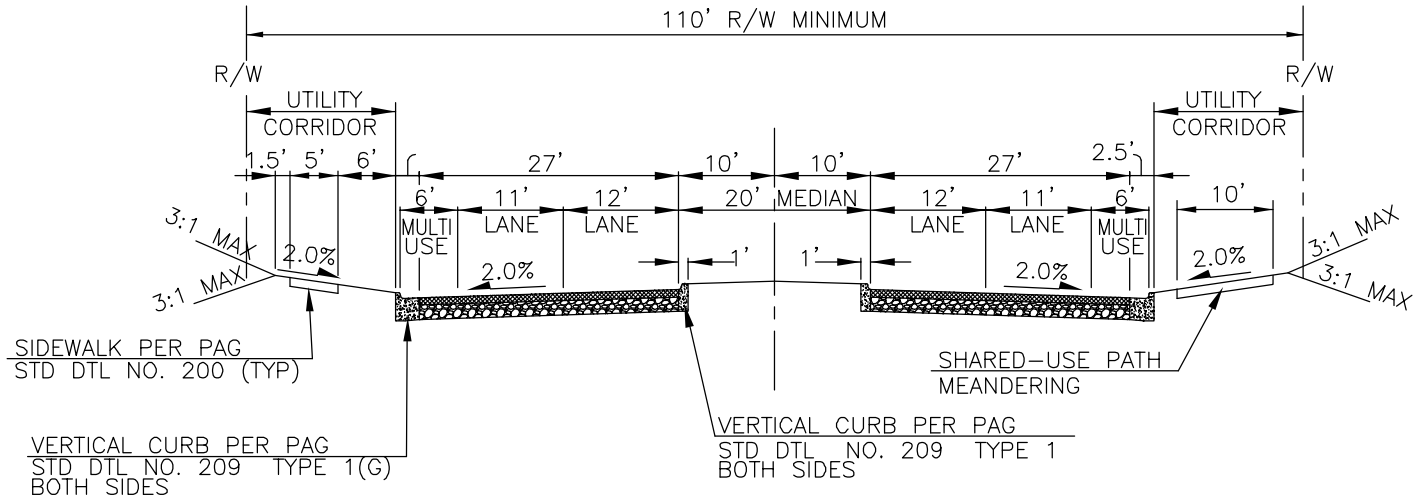
EXPIRES 6/30/2019

Registered Professional Engineer (Civil) CERTIFICATE NO. 40845 KEITH EDWARD BRANN Date Signed ARIZONA, U.S.A.

TOWN OF MARANA ARIZONA 1717

STANDARD DETAIL		DETAIL NO:
4-LANE COLLECTOR OR ARTERIAL		120-1
DATE: 2/16/2007	REVISED: 8/1/2016	SHEET 1 OF 2

Marana Special Council Meeting 06/28/2016



1. ENVIRONMENTALLY SENSITIVE DESIGN FOR USE AT TOWN OF MARANA DIRECTION ONLY
2. RIGHT OF WAY WIDTH OF 110 FEET MAY SUPPLANT RIGHT OF WAY WIDTH FROM MAJOR ROUTES RIGHT OF WAY PLAN (ROADWAY PORTION)

NOT TO SCALE

APPROVED FOR DISTRIBUTION:

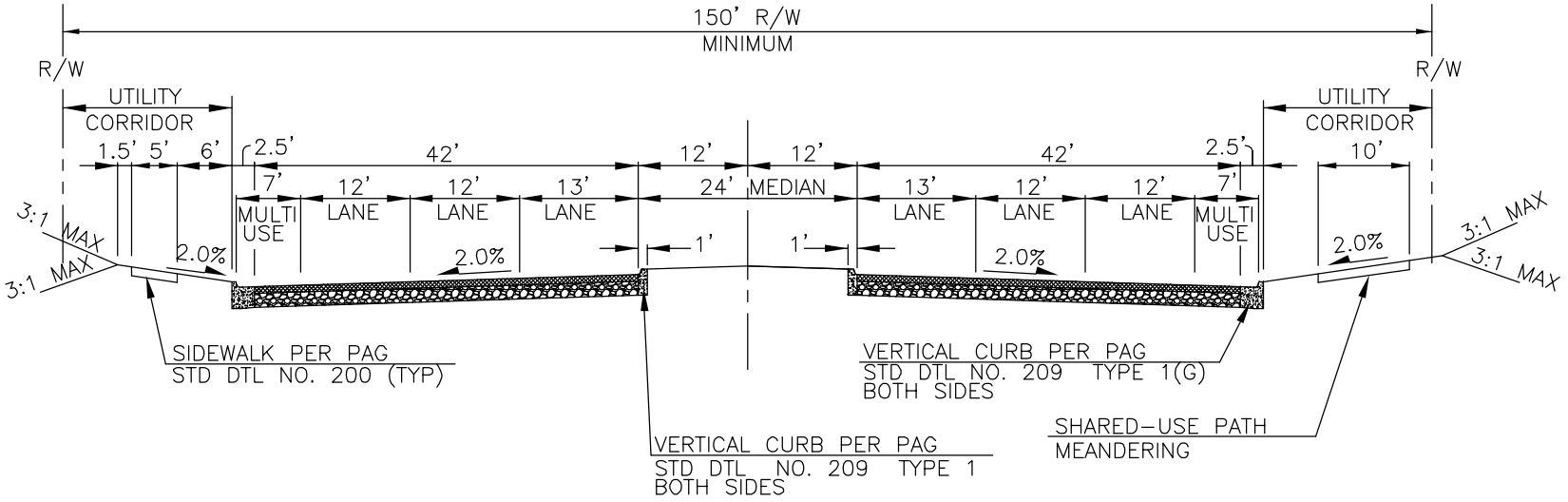
Keith E. Brann, P.E.,
Town Engineer

EXPIRES 6/30/2019

Registered Professional Engineer (Civil) CERTIFICATE NO. 40845 KEITH EDWARD BRANN Date Signed ARIZONA, U.S.A.

TOWN OF MARANA ARIZONA 1917

STANDARD DETAIL		DETAIL NO:
4-LANE COLLECTOR OR ARTERIAL		120-1
DATE: 2/16/2007	REVISED: 8/1/2016	SHEET 2 OF 2



1. RIGHT OF WAY WIDTHS FROM THE MAJOR ROUTES RIGHT OF WAY PLAN SUPERCEDE RIGHT OF WAY WIDTHS SHOWN ON THIS STANDARD
2. ARTERIALS IN URBAN SETTINGS MAY UTILIZE SIDEWALK ON BOTH SIDES OF ROADWAY

NOT TO SCALE

APPROVED FOR DISTRIBUTION:

Keith E. Brann, P.E.,
Town Engineer

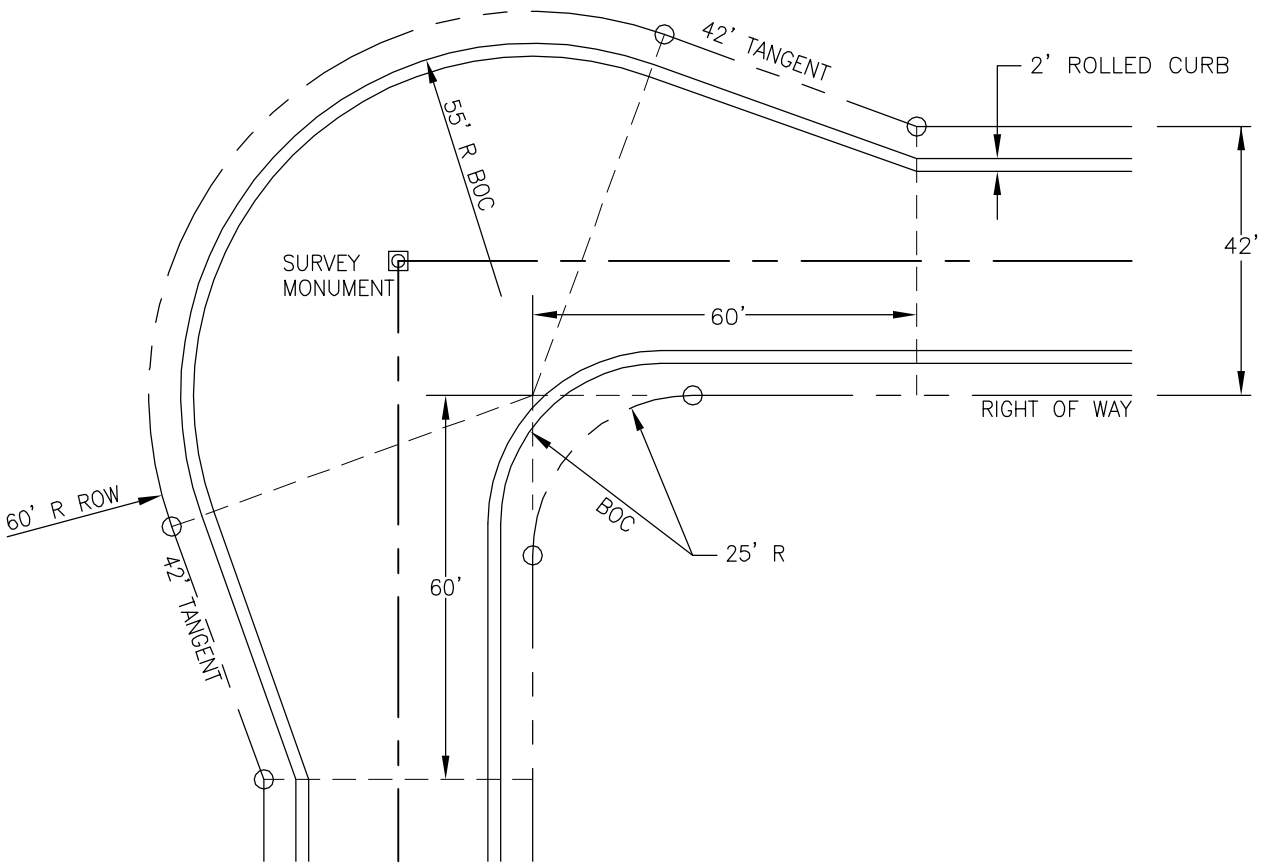
EXPIRES 6/30/2019

Registered Professional Engineer (Civil) CERTIFICATE NO. 40845 KEITH EDWARD BRANN Date Signed ARIZONA, U.S.A.

TOWN OF MARANA 1977 ARIZONA

STANDARD DETAIL		DETAIL NO:
6-LANE ARTERIAL		120-2
DATE: 2/16/2007	REVISED: 8/1/2016	SHEET 1 OF 1

Page 114 of 224
Marana Special Council Meeting 06/28/2016



1. THIS DETAIL SUPERSEDES PRIOR SUBDIVISION STREET STANDARDS DETAIL NUMBER 11B
2. DETAIL IS BASED ON STANDARD STREET SECTION 100-1 AND A 90° INTERSECTION, MAY NEED TO BE MODIFIED FOR DIFFERENT SCENARIOS
3. HANDICAP RAMPS ARE NOT TO BE INSTALLED AT EYEBROW KNUCKLE

NOT TO SCALE

APPROVED FOR DISTRIBUTION:

Keith E. Brann, P.E.,
Town Engineer

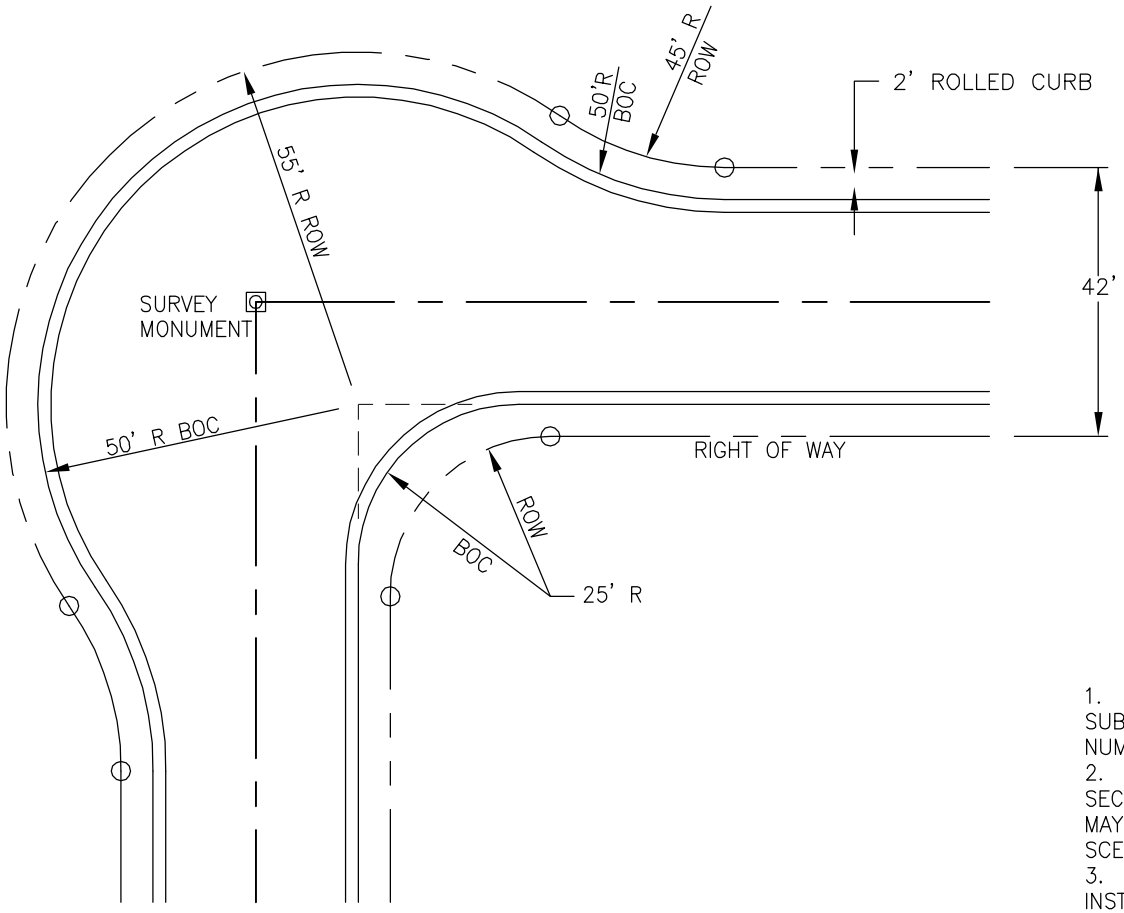
EXPIRES 6/30/2019

Registered Professional Engineer (Civil) CERTIFICATE NO. 40845 KEITH EDWARD BRANN Date Signed ARIZONA, U.S.A.

TOWN OF MARANA 1977 ARIZONA

STANDARD DETAIL		DETAIL NO:
EYEBROW KNUCKLE		170-1
DATE: 3/4/2004	REVISED: 8/1/2016	SHEET 1 OF 1

Marana Special Council Meeting 06/28/2016



1. THIS DETAIL SUPERSEDES PRIOR SUBDIVISION STREET STANDARDS DETAIL NUMBER 11A
2. DETAIL IS BASED ON STANDARD STREET SECTION 100-1 AND A 90° INTERSECTION, MAY NEED TO BE MODIFIED FOR DIFFERENT SCENARIOS
3. HANDICAP RAMPS ARE NOT TO BE INSTALLED AT EYEBROW CUL-DE-SAC

NOT TO SCALE

APPROVED FOR DISTRIBUTION:

Keith E. Brann, P.E.,
Town Engineer

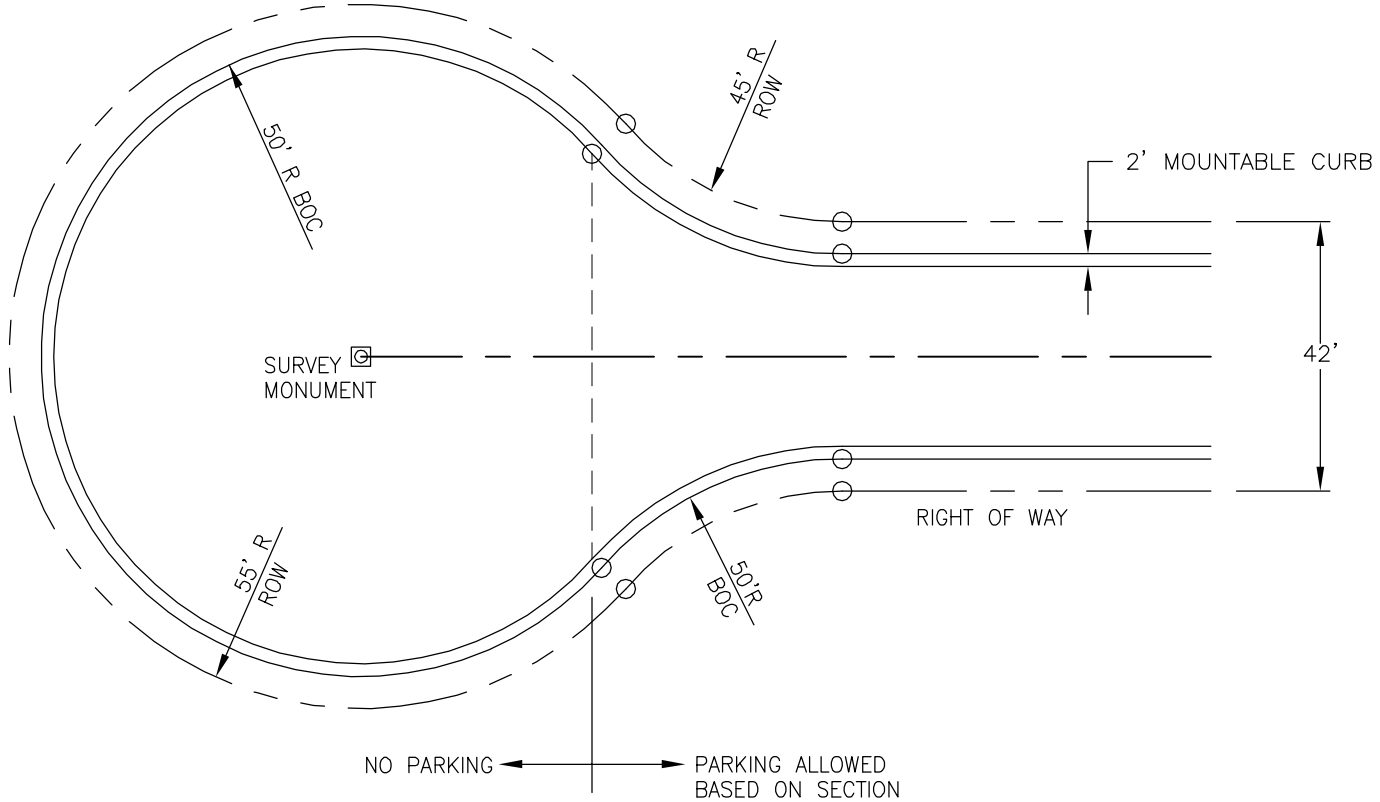
EXPIRES 6/30/2019

Registered Professional Engineer (Civil) CERTIFICATE NO. 40845 KEITH EDWARD BRANN Date Signed ARIZONA, U.S.A.

TOWN OF MARANA 1977 ARIZONA

STANDARD DETAIL		DETAIL NO:
EYEBROW CUL-DE-SAC		170-2
DATE: 3/4/2004	REVISED: 8/1/2016	SHEET 1 OF 1

1. THIS DETAIL SUPERSEDES PRIOR SUBDIVISION STREET STANDARDS DETAIL NUMBER 7
2. DETAIL IS BASED ON STANDARD STREET SECTION 100–1, MAY NEED TO BE MODIFIED FOR DIFFERENT STREET SECTIONS



NOT TO SCALE

APPROVED FOR DISTRIBUTION:

Keith E. Brann, P.E.,
Town Engineer

EXPIRES 6/30/2019

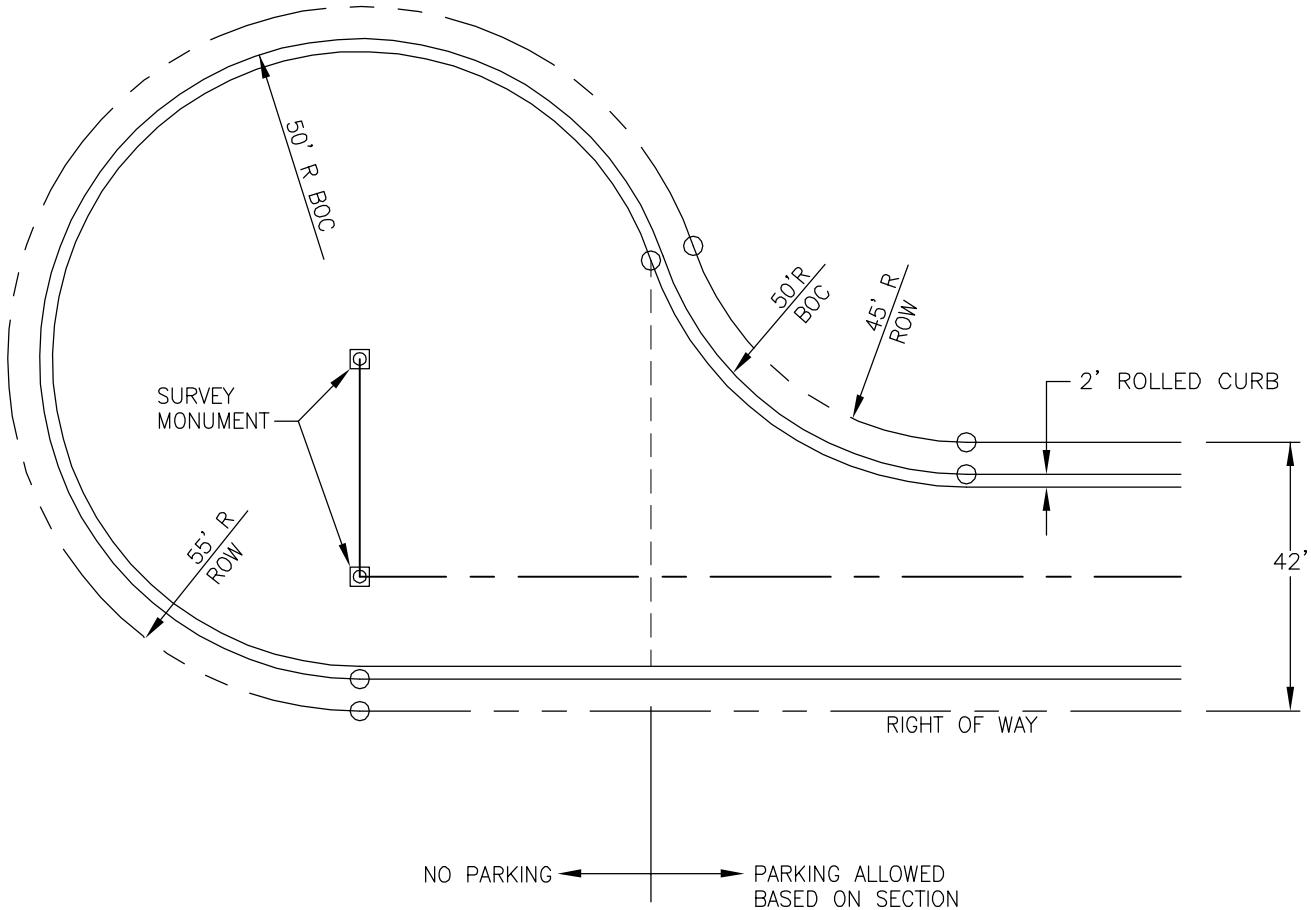
Registered Professional Engineer (Civil) CERTIFICATE NO. 40845 KEITH EDWARD BRANN Date Signed ARIZONA, U.S.A.

TOWN OF MARANA 19 77 ARIZONA

STANDARD DETAIL		DETAIL NO:
STANDARD CUL–DE–SAC		170–3
DATE: 3/4/2004	REVISED: 8/1/2016	SHEET 1 OF 1

Page 117 of 224
Marana Special Council Meeting 06/28/2016

1. THIS DETAIL SUPERSEDES PRIOR SUBDIVISION STREET STANDARDS DETAIL NUMBER 8
2. DETAIL IS BASED ON STANDARD STREET SECTION 100–1, MAY NEED TO BE MODIFIED FOR DIFFERENT STREET SECTIONS



NOT TO SCALE

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Keith E. Brann, P.E.,
Town Engineer

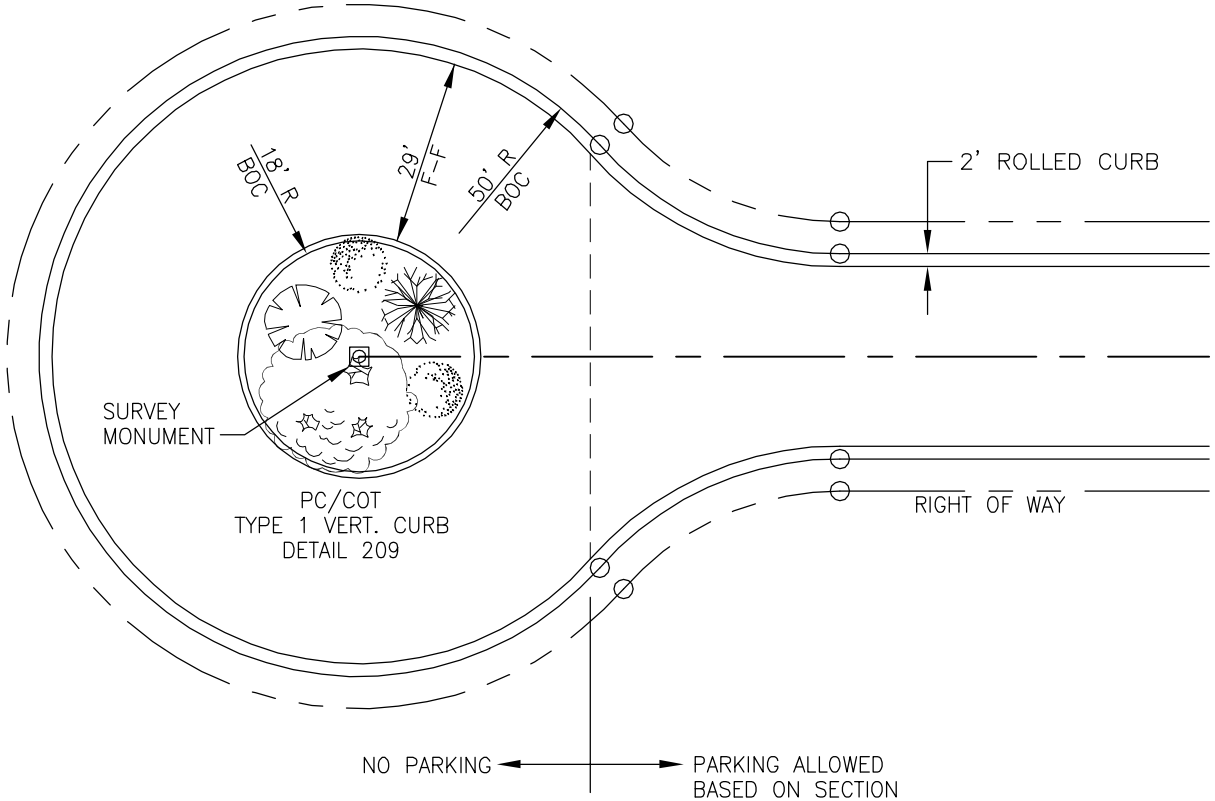
EXPIRES 6/30/2019

Registered Professional Engineer (Civil) CERTIFICATE NO. 40845 KEITH EDWARD BRANN Date Signed ARIZONA, U.S.A.

TOWN OF MARANA 1977 ARIZONA

STANDARD DETAIL		DETAIL NO:
OFFSET CUL–DE–SAC		170–4
DATE: 3/4/2004	REVISED: 8/1/2016	SHEET 1 OF 1

1. THIS DETAIL SUPERSEDES PRIOR SUBDIVISION STREET STANDARDS DETAIL NUMBER 9
2. DETAIL IS BASED ON STANDARD STREET SECTION 100–1, MAY NEED TO BE MODIFIED FOR DIFFERENT STREET SECTIONS
3. FOR REMAINING DIMENSIONS REFER TO DETAIL 170–3
4. LANDSCAPE MATERIALS MUST BE SELECTED AND PLACED SO AS NOT TO INTERFERE WITH DRIVERS' VISIBILITY WITHIN THE MEDIAN BY TWO HORIZONTAL LINES LOCATED 30" AND 72" ABOVE FINISHED GRADE OF THE ROADWAY SURFACE
5. LANDSCAPING/VEGETATION INSTALLED BY THE DEVELOPER/HOMEOWNER'S ASSOCIATION SHALL NOT BE MAINTAINED BY THE TOWN OF MARANA. A LICENSE AGREEMETN MUST BE EXECUTED AND APPROVED BY THE TOWN ENGINEER PRIOR TO CONSTRUCTION.



NOT TO SCALE

APPROVED FOR DISTRIBUTION:

Keith E. Brann, P.E.,
Town Engineer

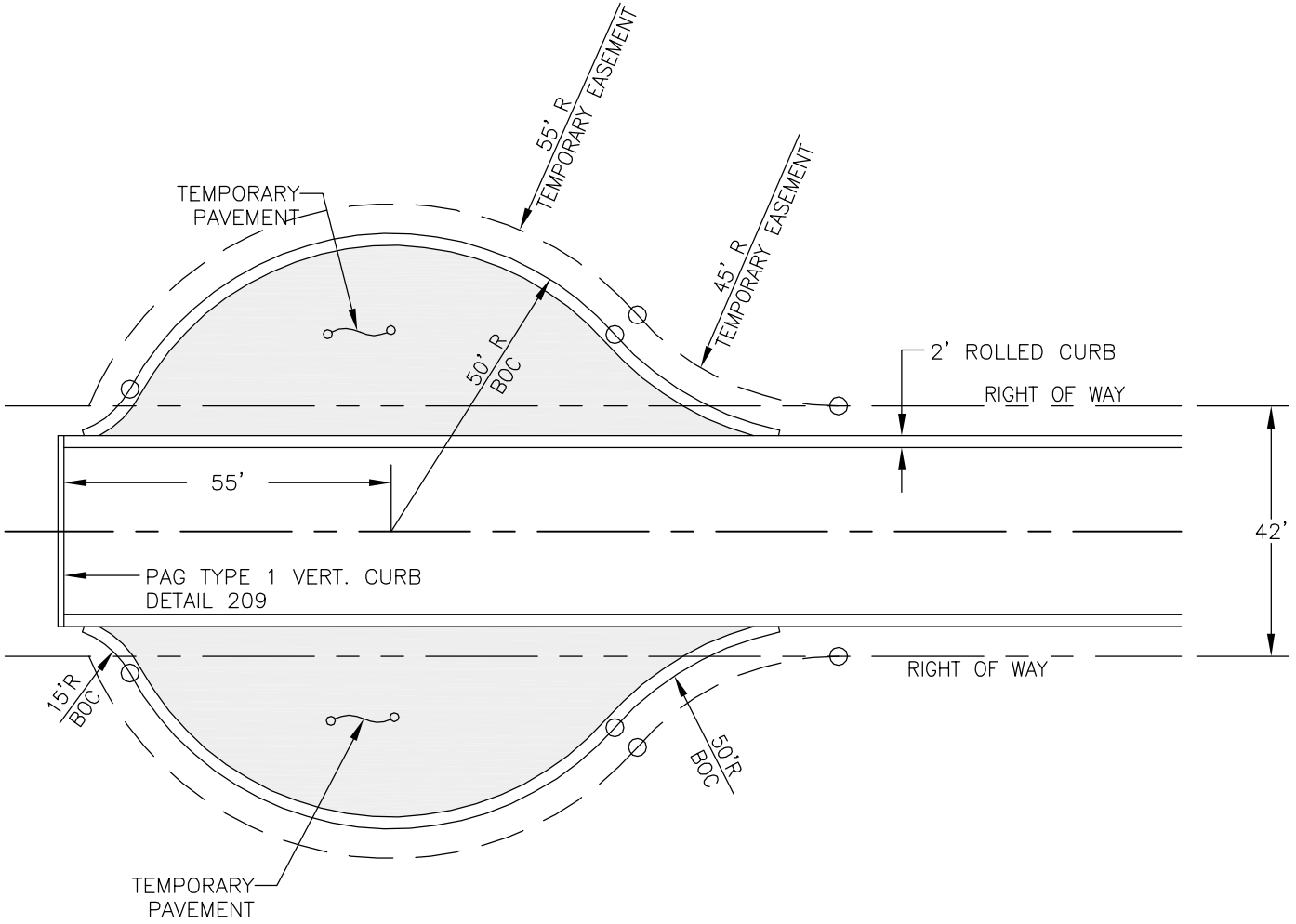
EXPIRES 6/30/2019

Registered Professional Engineer (Civil) CERTIFICATE NO. 40845 KEITH EDWARD BRANN Date Signed ARIZONA, U.S.A.

TOWN OF MARANA 1977 ARIZONA

STANDARD DETAIL		DETAIL NO:
LANDSCAPED CUL–DE–SAC		170–5
DATE: 3/4/2004	REVISED: 8/1/2016	SHEET 1 OF 1

1. THIS DETAIL SUPERSEDES PRIOR SUBDIVISION STREET STANDARDS DETAIL NUMBER 7
2. DETAIL IS BASED ON STANDARD STREET SECTION 100-1, MAY NEED TO BE MODIFIED FOR DIFFERENT STREET SECTIONS
3. ULTIMATE CURB AND STREET SECTION TO BE CONSTRUCTED.
4. TEMPORARY PAVEMENT TO BE OF SAME THICKNESS AS PERMANENT PAVEMENT. TEMPORARY CURB MAY BE MOUNTABLE CURB OR HEADER CURB.
5. DEAD END STREET SIGNAGE AND POST BARRICADES PER STREET STANDARDS TO BE INSTALLED.



NOT TO SCALE

APPROVED FOR DISTRICTION:

Keith E. Brann, P.E.,
Town Engineer

EXPIRES 6/30/2019

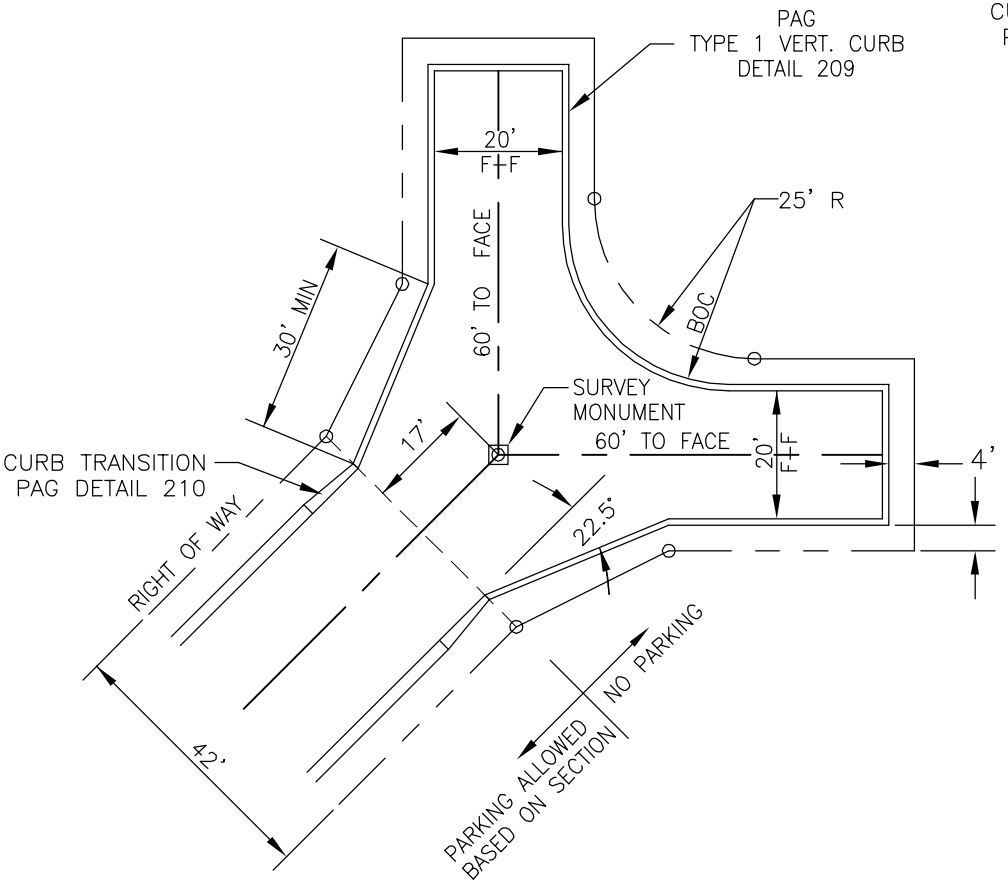
Registered Professional Engineer (Civil) CERTIFICATE NO. 40845 KEITH EDWARD BRANN Date Signed ARIZONA, U.S.A.

TOWN OF MARANA 1977 ARIZONA

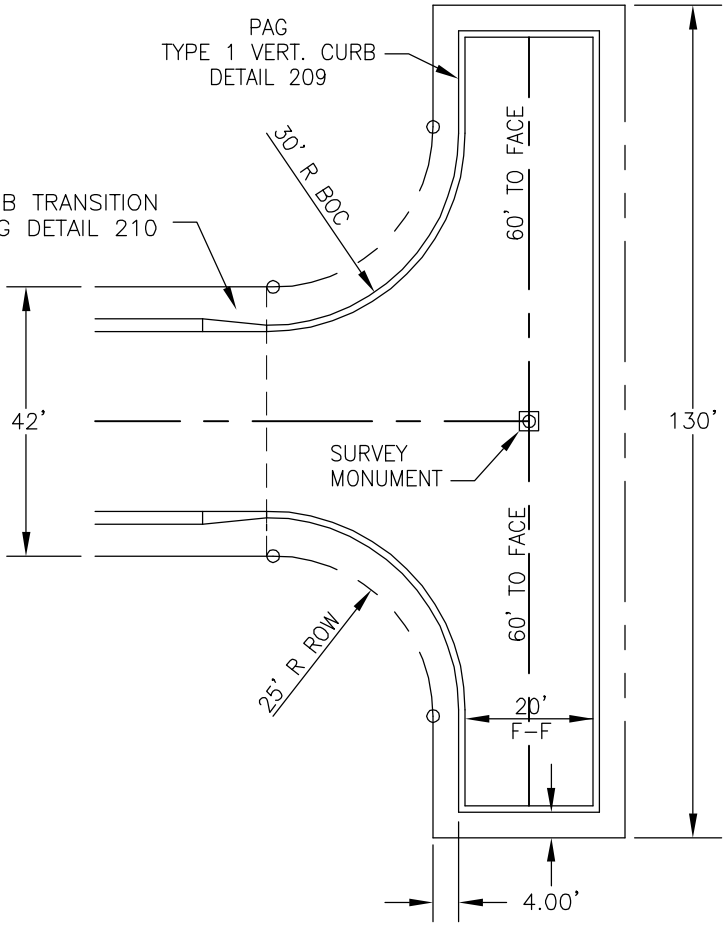
STANDARD DETAIL		DETAIL NO:
TEMPORARY CUL-DE-SAC		170-6
DATE: 3/4/2004	REVISED: 8/1/2016	SHEET 1 OF 1

Page 120 of 224
Marana Special Council Meeting 06/28/2016

1. THIS DETAIL SUPERSEDES PRIOR SUBDIVISION STREET STANDARDS DETAIL NUMBER 12
2. DETAIL IS BASED ON STANDARD STREET SECTION 100–1, MAY NEED TO BE MODIFIED FOR DIFFERENT STREET SECTIONS



"Y" TURNAROUND



"T" TURNAROUND

NOT TO SCALE

EXPIRES 6/30/2019

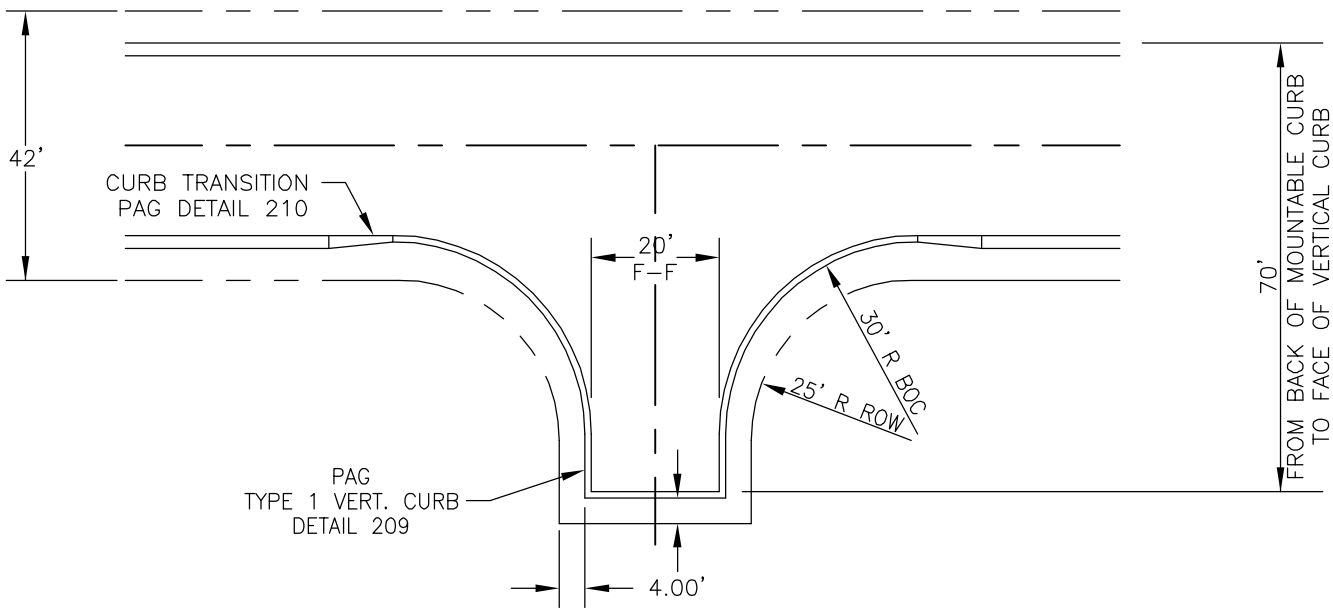
APPROVED FOR DISTRIBUTION:

Keith E. Brann, P.E.,
Town Engineer

STANDARD DETAIL	DETAIL NO:
TURNAROUNDS	170–7
DATE: 3/4/2004 REVISED: 8/1/2016	SHEET 1 OF 2

Page 121 of 224
Marana Special Council Meeting 06/28/2016

1. DETAIL IS BASED ON STANDARD STREET SECTION 100-1, MAY NEED TO BE MODIFIED FOR DIFFERENT STREET SECTIONS



MID-BLOCK TURNAROUND

NOT TO SCALE

APPROVED FOR DISTRIBUTION:

Keith E. Brann, P.E.,
Town Engineer

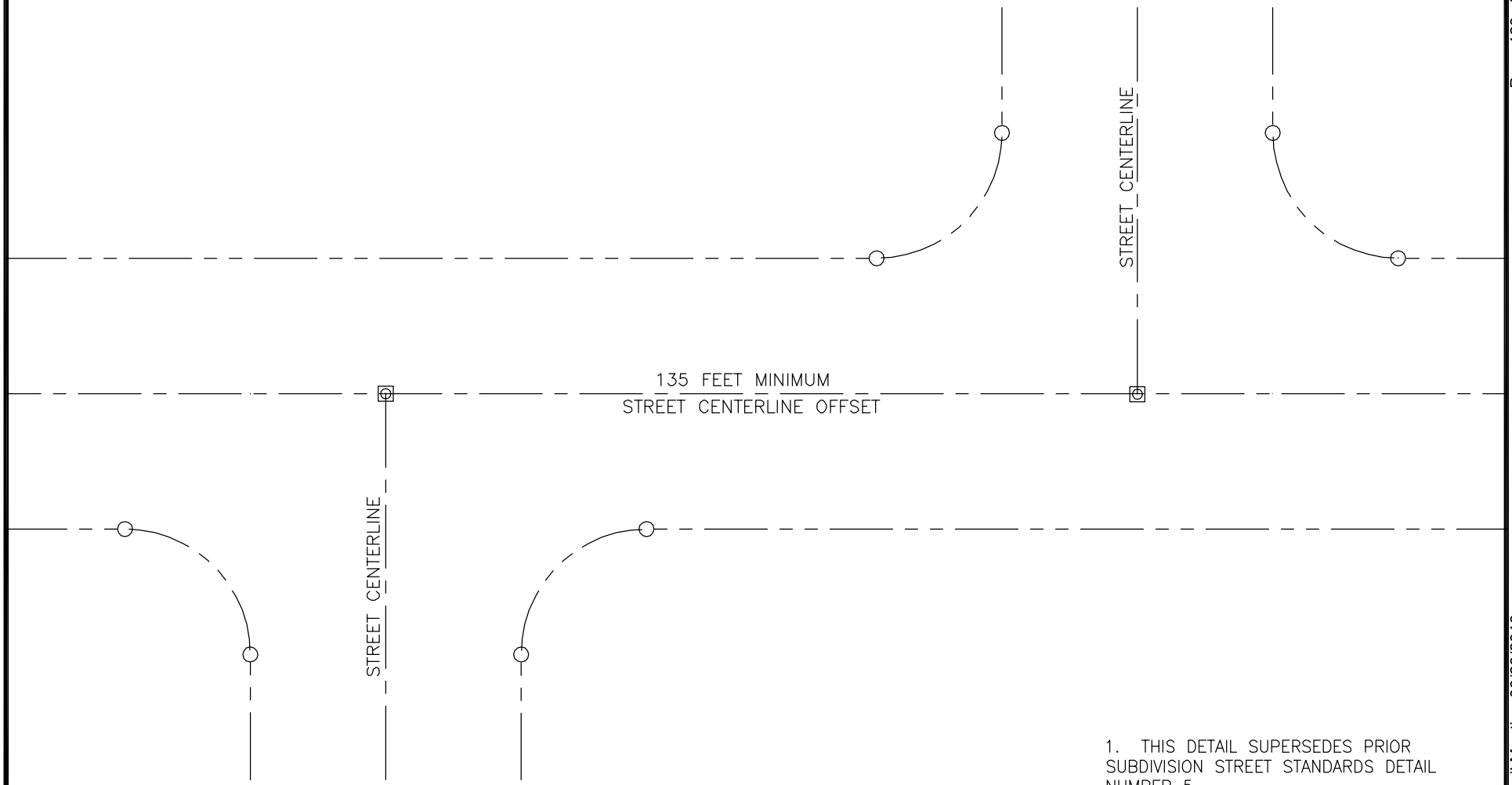
EXPIRES 6/30/2019

Registered Professional Engineer (Civil) CERTIFICATE NO. 40845 KEITH EDWARD BRANN Date Signed ARIZONA, U.S.A.

TOWN OF MARANA 1977 ARIZONA

STANDARD DETAIL		DETAIL NO:
TURNAROUNDS		170-7
DATE: 3/4/2004	REVISED: 8/1/2016	SHEET 2 OF 2

Marana Special Council Meeting 06/28/2016



1. THIS DETAIL SUPERSEDES PRIOR SUBDIVISION STREET STANDARDS DETAIL NUMBER 5

NOT TO SCALE

APPROVED FOR DISTRIBUTION:

Keith E. Brann, P.E.,
Town Engineer

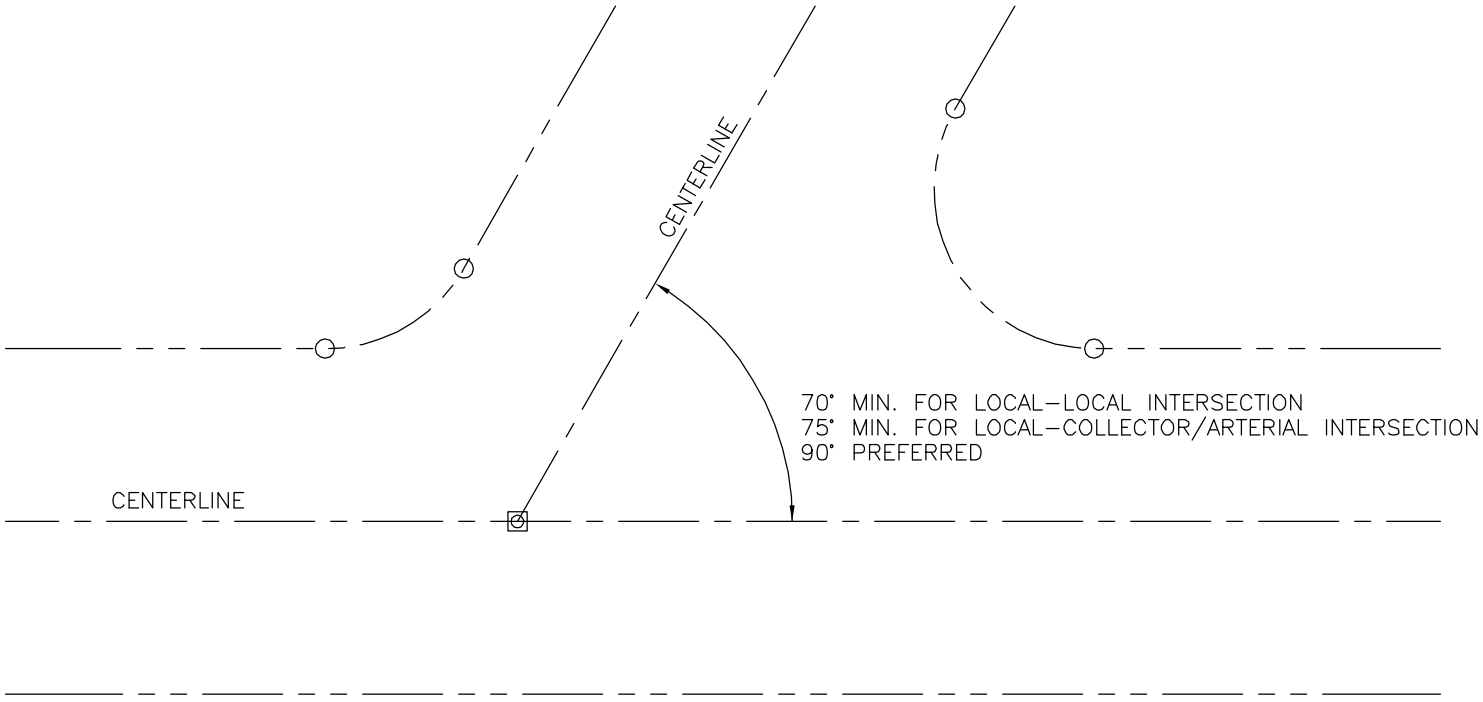
EXPIRES 6/30/2019

Registered Professional Engineer (Civil) CERTIFICATE NO. 40845 KEITH EDWARD BRANN Date Signed ARIZONA, U.S.A.

TOWN OF MARANA 1977 ARIZONA

STANDARD DETAIL		DETAIL NO:
LOCAL STREET JOGS		190-1
DATE: 3/4/2004	REVISED: 8/1/2016	SHEET 1 OF 1

Marana Special Council Meeting 06/28/2016



1. THIS DETAIL SUPERSEDES PRIOR SUBDIVISION STREET STANDARDS DETAIL NUMBER 6

NOT TO SCALE

APPROVED FOR DISTRIBUTION:

Keith E. Brann, P.E.,
Town Engineer

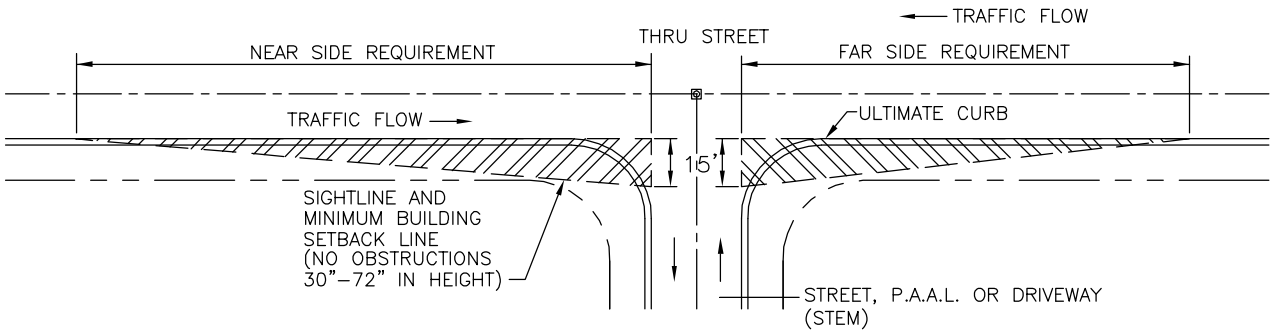
EXPIRES 6/30/2019

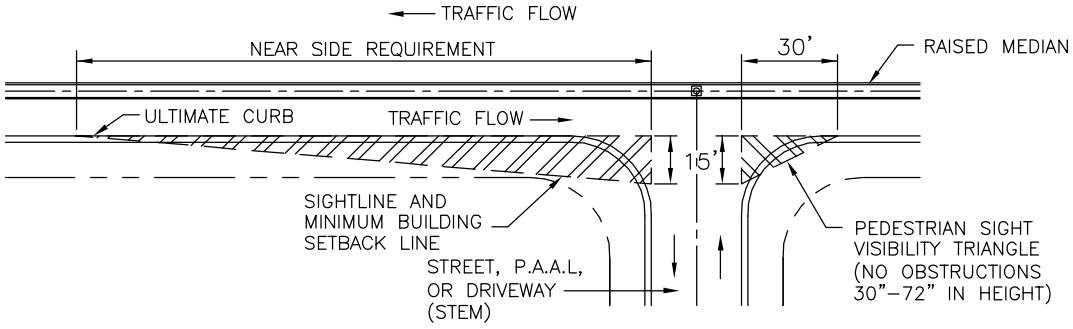
Registered Professional Engineer (Civil) CERTIFICATE NO. 40845 KEITH EDWARD BRANN Date Signed ARIZONA, U.S.A.

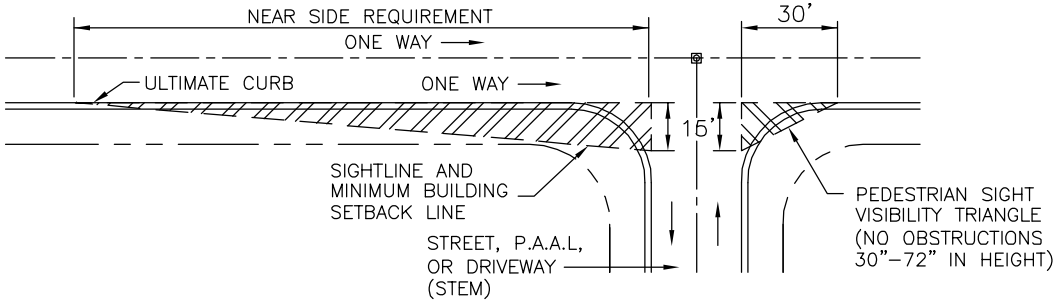
TOWN OF MARANA 1977 ARIZONA

STANDARD DETAIL		DETAIL NO:
LOCAL STREET INTERSECTIONS		190–2
DATE: 3/4/2004	REVISED: 8/1/2016	SHEET 1 OF 1

Marana Special Council Meeting 06/28/2016







1. THIS DETAIL SUPERSEDES PRIOR SUBDIVISION STREET STANDARDS DETAIL NUMBER 13.

NOT TO SCALE

APPROVED FOR DISTRIBUTION:

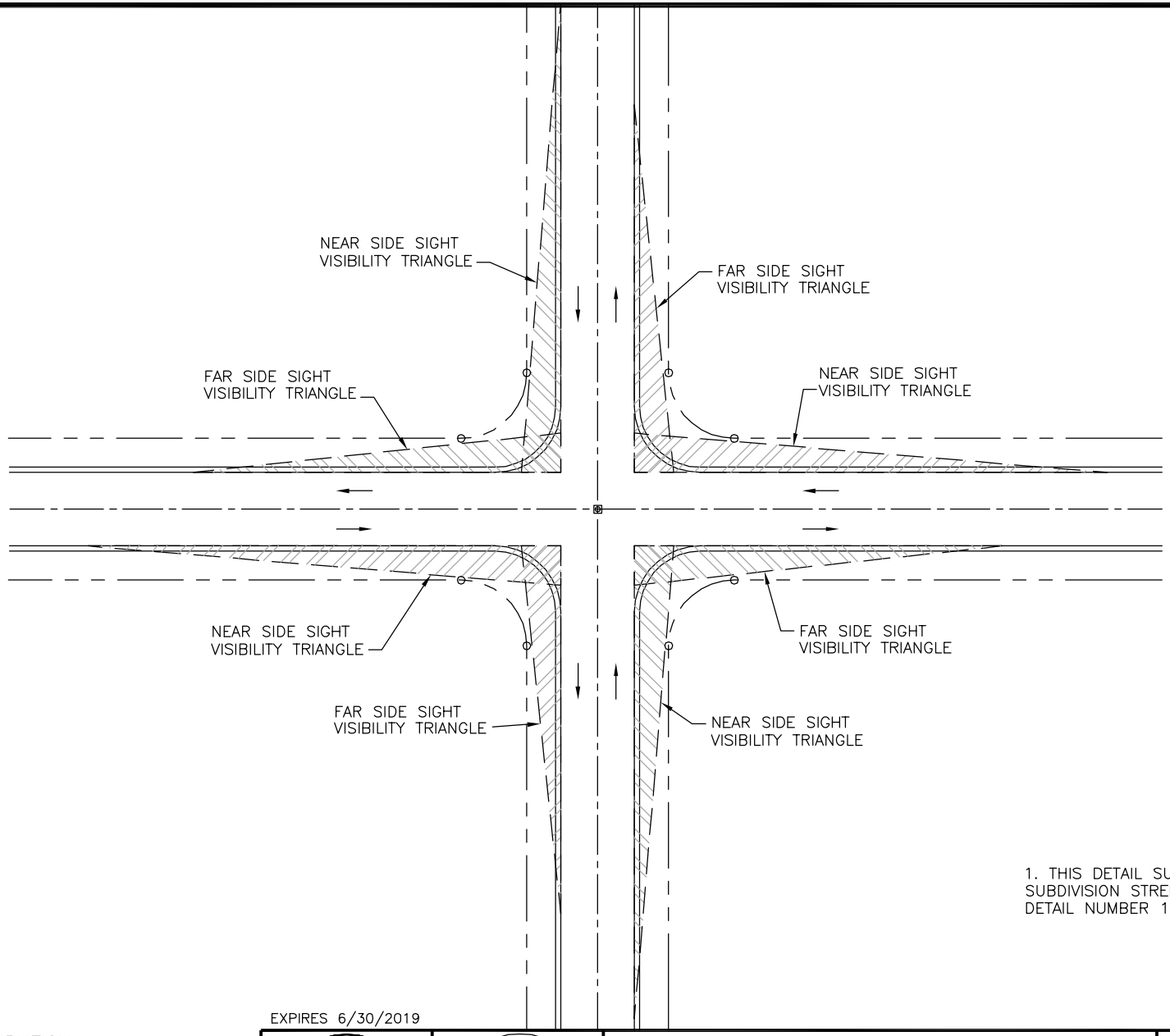
Keith E. Brann, P.E.,
Town Engineer

EXPIRES 6/30/2019

Registered Professional Engineer (Civil) CERTIFICATE NO. 40845 KEITH EDWARD BRANN Date Signed ARIZONA, U.S.A.

TOWN OF MARANA 19 77 ARIZONA

STANDARD DETAIL		DETAIL NO:
TYPICAL SIGHT VISIBILITY TRIANGLES		190–3
DATE: 3/4/2004	REVISED: 8/1/2016	SHEET 1 OF 3



1. THIS DETAIL SUPERSEDES PRIOR SUBDIVISION STREET STANDARDS DETAIL NUMBER 14.

NOT TO SCALE

APPROVED FOR DISTRIBUTION:

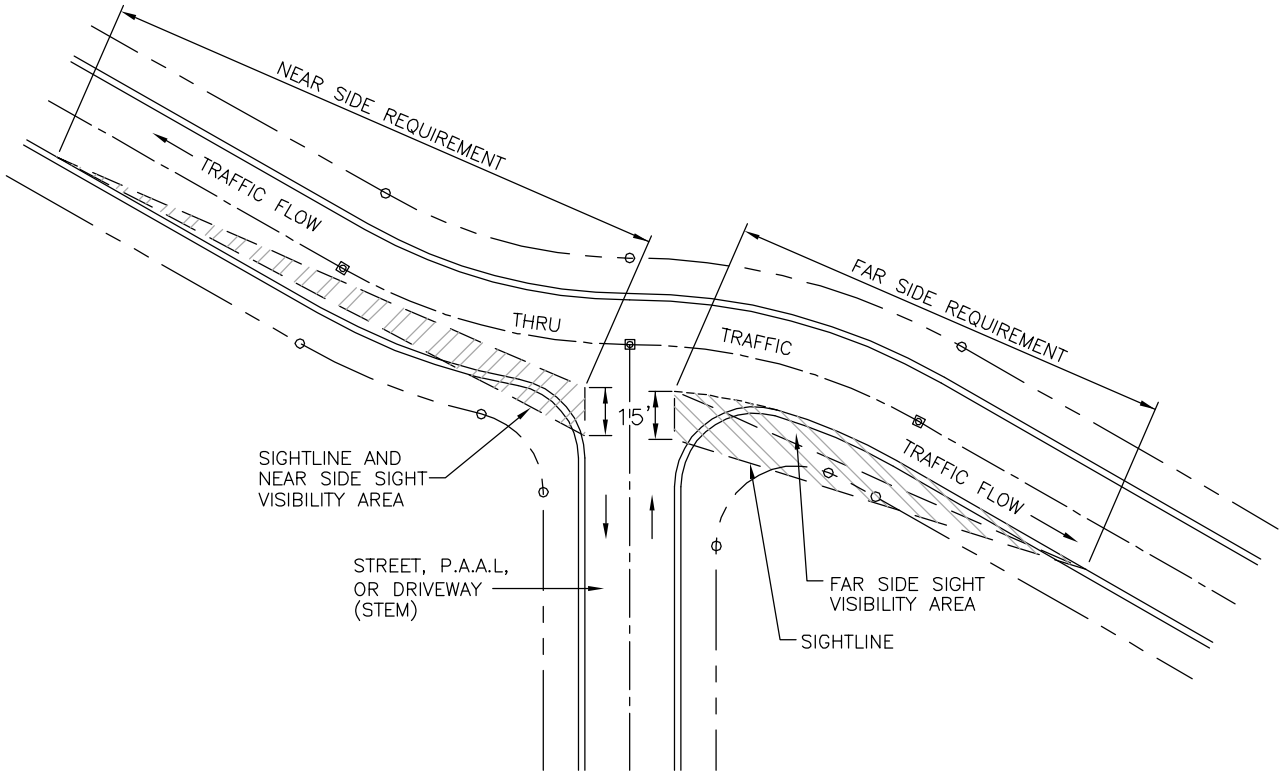
Keith E. Brann, P.E.,
Town Engineer

EXPIRES 6/30/2019

Registered Professional Engineer (Civil) CERTIFICATE NO. 40845 KEITH EDWARD BRANN Date Signed ARIZONA, U.S.A.

TOWN OF MARANA 19 77 ARIZONA

STANDARD DETAIL		DETAIL NO:
TYPICAL SIGHT VISIBILITY TRIANGLES		190-3
DATE: 3/4/2004	REVISED: 8/1/2016	SHEET 2 OF 3



1. THIS DETAIL SUPERSEDES PRIOR SUBDIVISION STREET STANDARDS DETAIL NUMBER 15.

NOT TO SCALE

APPROVED FOR DISTRIBUTION:

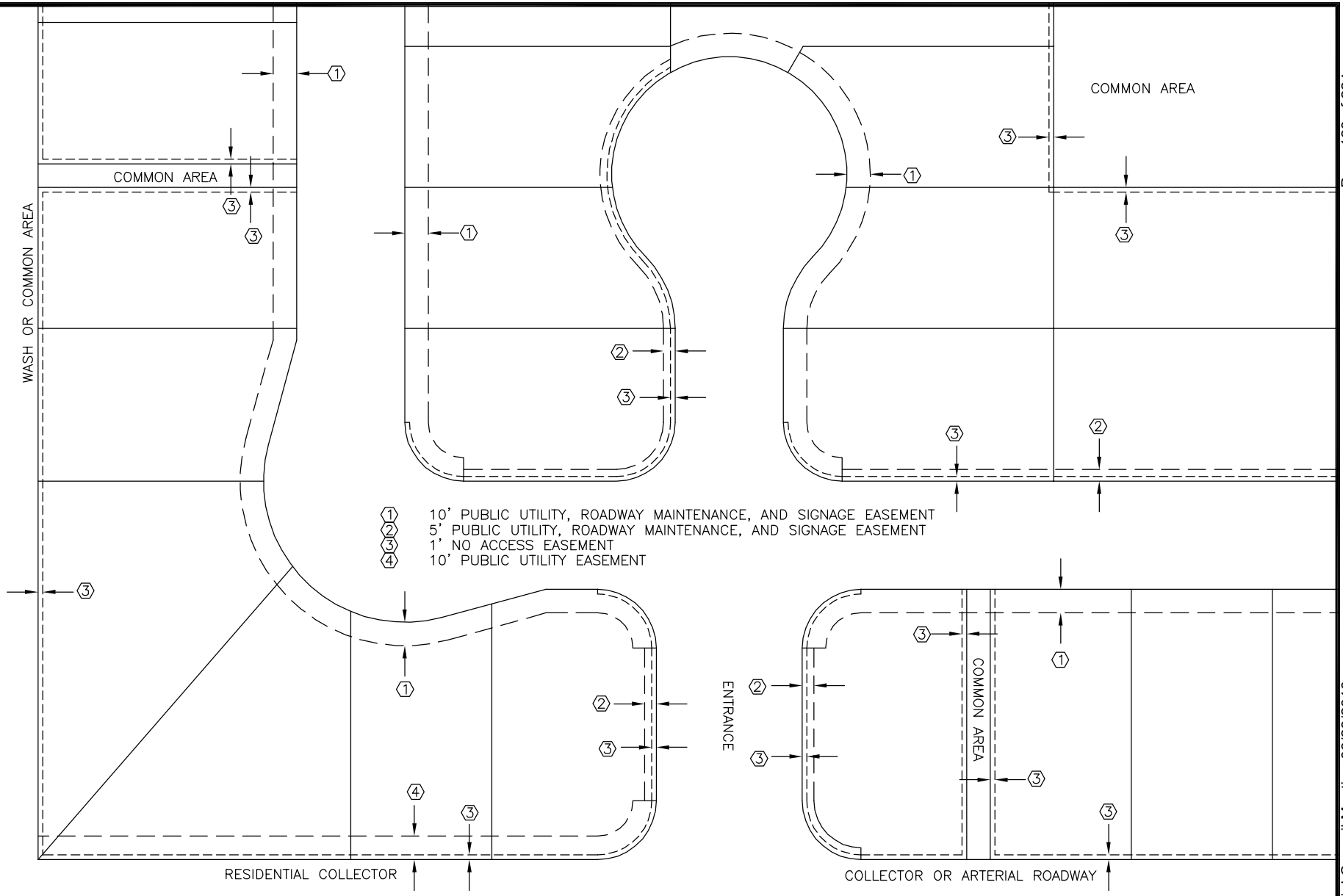
Keith E. Brann, P.E.,
Town Engineer

EXPIRES 6/30/2019

Registered Professional Engineer (Civil) CERTIFICATE NO. 40845 KEITH EDWARD BRANN Date Signed ARIZONA, U.S.A.

TOWN OF 19 MARANA 77 ARIZONA

STANDARD DETAIL		DETAIL NO:
TYPICAL SIGHT VISIBILITY TRIANGLES		190-3
DATE: 3/4/2004	8/1/2016	SHEET 3 OF 3



NOT TO SCALE

APPROVED FOR DISTRIBUTION:

Keith E. Brann, P.E.,
Town Engineer

EXPIRES 6/30/2019

Registered Professional Engineer (Civil) CERTIFICATE NO. 40845 KEITH EDWARD BRANN Date Signed ARIZONA, U.S.A.

TOWN OF MARANA 1977 ARIZONA

STANDARD DETAIL		DETAIL NO:
TYPICAL STREET EASEMENTS		190-4
DATE: 8/1/2016	REVISED:	SHEET 1 OF 1

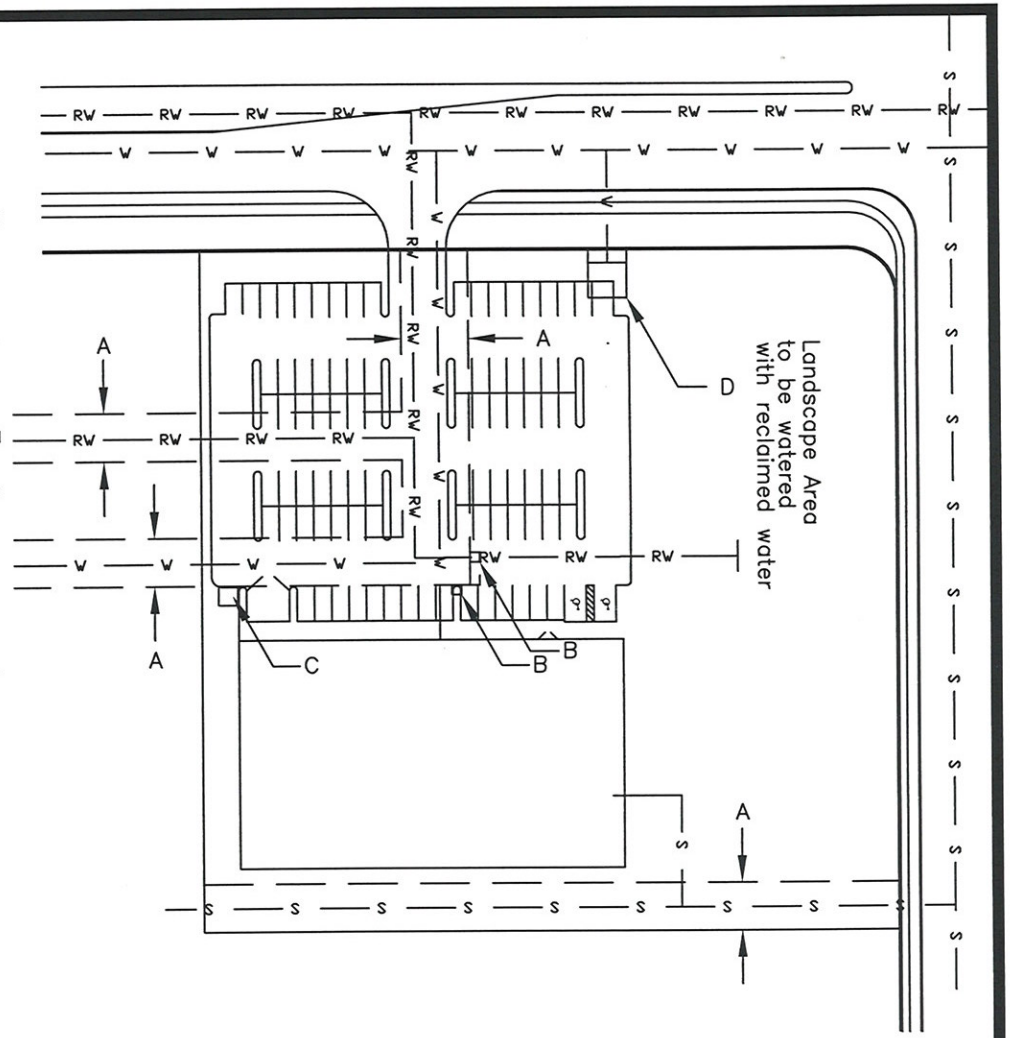
Marana Special Council Meeting 06/28/2016

Marana Special Council Meeting 06/28/2016

Town of Marana Utility Easement Requirements

1) Easements shall be exclusive Town of Marana wet utility easement with maximum 5' encroachment by a PUE.
2) Easement width shall be increased by 5' for every 2' water line is buried below the minimum as required by the May 2009 or subsequent version of the Town of Marana Utility Department General Notes and Standard Details.
3) Easement width shall be increased by 10' for every additional variety of wet utility (potable water, non potable water, sewer). For example, the easement width shall be increased to 35' if two types of wet utilities are located within the easement, and to 45' if all three types of wet utilities are located within the easement.
4) Easement width shall increase by 5' where the easement overlaps a vertical drop of 3 or more feet where the slope is greater than 3:1 horizontal to vertical. The easement width shall increase by 10' if the slope exceeds 2:1 horizontal to vertical.
5) The maximum wet utility easement, including increases for depth, PUE encroachment, additional wet utilities and slope, shall not be greater than 50'.
6) Wet utility line shall be a minimum of 5' from the edge of the easement.
7) Wet utility line shall be set back an additional 2' from the edge of the easement for every 5' in depth the line is buried below the minimum depth.
8) A 15' x 15' easement area outside of the normal easement width shall be provided for all fire hydrants.
9) A 15' x 15' easement area outside of the normal easement width shall be provided for all meters, valves and fire line stub outs.
10) Where Terrain and/or Geology warrant an exception to these standards, a waiver may be granted by the Town Engineer or his designee in which all off the following apply:
   a) A showing of good and sufficient cause
   b) A determination that failure to grant the waiver would result in exceptional hardship to the development.
   c) The waiver is determined to be the minimum relief necessary.
   d) Other mitigating design elements are utilized such as ductile iron pipe with restrained joints or other improvements as directed by the utilities engineer.

Cost shall not be a determining factor in the granting of waivers.



LEGEND

— w — Potable Water
— rw — Reclaimed Water
— s — Sewer

A – MINIMUM 25 FEET EASEMENT
B – 15'X15' EASEMENT FOR METER
C – 15'X15' EASEMENT FOR HYDRANT
D – 15'X15' EASEMENT FOR FIRE LINE STUBOUT

NOT TO SCALE

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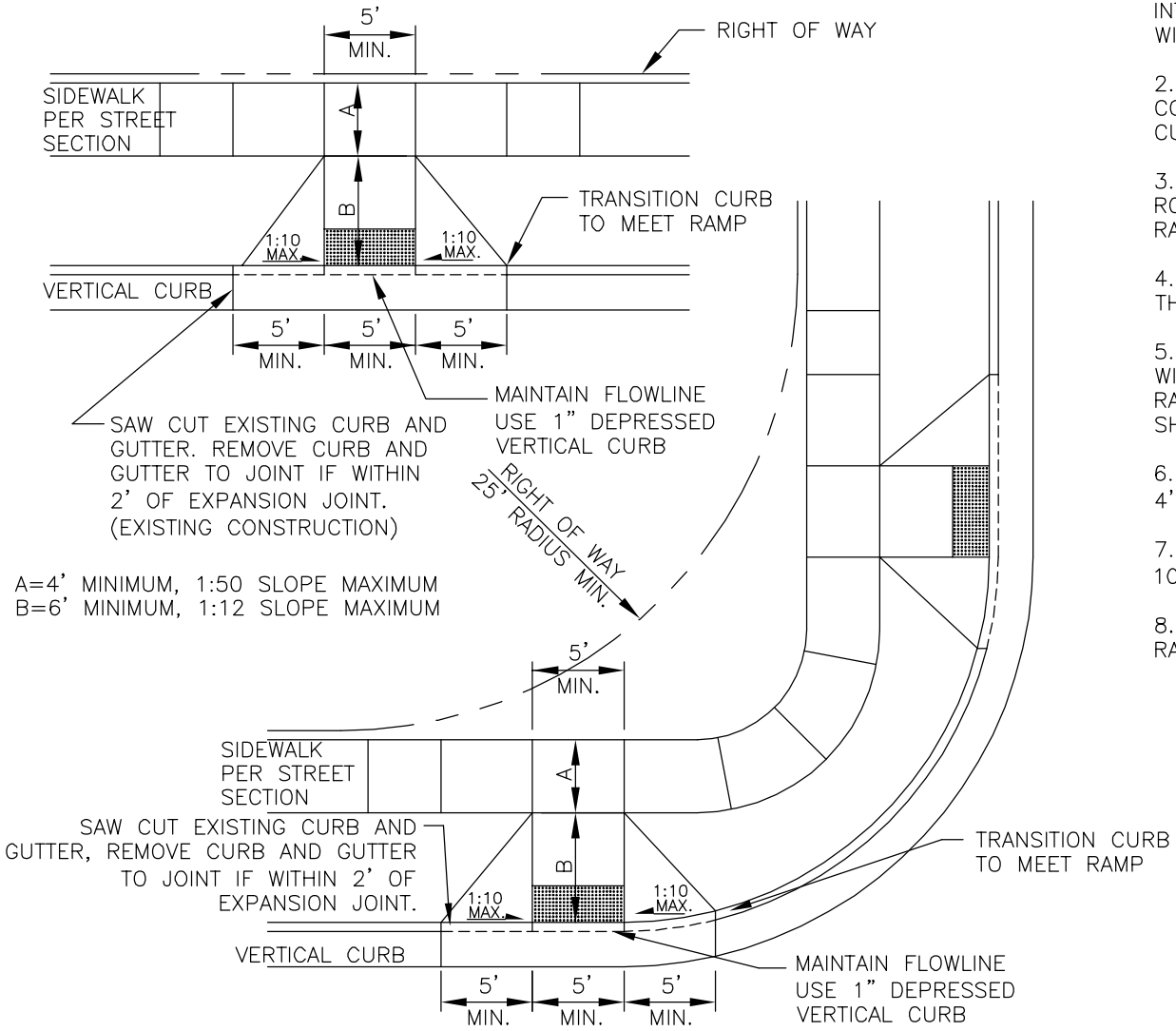
Keith E. Brann, P.E.,
Town Engineer

Registered Professional Engineer (Civil) CERTIFICATE NO. 48654 PAUL STEPHEN BAUGHMAN DATE SIGNED 12/24/09 ARIZONA, U.S.A. Expires 9/30/2011

Paul Stephen Baughman

TOWN OF MARANA 1977 ARIZONA

MARANA UTILITY STANDARDS		DETAIL NO:
TYPICAL UTILITY EASEMENTS		500-1
DATE: 8/19/2009	REVISED: 12/24/2009	SHEET 1 OF 1



NOTES:

1. CURB RAMPS, INCLUDING LANDING AND THE INTERCONNECTING SIDEWALK ARE TO BE CONTAINED WITHIN THE RIGHT-OF-WAY.

2. DETECTABLE WARNING SURFACE SHALL BE CONSTRUCTED 2 INCHES AWAY FROM DEPRESSED CURB.

3. CURB RAMPS SHALL BE PERPENDICULAR TO ROADWAY CENTERLINE AND SHALL ALIGN WITH RAMPS ACROSS STREET.

4. GRADES ON SIDEWALKS LEADING TO OR FROM THE RAMPS SHALL FOLLOW CURB GRADES.

5. THE INTERCONNECTING SIDEWALK LOCATED WITHIN THE RADIUS AND BETWEEN THE TWO CURB RAMPS IS REQUIRED AND ITS RUNNING SLOPE SHALL NOT EXCEED 1:20.

6. STOP BARS, IF REQUIRED, SHALL BE LOCATED 4' IN ADVANCE OF ANY CROSSWALK STRIPING.

7. CURB INLETS SHALL NOT BE LOCATED WITHIN 10' OF A CURB RAMP.

8. GUTTER SHALL PROVIDE SMOOTH TRANSITION TO RAMPS.

NOT TO SCALE

APPROVED FOR DISTRIBUTION:

Keith E. Brann, P.E.,
Town Engineer

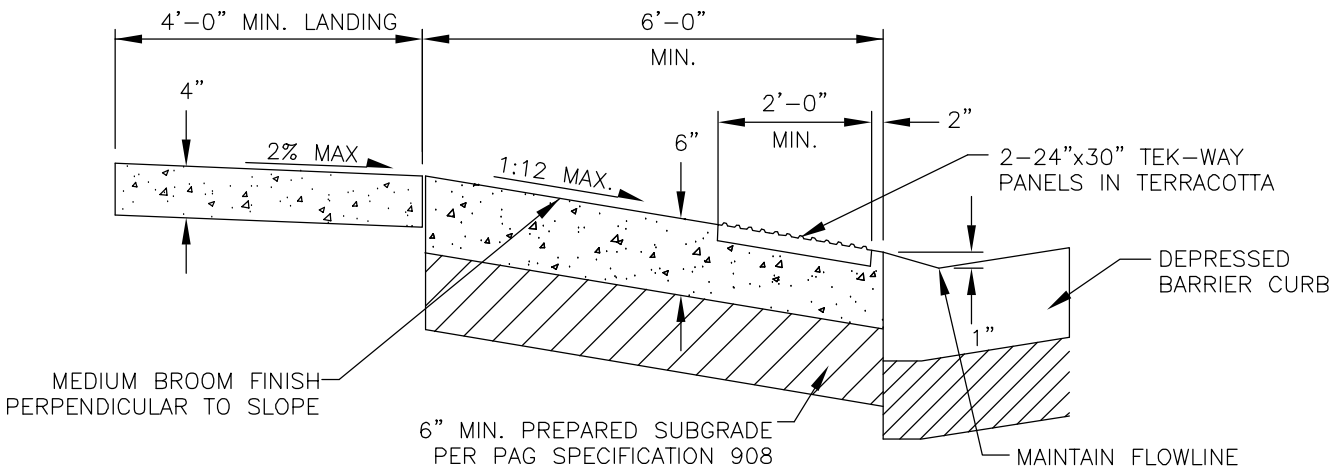
EXPIRES 6/30/2019

Registered Professional Engineer (Civil) CERTIFICATE NO. 40845 KEITH EDWARD BRANN Date Signed 4-18-16 ARIZONA, U.S.A.

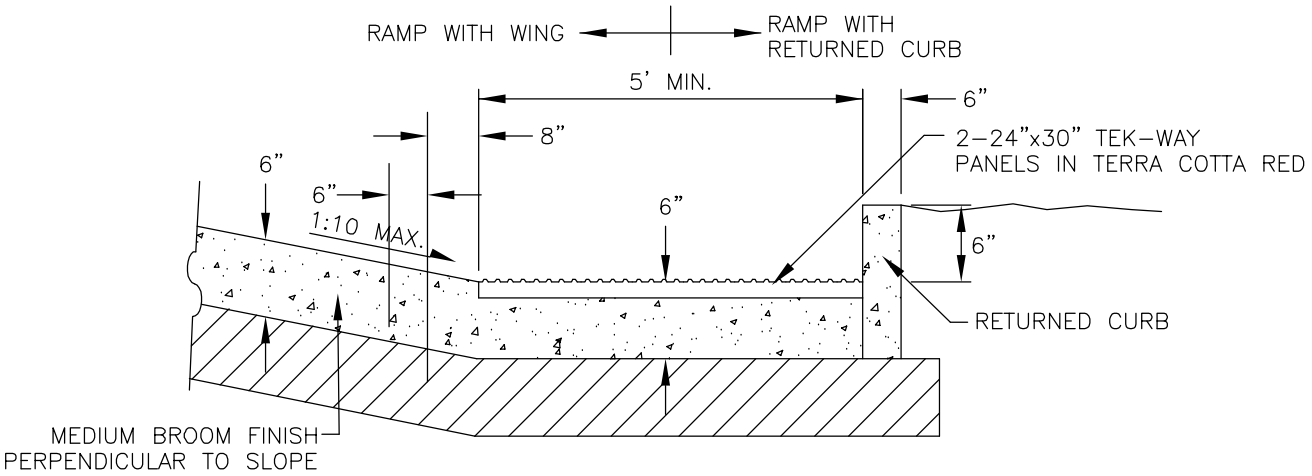
TOWN OF 1917 MARANA ARIZONA

STANDARD DETAIL		DETAIL NO:
TYPE 1 CURB RAMPS		600-1
DATE: 10/2004	REVISED: 8/1/2016	SHEET 1 OF 2

SECTION THROUGH RAMP



FRONT END VIEW



NOTES:

9. DETECTABLE WARNING SURFACE TO CONSIST OF TWO TEK–WAY PANELS OF SIZE 24 INCHES BY 30 INCHES. COLOR OF PANELS TO BE TERRACOTTA.

10. TEK–WAY PANELS TO BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS. DETAIL ASSUMES SETTING PANELS IN WET CONCRETE. PROVIDE 1 INCH CAVITY IF SETTING PANELS SEPARATE FROM CONCRETE POUR.

11. PANELS TO BE PROTECTED FROM CONSTRUCTION DEBRIS/DIRT UNTIL OVERALL PROJECT COMPLETE.

12. ALTERNATE SYSTEMS SHALL HAVE DETECTABLE WARNING THAT CONSISTS OF RAISED TRUNCATED DOMES WITH A DIAMETER OF 0.9" AT BOTTOM, 0.4" AT TOP, AND A NOMINAL HEIGHT OF 0.2" AND A NOMINAL CENTER TO CENTER SPACING OF 2.35". COLOR MUST BE OF A DULL RED HUE. ALTERNATE SYSTEMS MUST BE APPROVED BY THE TOWN ENGINEER.

13. DEPRESSED CURB HEIGHT CALCULATED TO ACHEIVE A 1:12 SLOPE FROM THE FLOWLINE TO THE TOP OF DEPRESED CURB FOR STANDARD BARRIER CURB USED IN THE TOWN OF MARANA AND MAY NOT APPLY TO ALL SITUATIONS. THE CONTROLLING FACTOR OF ALTERNATE DESIGNS SHALL BE A 1:12 MAXIMUM SLOPE FROM FLOWLINE TO TOP OF DEPRESSED CURB.

NOT TO SCALE

APPROVED FOR DISTRIBUTION:

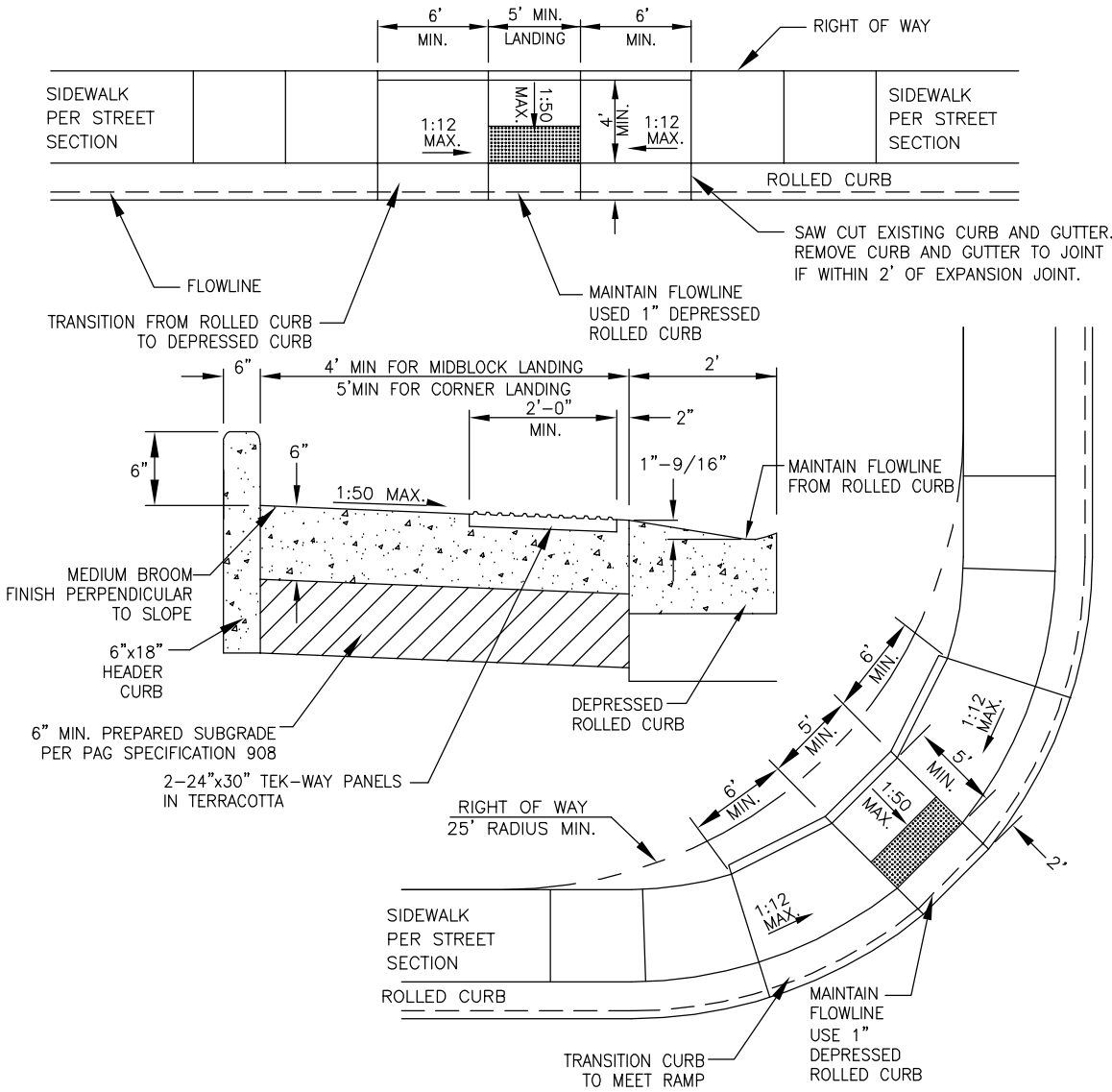
Keith E. Brann, P.E.,
Town Engineer

EXPIRES 6/30/2019

Registered Professional Engineer (Civil) CERTIFICATE NO. 40845 KEITH EDWARD BRANN Date Signed 1-18-16 ARIZONA, U.S.A.

TOWN OF MARANA 1977 ARIZONA

STANDARD DETAIL		DETAIL NO:
TYPE 1 CURB RAMPS		600–1
DATE: 10/2004	REVISED: 8/1/2016	SHEET 2 OF 2



NOTES:

1. GRADES ON SIDEWALKS LEADING TO AND FROM THE RAMPS SHALL FOLLOW CURB GRADES.

2. CURB INLETS SHALL NOT BE LOCATED WITHIN 10' OF A CURB RAMP.

3. GUTTER SHALL PROVIDE A SMOOTH TRANSITION THROUGH THE RAMP.

4. DETECTABLE WARNING SURFACE SHALL BE CONSTRUCTED 2 INCHES AWAY FROM DEPRESSED CURB.

5. DETECTABLE WARNING SURFACE TO CONSIST OF TWO TEK-WAY PANELS OF SIZE 24 INCHES BY 30 INCHES. COLOR OF PANELS TO BE TERRACOTTA.

6. TEK-WAY PANELS TO BE INSTALLED PER MANUFACTURER'S INSTRUCTIONS. DETAIL ASSUMES SETTING PANELS IN WET CONCRETE. PROVIDE 1 INCH CAVITY IF SETTING PANELS SEPARATE FROM CONCRETE POUR.

7. PANELS TO BE PROTECTED FROM CONSTRUCTION DEBRIS/DIRT UNTIL OVERALL PROJECT COMPLETE.

8. ALTERNATE SYSTEMS SHALL HAVE DETECTABLE WARNING THAT CONSISTS OF RAISED TRUNCATED DOMES WITH A DIAMETER OF 0.9" AT BOTTOM, 0.4" AT TOP, AND A NOMINAL HEIGHT OF 0.2" AND A NOMINAL CENTER TO CENTER SPACING OF 2.35". COLOR MUST BE OF A DULL RED HUE. ALTERNATE SYSTEMS MUST BE APPROVED BY THE TOWN ENGINEER.

9. DEPRESSED CURB HEIGHT CALCULATED TO ACHEIVE A 1:12 SLOPE FROM THE FLOWLINE TO THE TOP OF DEPRESED CURB FOR STANDARD ROLLED CURB USED IN THE TOWN OF MARANA AND MAY NOT APPLY TO ALL SITUATIONS. THE CONTROLLING FACTOR OF ALTERNATE DESIGNS SHALL BE A 1:12 MAXIMUM SLOPE FROM FLOWLINE TO TOP OF DEPRESSED CURB.

NOT TO SCALE

EXPIRES 6/30/2019

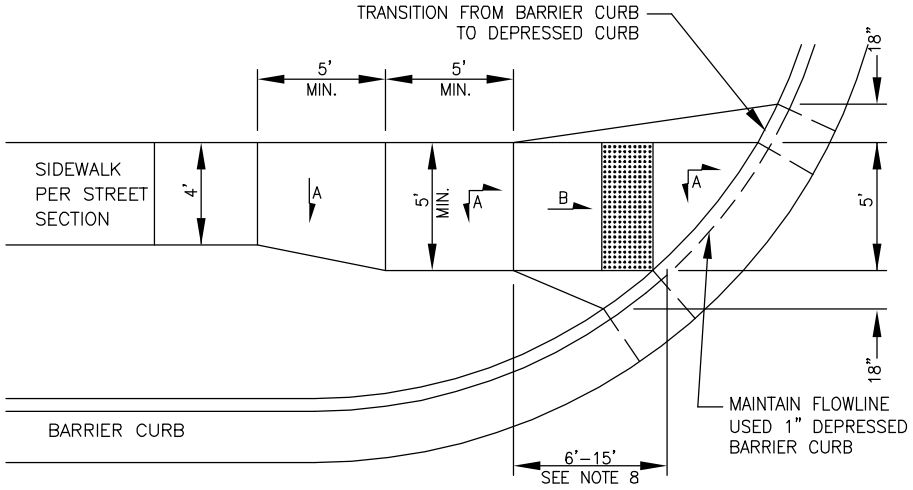
APPROVED FOR DISTRIBUTION:

Keith E. Brann, P.E.,
Town Engineer

Registered Professional Engineer (Civil) CERTIFICATE NO. 40845 KEITH EDWARD BRANN Date Signed 11-16 ARIZONA, U.S.A.

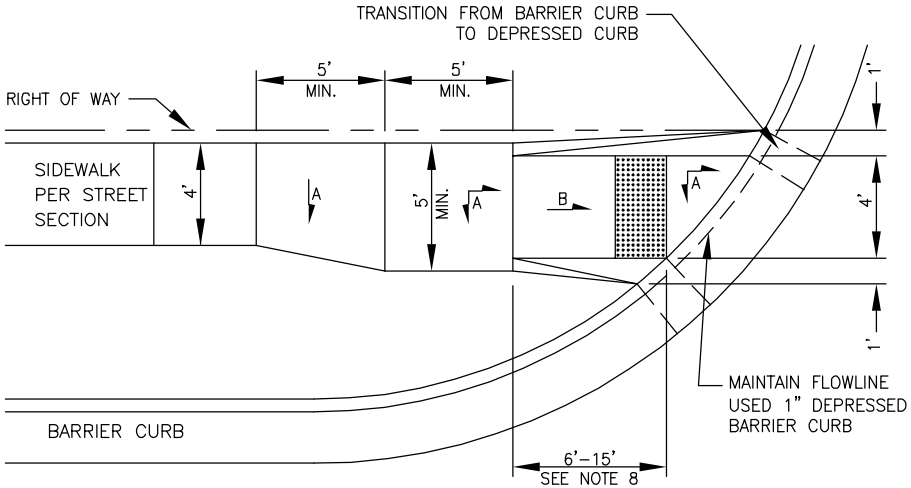
TOWN OF MARANA 1977 ARIZONA

STANDARD DETAIL		DETAIL NO:
TYPE 2 CURB RAMPS		600-2
DATE: 10/2004	REVISED: 8/1/2016	SHEET 1 OF 1



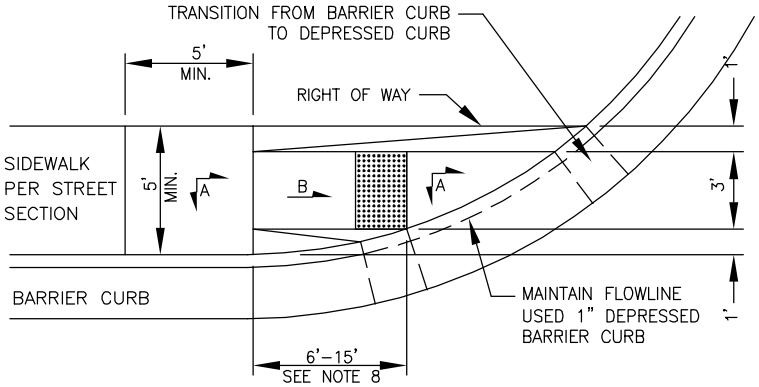
TYPE 3

A 1:50 MAXIMUM SLOPE
B 1:12 MAXIMUM SLOPE, SEE NOTE 8



TYPE 3A

LIMITED RIGHT OF WAY WITH CURBWAY



TYPE 3B

LIMITED RIGHT OF WAY WITHOUT CURBWAY

NOT TO SCALE

EXPIRES 6/30/2019

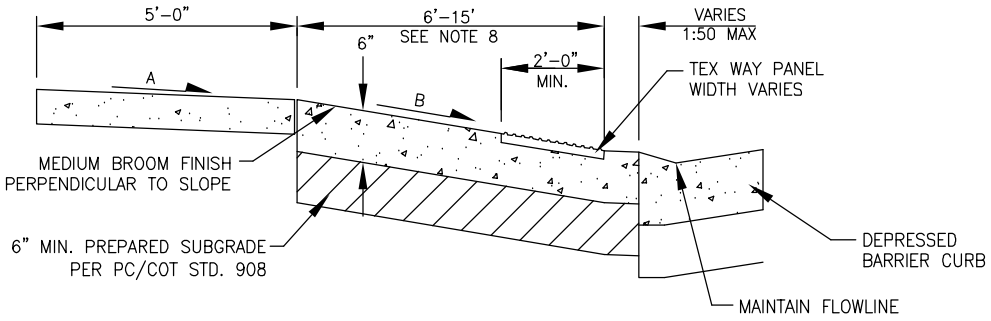
APPROVED FOR DISTRIBUTION:

Keith E. Brann, P.E.,
Town Engineer

Registered Professional Engineer (Civil) CERTIFICATE NO. 40845 KEITH EDWARD BRANN Date Signed 7-18-16 ARIZONA, U.S.A.

TOWN OF MARANA 1977 ARIZONA

STANDARD DETAIL		DETAIL NO:
TYPE 3 CURB RAMPS		600-3
DATE: 10/2004	REVISED: 8/1/2016	SHEET 1 OF 2



A 1:50 MAXIMUM SLOPE
B 1:12 MAXIMUM SLOPE, SEE NOTE 8

1. GRADES ON SIDEWALKS LEADING TO AND FROM THE RAMPS SHALL FOLLOW CURB GRADES.

2. CURB INLETS SHALL NOT BE LOCATED WITHIN 10' OF A CURB RAMP.

3. GUTTER SHALL PROVIDE A SMOOTH TRANSITION THROUGH THE RAMP.

4. DETECTABLE WARNING SURFACE TO CONSIST OF TWO TEK–WAY PANELS OF SIZE 24 INCHES BY 30 INCHES FOR TYPE 3 RAMPS AND SIZE 24 INCHES BY 24 INCHES FOR TYPE 3A AND 3B RAMPS – CUT AS NEEDED. COLOR OF PANELS TO BE TERRACOTTA.

5. TEK–WAY PANELS TO BE INSTALLED PER MANUFACTURER'S INSTRUCTIONS. DETAIL ASSUMES SETTING PANELS IN WET CONCRETE. PROVIDE 1 INCH CAVITY IF SETTING PANELS SEPARATE FROM CONRETE POUR.

6. ALTERNATE SYSTEMS SHALL HAVE DETECTABLE WARNING THAT CONSISTS OF RAISED TRUNCATED DOMES WITH A DIAMETER OF 0.9" AT BOTTOM, 0.4" AT TOP, AND A NOMINAL HEIGHT OF 0.2" AND A NOMINAL CENTER TO CENTER SPACING OF 2.35". COLOR MUST BE OF A DULL RED HUE. ALTERNATE SYSTEMS MUST BE APPROVED BY THE TOWN ENGINEER.

7. DEPRESSED CURB HEIGHT CALCULATED TO ACHEIVE A 1:12 SLOPE FROM THE FLOWLINE TO THE TOP OF DEPRESED CURB FOR STANDARD BARRIER CURB USED IN THE TOWN OF MARANA AND MAY NOT APPLY TO ALL SITUATIONS. THE CONTROLLING FACTOR OF ALTERNATE DESIGNS SHALL BE A 1:12 MAXIMUM SLOPE FROM FLOWLINE TO TOP OF DEPRESSED CURB.

8. RAMP LENGTH TO BE A MINIMUM OF 6 FEET. RAMP MUST BE LENGTHENED AS NECESSARY DUE TO ADJACENT STREET SLOPE TO ACHIEVE EITHER A 1:12 MAXIMUM SLOPE UP TO A MAXIMUM LENGTH OF 15 FEET.

APPROVED FOR DISTRIBUTION:

Keith E. Brann, P.E.,
Town Engineer

EXPIRES 6/30/2019

Registered Professional Engineer (Civil) CERTIFICATE NO. 40845 KEITH EDWARD BRANN Date Signed 6-15-16 ARIZONA, U.S.A.

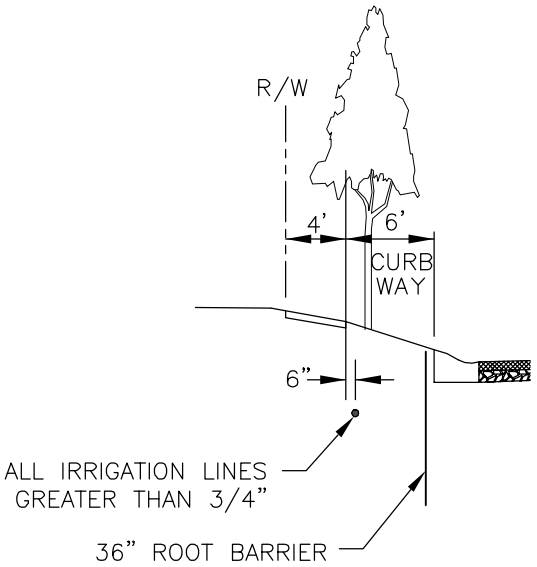
TOWN OF MARANA 1977 ARIZONA

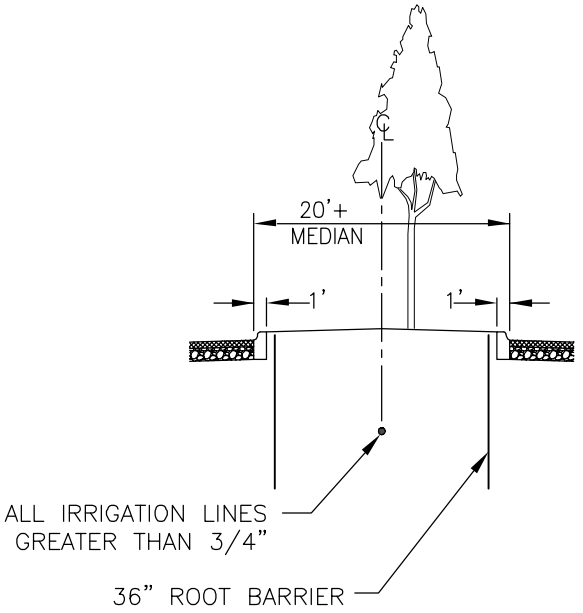
NOT TO SCALE

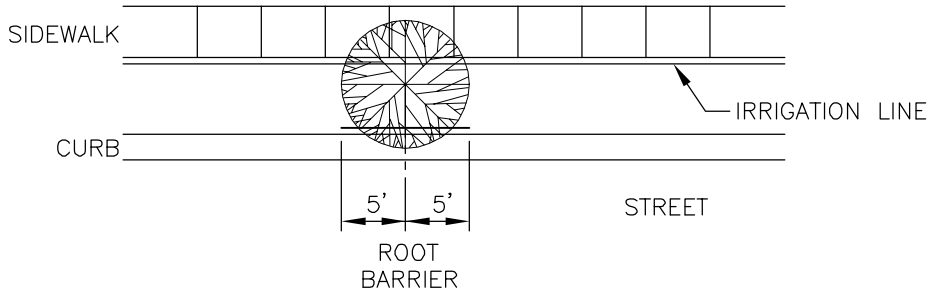
STANDARD DETAIL		DETAIL NO:
TYPE 3 CURB RAMPS		600–3
DATE: 10/2004	REVISED: 8/1/2016	SHEET 2 OF 2

Marana Special Council Meeting 06/28/2016

1. ALL IRRIGATION LINES GREATER THAN 3/4" IN DIAMETER SHALL BE PLACED AS SHOWN.
2. TREES SHOULD BE PLACED TO THE REAR OF A CURBWAY OR JUST OFF THE CENTERLINE OF A MEDIAN.
3. DEEP ROOT WATERING SYSTEMS ARE TO BE USED ON ALL LANDSCAPE PALETTES WITH TREES IN CURBWAYS OR MEDIANS.
4. 36" DEEP ROOT BARRIERS REQUIRED FOR ALL TREES WITHIN CURBWAYS.
5. 36" DEEP ROOT BARRIERS REQUIRED FOR MEDIAN TREES CLOSER THAN 6 FEET FROM CURB.
6. WHEN REQUIRED, ROOT BARRIERS SHALL EXTEND 5 FEET TO EITHER SIDE OF TREE MEASURED PERPENDICULAR TO PAVEMENT/CURB. TOP OF ROOT BARRIER EVEN WITH TOP OF FINISHED EARTHWORK/BELOW ROCK MULCH.







NOT TO SCALE

APPROVED FOR DISTRIBUTION:

Keith E. Brann, P.E.,
Town Engineer

EXPIRES 6/30/2019

Registered Professional Engineer (Civil) CERTIFICATE NO. 40845 KEITH EDWARD BRANN Date Signed 4-18-16 ARIZONA, U.S.A.

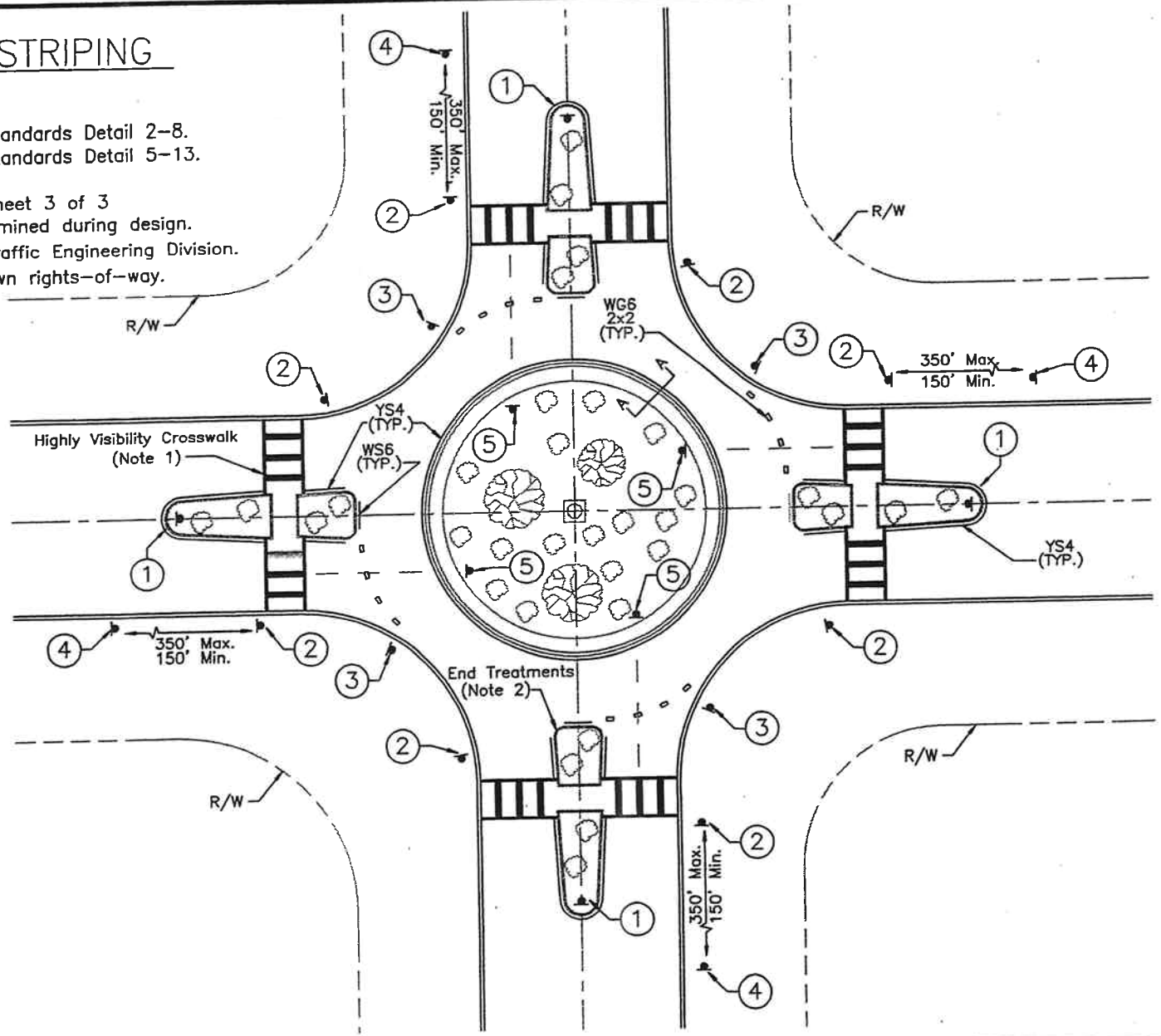
TOWN OF MARANA 1977 ARIZONA

STANDARD DETAIL		DETAIL NO:
LANDSCAPING PROTECTION		610-1
DATE: 8/1/2016	REVISED:	SHEET 1 OF 1

TYPICAL SIGNING AND STRIPING

NOTES:

1. See PCDOT/COTDOT Pavement Marking Standards Detail 2–8.
2. See PCDOT/COTDOT Pavement Marking Standards Detail 5–13.
3. See Sheet 2 of 3 for Sign Details
4. Cross Section A–A (Truck Apron), See sheet 3 of 3
5. Size and location of islands to be determined during design.
6. Landscaping shall be approved by the Traffic Engineering Division.
7. All signs shall be installed within the Town rights–of–way.



APPROVED FOR DISTRIBUTION:

Keith E. Brann, P.E.,
Acting Town Engineer

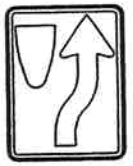
MARANA SUBDIVISION STREET STANDARDS		DETAIL NO:
ROUNDABOUT		700–1
DATE: 9/14/05	REVISED:	SHEET 1 OF 3

SIGN DETAILS

NOTES:

1. ALL WARNING AND REGULATORY SIGNS SHALL BE TYPE III (HIGH INTENSITY) SHEETING, UNLESS OTHERWISE INDICATED.
2. ALL THE WARNING AND YIELD SIGNS ON COLLECTOR OR ARTERIAL ROADS NEED TO BE 36"
3. ALL THE WARNING AND YIELD SIGNS ON RESIDENTIAL ROADS NEED TO BE 30"
4. SIGNS MAY BE MODIFIED AND LOCATIONS ADJUSTED TO FIT CONDITIONS AS DIRECTED BY THE JURISDICTION TRAFFIC ENGINEER OR DESIGNEE.

1

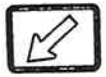


R4-7
(24"x30")

2



W11-2
30" OR 36"
FLUORESCENT YELLOW-GREEN

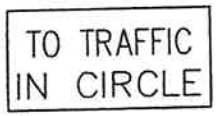


W16-7p
(24"x12") OR (30"x18")
FLUORESCENT YELLOW-GREEN

3



R1-2
30" OR 36"

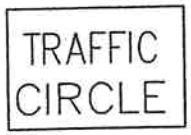


Special
(24"x18") OR (30"x24")
BLACK ON WHITE

4



W2-6
30" OR 36"
BLACK ON YELLOW



W16-12p
(24"x18") OR (30"x24")
BLACK ON YELLOW

5



R6-1R
(36"x12")

APPROVED FOR DISTRIBUTION:

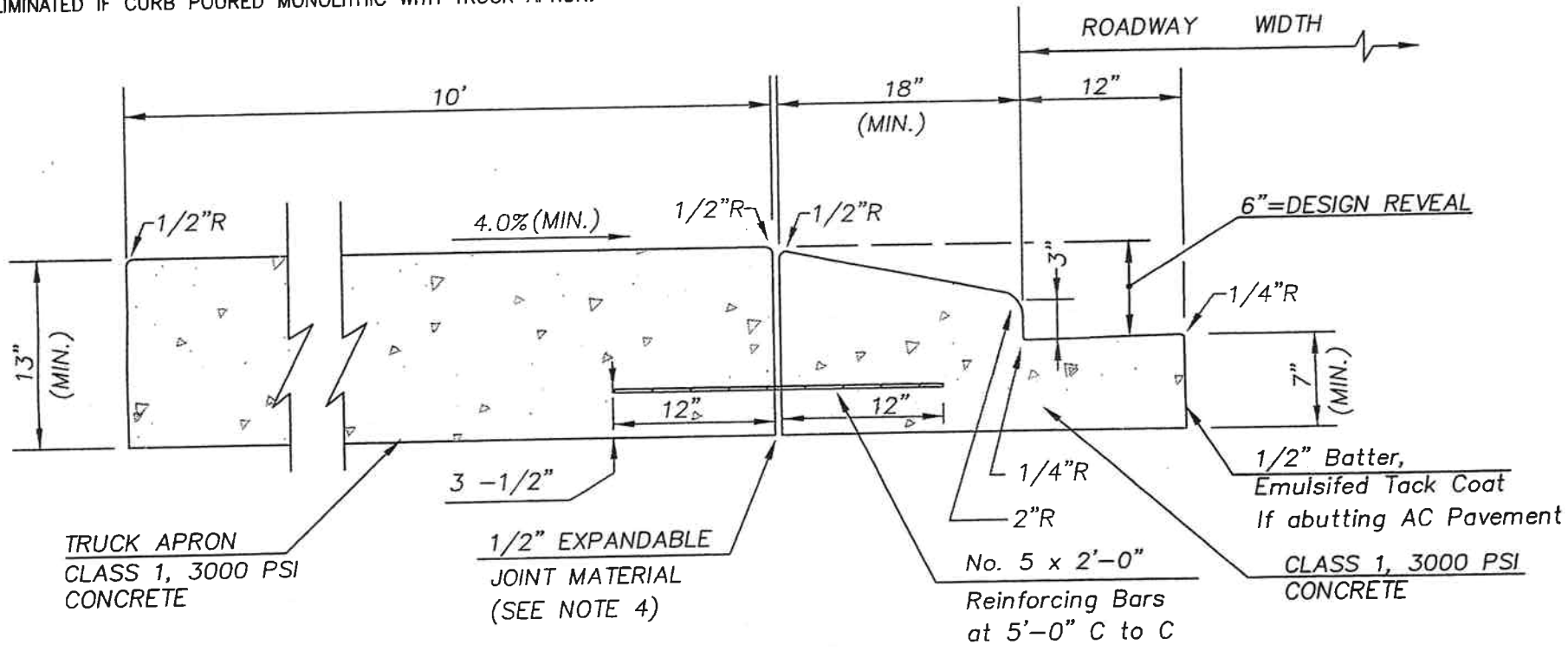
Keith E. Brann, P.E.,
Acting Town Engineer

MARANA SUBDIVISION STREET STANDARDS		DETAIL NO:
ROUNDABOUT		700-1
DATE: 9/14/05	REVISED:	SHEET 2 OF 3

MOUNTABLE CONCRETE CURB, GUTTER AND TRUCK APRON COMBINATION

NOTES:

1. WHEN THE SLOPE OF THE PAVEMENT IS AWAY FROM THE CURB AND GUTTER THE SLOPE OF THE GUTTER SHALL MATCH THE PAVEMENT CROSS SLOPE.
2. TRUCK APRON SHALL BE CLASS I CONCRETE, COLORED FULL DEPTH WITH RED PIGMENT AS APPROVED BY THE TOWN ENGINEER OR DESIGNEE. (14 LBS. RED PIGMENT PER 94 LB. STOCK OF CEMENT, SCORED IN 12" BLOCKS. ONLY MINOR VARIATIONS IN COLOR WILL BE ACCEPTED.)
3. INSTALL 1/2" EXPANSION JOINT MATERIAL IN CURB AND GUTTER, AND IN TRUCK APRON AT 100' INTERVALS, AT STRUCTURES, AND AT BEGINING AND END OF CURVES. CONTRACTION JOINTS SHALL BE PLACED AT 10' INTERVALS.
4. THE CONSTRUCTION JOINT AND THE 1/2" EXPANDABLE JOINT MATERIAL CAN BE ELIMINATED IF CURB POURED MONOLITHIC WITH TRUCK APRON.



Cross section A-A

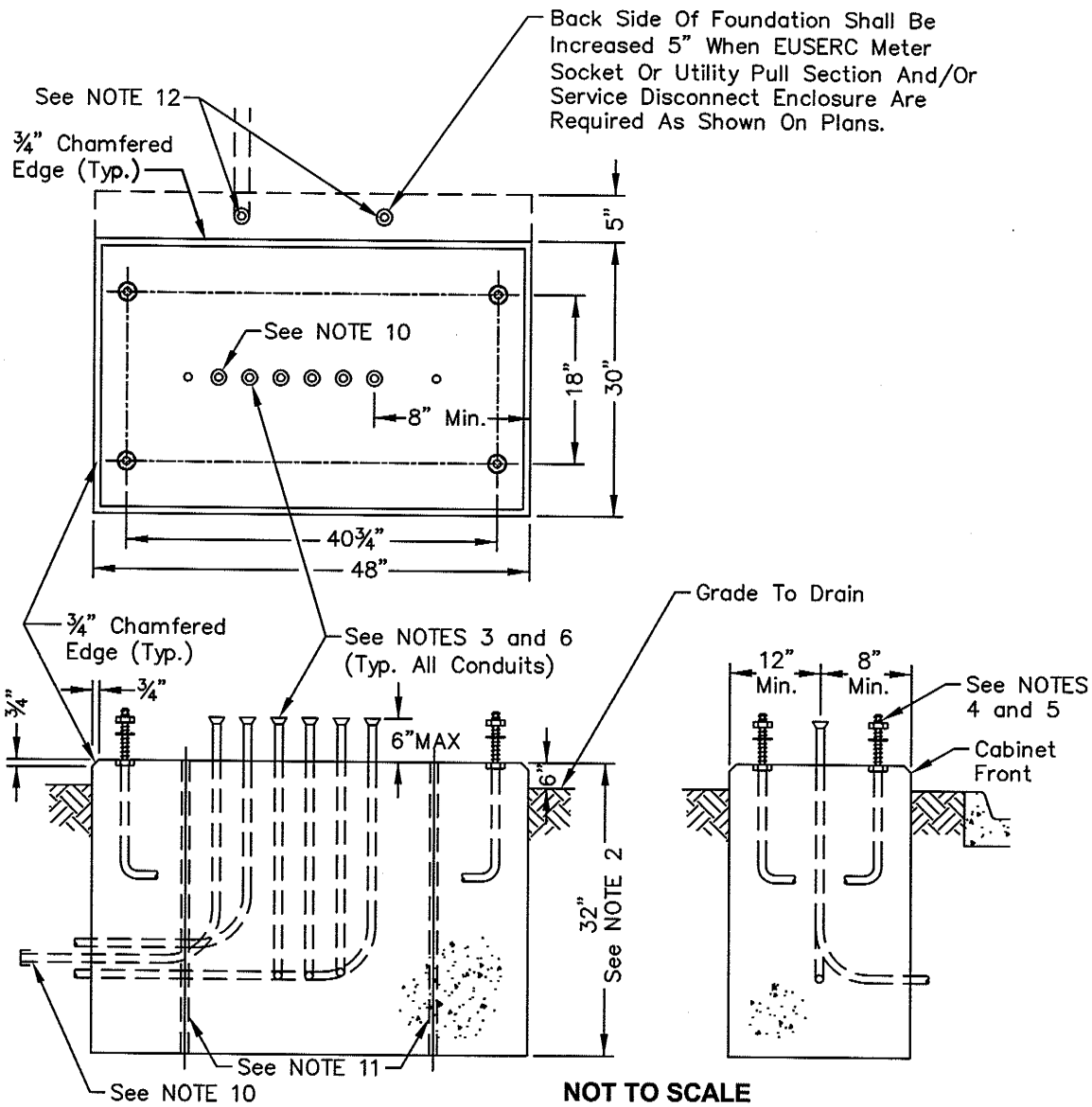
APPROVED FOR DISTRIBUTION:

Keith E. Brann, P.E.,
Acting Town Engineer

Registered Professional Engineer (Civil) 38119 SCOTT A. LESKA Date Signed ARIZONA, U.S.A.

TOWN OF MARANA ARIZONA

MARANA SUBDIVISION STREET STANDARDS		DETAIL NO:
ROUNDABOUT		700-1
DATE: 9/14/05	REVISED:	SHEET 3 OF 3



NOT TO SCALE

NOTES:

1. All materials and construction shall conform to the requirements of the Special Provisions and Standard Specifications.
2. Unstable soil may require deeper foundations. See Special Provisions and Standard Specifications.
3. For conduit size, location, and quantity, see Project Plans.
4. Anchor bolts shall be galvanized ¾" x 12" x 4" complete with nuts and washers.
5. Anchor bolt's projection above foundation shall be 2" min. 2½" max.
6. Conduit projection above foundation shall be 2½" min. 4" max.
7. Use an approved silicon sealer RTV type gray in color or clear, between cabinet and foundation.
8. In unpaved areas a raised concrete pad foundation (36" x width of cabinet foundation x 4" thick) shall be installed in front of the cabinet (door side). Pad shall be set 2" below the foundation elevation. Slope pad away from cabinet at a 50:1 slope.
9. All cabinet foundations shall have two (2) ¾" diameter x 10' long bonded copper ground rod with clamp.
10. Install 1–4" conduit for future use, stubbed and capped 24" past the edge of the foundation as directed by the Town Engineer or His/Her Designee.
11. 1" sleeve (for each ground rod) shall be inserted when foundation is poured. Install one (1) ¾" diameter x 10' long bonded copper ground rod in each sleeve.
12. 4" sleeves for service conduits if an Electrical Utility Service Entrance Requirement Committee (EUSERC) meter socket or EUSERC utility pull section and/or service disconnect enclosure are required.
13. Prior to pouring concrete foundation, final approval of conduit placement from Town Engineer or His/Her Designee shall be obtained.
14. Contractor is responsible to make sure cabinet fits on bolt pattern.

APPROVED FOR DISTRIBUTION:

9/9/2005

Keith E. Brann, P.E., Acting Town Engineer — Date

Registered Professional Engineer (Civil) 38119 SCOTT A. LESKA Date Signed 9/9/05 ARIZONA, U.S.A.

TOWN OF MARANA ARIZONA 1777

STANDARD DETAIL		DETAIL NO:
FOUNDATION FOR TYPE IV, V CONTROLLER CABINETS		730–210
DATE: 9/9/05	REVISED:	SHEET 1 OF 1

GENERAL TRAFFIC SIGNAL RESPONSIBILITIES:

1. Materials installed as part of this Project shall be furnished and installed in accordance with the requirements of the following table:

	Contractor Furnished	Contractor Installed/ Constructed	Town Furnished	Town Installed
Traffic Signal Poles and Mast Arms	X	X		
Steel Poles and Anchor Bolts (With Nuts and Washers)	X	X		
Concrete Pole Foundation	X	X		
Type IV Traffic Signal Controller Cabinet(s) With Controller(s) and All Auxiliary/Incidental Equipment			X	X
Controller Cabinet Concrete Foundation with Anchor Bolts	X	X		
Electrical Service Pedestal			X	X
Electrical Service Pedestal Concrete Foundation	X	X		
All Wiring and Cabling (Including Bare Bond Wire and Pull Ropes)	X	X		
Concrete Pull Boxes	X	X		
Electrical Conduit	X	X		
Ground Rods and Connectors	X	X		
Traffic Signals and Mounting Assemblies	X	X		
Pedestrian Signals and Mounting Assemblies	X	X		
Pedestrian Push Button Stations with Signs	X	X		
Luminaires and Photocells	X	X		
Vehicle Detection Loops	X	X		
Emergency Vehicle Preemption Equipment		X	X	
Emergency Vehicle Preemption Wiring	X	X		
Video Detection System Equipment		X	X	
Video Detection System Wire and Cable		X	X	
Pan/Tilt/Zoom Color–B/W Video Equipment		X	X	
Pan/Tilt/Zoom Color–B/W Cable & Wire		X	X	
Internally Illuminated Street Name Sign(s) or Street Name Sign(s)	X	X		
Regulatory Signing	X	X		
All other appurtenances necessary for the operation of the traffic signal installation(s), except as modified on the Project Plans or as provided in the Special Provisions.	X	X		

GENERAL TRAFFIC SIGNAL RESPONSIBILITIES (CONTINUED):

2. The Contractor shall contact the Town of Marana Traffic Signal Maintenance and Operations Supervisor at (520)382–2500 a minimum of two (2) weeks prior to the scheduled installation of the cabinet(s). The Town of Marana will deliver the cabinet(s) to the Project Site on the day scheduled for installation.

3. The Town of Marana will place the cabinet(s) onto the foundation(s). The Contractor shall be responsible for ensuring that the anchor bolts are positioned such that the cabinet(s) will align properly onto the foundation(s). Contractor shall secure cabinet(s) to the foundation.

4. The Contractor shall be responsible for routing all conductors into the cabinet, and shall identify routing and connections of all cables and conductors as required in the 1994 Pima County/City of Tucson "Standard Specifications for Public Improvements". The Town of Marana staff will terminate the conductors in the cabinet(s).

5. The Contractor shall carefully disassemble and salvage all existing traffic signal and street lighting equipment that is not to remain or be relocated as shown on the Project Plans or as provided in the Special Provisions. All of the salvaged equipment shall be returned to the Town of Marana Operations Center (MOC), 5100 West Ina Road, Tucson AZ, 85743. The salvaged equipment shall be unloaded by the Contractor, as directed by the Town. Contact the Town of Marana Traffic Signal Maintenance and Operations Supervisor at (520) 382–2500 a minimum of two (2) working days (excluding weekends and Town recognized holidays) prior to delivering the equipment.

6. Existing traffic signal operations shall be maintained throughout the duration of the Project as shown on the Project Plans or as called for in the Special Provisions unless approved by the Town Engineer or His/Her Designee.

7. The Contractor shall obtain all required permits and shall be responsible for all traffic control related to the Project and the construction zone. The Contractor shall strictly conform and adhere to the approved Project Traffic Control Plan at all times.

8. The Contractor shall install/construct all items associated with the Project as called for on the Project Plans or in the Special Provisions.

9. The Contractor shall load, transport and unload all items specified on the Project plans supplied by both the Contractor and the Town to the job site, unless specified otherwise by the Engineer. The Contractor shall notify the Town of Marana and its representatives a minimum of two (2) working days (excluding weekends and Town recognized holidays) in advance. Contact the Traffic Signal Maintenance of Operations Supervisor at (520) 382–2500.

Note: It is intended that the Notes herein of the Traffic Signal Standard Responsibilities shall be considered part of the Construction Contract Documents. If the Project Plans differ from the notes herein (Town of Marana Standard Detail 730–400) the Project Plans shall note the change on the Project Plan's General Note Sheet and be edited where appropriate to fit the Project.

APPROVED FOR DISTRIBUTION:

6/20/2006

Keith E. Brann, P.E., Town Engineer — Date

Registered Professional Engineer (Civil) — Certificate No. 38119 — SCOTT A. LESKA — Date signed — ARIZONA, U.S.A.

TOWN OF MARANA ARIZONA 1997

STANDARD DETAIL	DETAIL NO:
GENERAL TRAFFIC SIGNAL RESPONSIBILITIES	730–400
DATE: 9/9/05 — REVISED: 06/20/06	SHEET 1 OF 1

GENERAL TRAFFIC SIGNAL NOTES (CONTINUED):

34. The Contractor shall coordinate with the telephone utility public improvement coordinator to verify the location of the telephone connection at each intersection.

35. The Contractor shall "pothole" or hand dig all foundations prior to the placement of all cabinets, and traffic signal and/or street light poles.

36. The Contractor shall not make or begin any excavation, digging or any work associated with moving any earth or ground within any public Town rights-of-way, utility easements, and/or any expressed or implied private property without first determining whether any underground facilities (shown and not shown on the Project Plans) will be encountered, and if so where they are located from each and every public utility, municipal corporation or other entity having the right to bury such underground facility within the public right-of-way, private property or easement within the Project limits. The Contractor shall take all nessesay measures for the location and control of such facilities in a careful and prudent manner.

37. Any equipment and/or utilities within the project (shown or not shown on the plans) that is damaged or destroyed by the contractor shall be repaired or replaced at the sole expense of the Contractor.

38. The Contractor shall immediately report all conflicts regarding the overhead utilities and the Project signal equipment that is to be installed as indicated on the Project Plans to the Town Engineer and the utility of jurisdiction. If required, the Contractor shall coordinate all utility and/or traffic signal equipment relocation as required with the Town, the Engineer of Record and the Utility Company.

39. The Contractor shall pothole all utilities (shown and not shown on the Project plans) prior to boring, trenching, or directional drilling to verify depths and locations.

Note:

It is intended that Notes 1-39 of this Traffic Signal Standard shall be considered as part of the Construction Contract Documents. If the Project Plans differ from the notes herein (Town of Marana Standard Detail 730-401) the Project Plans shall note the change on the Project Plan's General Note Sheet and be edited where appropriate to fit the Project.

It is intended that Notes 40-41 of this Traffic Signal Standard be placed on the Project Plans in their entirety and edited where appropriate to fit the Project.

40. The Design Speed for _____ is _____ mph. The Posted Speed for _____ is _____ mph.

41. The Contractor is advised of the utility contacts as indicated in the following table:

Utility	Contact	Phone No.
Tucson Electric Power Co	Gary Goulin	
QWEST	Steve Johnson	
AT&T Communications	Mike O'Neill	
Comcast Cable Communications	Mike Gin	
Pima County Wastewater Management	Bob Decker	
Southwest Gas Corporation	Robert Daniels	
Sprint Communications	Colin Sword	
Marana Water Department	Brad DeSpain	
Tucson Water Department	Tony Tineo	
Trico Electric Cooperative	Chuck Wilcox	

(The designer shall coordinate, verify, and list all utility companies and contacts within the Project limits, and provide the correct information in the table above.)

APPROVED FOR DISTRIBUTION:

07/14/2006

Keith E. Brann, P.E., Date
Town Engineer

Registered Professional Engineer (Civil) CERTIFICATE NO. 38119 SCOTT A. LESKA Date Signed 7/14 ARIZONA, U.S.A.

MARANA

STANDARD DETAIL		DETAIL NO:
GENERAL TRAFFIC SIGNAL NOTES		730-401a
DATE: 9/9/05	REVISED: 07/14/2006	SHEET 3 OF 3

GENERAL TRAFFIC SIGNAL NOTES (CONTINUED):

17. IMSA 19–1, 16–conductor solid wire cable shall be installed continuous and unspliced from the controller cabinet to the Type "A" or Type "G" pole on each corner. At locations where there are no Type "A" or Type "G" poles, the 16–conductor cable shall be installed to the No. 7 pull box on that corner for future use with a minimum of 30' slack. See Town of Marana's Traffic Signal Cable Schematic Standard Detail and Traffic Signal Wiring Schematic Standard Detail for details.

18. See Town of Marana Typical Traffic Signal Wiring Schematic for wiring details for Vehicular Signal Heads, Pedestrian Signal Heads, Pedestrian Pushbuttons, and EVPE installations.

19. All vehicle detection loop wire shall be #14 AWG, IMSA 51–5–1985 cable. Detector lead–in cables shall be #14 AWG, IMSA 50–2–1984 cable. The detector lead–in cable shall be continuous and unspliced between the controller cabinet and the pull box adjacent to loop. Provide a minimum of five (5) feet of slack as measured from the lip of the pull box opening in the pull box adjacent to the loop detector.

20. All telephone interconnect cable, and detector lead–in cable shall be continuous and unspliced.

21. The video detection cable shall be installed, continuous and unspliced, from the video camera mounting (attached to the luminaire mast arm) to the controller cabinet.

22. The emergency vehicle preemption sensor cable shall be 3M–Opticom Detector Cable Model No. 138 or approved equal as specified by the Town Engineer or His/Her Designee.

23. The conductors for the emergency vehicle preemption sensor and beacon shall be routed to the traffic signal head at the mast arm tip or as specified on the Project Plans, Special Provisions and/or the Town Engineer or His/Her Designee. Provide lengths as required by the Town Engineer or His/Her Designee.

24. The location of preemption sensors shall be in accordance with Standard Details 730–410 thru 730–417 or as approved by the Town Engineer prior to the installation of the sensors. All vehicle detection loops shall be centered within the pavement of the travel lane or as approved by the Town Engineer.

25. Vehicle Detection Loops shall be installed prior to the final lift of pavement. For loops installed after the final lift, detection loop sawcuts shall be flushed with water under pressure and then dried with air under pressure prior to applying loop sealant.

26. All side by side 6' X 6' loops shall have a separate Detector Loop Lead–in Cable.

27. All signal housings shall be polycarbonate and black. All visors shall be painted black and material approved by the Town Engineer or His/Her Designee prior to ordering and installation.

28. All vehicular signal faces shall be 12 inch and all lenses shall be polycarbonate. All signal indications shall be LED, except the yellow ball and yellow arrow indications mounted overhead on a mast arm, which shall be incandescent. All yellow indications (yellow ball and yellow arrow) within a vehicular signal face, not mounted on an overhead mastarm, shall be LED. All Pedestrian signal faces shall be LED Countdown Style Pedestrian Signal Heads as provided in the MUTCD 2003 ed. (Section 4E.07)

29. There shall be a minimum of two circuits (each with a separate electrical phase) for the intersection safety lighting and Internally Illuminated Street Name Sign (IISNS) circuit. There shall be a minimum of two circuits provided to each pole's hand hole with solid No. 10 AWG THHW conductors. The luminaires shall be wired such that circuit No. 1 luminaires are on its diagonally opposite counterpart. The other diagonally opposing luminaires shall be wired on circuit No. 2. The IISNS shall be wired using the opposite circuit from the luminaire, on the same pole, that the luminaires are wired. All IISNS shall be installed and wired from the pull box to the IISNS unspliced.

30. Three (3) No. 10 AWG–THHW Conductors shall be installed from each luminaire to the pole's adjacent pull box that the luminaire is mounted on and shall be unspliced, leaving a minimum of five (5) feet of slack as measured from the pull box lip opening. Install a 15–amp in–line fuse for each luminaire in the associated #7 pull box.

31. For each luminaire circuit, three (3) conductors, THHW No. 10 AWG, shall be pulled from the power service cabinet to the poles adjacent pull box unspliced.

32. Prior to construction of pole foundations, grade slope to ensure that top of foundations are not exposed more than 6" above final grade. Grade all pole foundations, cabinet foundations, pull boxes and the ilk such that drainage of water flows away from the equipment being constructed and/or installed.

33. The Contractor shall contact the electrical utility public improvement coordinator to verify the service connection requirements and the location of the electric service connection for the traffic signal at each intersection. The Contractor shall be responsible for excavating and backfilling the trench and installing any necessary sleeves under sidewalks or driveways. The Contractor is responsible for installing the required conduit infrastructure between the service point and the UPS/meter pedestal according to the utility electrical service provider's requirements. The electrical utility will install the electrical cable in the conduit between these two locations or as provided on the Project Plans.

APPROVED FOR DISTRIBUTION:

07/14/2006

Keith E. Brann, P.E., Town Engineer — Date

Registered Professional Engineer (Civil) — Certificate No. 38119 — SCOTT A. LESKA — Date Signed 7-12-06 — ARIZONA, U.S.A.

MARANA

STANDARD DETAIL		DETAIL NO:
GENERAL TRAFFIC SIGNAL NOTES		730–401a
DATE: 9/9/05	REVISED: 07/14/2006	SHEET 2 OF 3

GENERAL TRAFFIC SIGNAL NOTES:

1. All equipment/materials and construction shall comply with the requirements contained in the Town of Marana Standard Details (latest edition), the Project's Supplemental Specifications, the Special Provisions, the Project Plans, the 2003 Pima County/City of Tucson "Standard Specifications for Public Improvements", and the Pima County/City of Tucson "Standard Details for Public Improvements".

2. All pedestrian push button assemblies shall comply with current ADA requirements. The pedestrian pushbutton signs shall be the R10–3e as identified in the Manual on Uniform Traffic Control Devices (MUTCD), latest edition.

3. Internally Illuminated Street Name Signs (IISNS) shall be installed such that the sign is mounted directly to the vertical shaft of the pole, located above the signal mast arm and positioned such that the sign is side mounted on the street side of the pole. The Contractor shall submit a sign detail and mounting detail to the Town for review a minimum of three (3) weeks prior to the estimated installation date for Town's approval.

4. The exact location of each new pole foundation, pull box, controller cabinet foundation, and UPS/electric service pedestal foundation shall be approved by the Town Engineer or His/Her Designee prior to final placement, installation, and/or construction.

5. The top of the pole foundation shall be level and six (6) inches above the finished grade. Provide extended bolts for all pole foundations to allow for future elevation adjustments.

6. All Conduit, Cable, Wire, Poles, Posts, Signs, Equipment, Materials and Appurtenances supplied for the Project shall be furnished and purchased new and unused. The new equipment, materials and appurtenances shall be ordered and delivered for this specific Project only. The Contractor shall provide a submittal list of all proposed materials along with the material specifications to the Town for all materials to be incorporated in the Project to the Town Engineer for review and approval prior to construction. The Town Engineer shall inspect and approve the said requested equipment, material and/or appurtenances prior to use and/or installation. The said material in no way shall be used without written consent from the Town Engineer. The Town reserves the right to refuse to allow the installation of any and all equipment the Contractor submits for approval if it chooses without cause, justification and/or recourse. If Contractor installs the materials without prior written consent from the Engineer, the Contractor shall remove and replace the equipment with acceptable new equipment and/or material(s) at his/her sole expense.

7. All new conduit as shown on the Project Plans shall be installed a minimum of 30 inches below finished grade. Conduit installed under roadways, driveways, or any open areas subject to vehicles, or conduits with conductors that have voltages over 250 volts, shall be installed a minimum of 36 inches below finished grade unless stated otherwise on the Project Plans or in the Special Provisions.

(Cont.)

8. Any conduit installed shallower than 30 inches below finished grade shall be encased in concrete per Pima County/City of Tucson "Standard Specifications for Public Improvements", 2003 edition, Subsection 732–3.01 (G).

9. Prior to the Town's acceptance and prior to pulling conductor, cable, wire and/or fiber optic cables, all conduit(s) (new and existing) to be incorporated into the new system as provided for on the Project Plans shall be cleaned and blown out with compressed air in the presence of the Town's inspector. A properly sized conduit piston or mandrel shall be pulled through the entire conduit system in the presence of the Town's inspector prior to conductor, cable or wire installation to ensure that no obstructions or debris exist in the conduit. No water or moisture shall remain in conduit(s) prior to installing conductors.

10. Conduit installed under existing paved driveway(s), sidewalk(s), and pavement that are not scheduled to be reconstructed as part of the Project shall be installed by means of boring or directional drilling.

11. Pull boxes shall not be installed within concrete curb access ramp(s) or sidewalk(s). Any pull boxes installed behind curb(s) shall be installed between the curb and the proposed/future sidewalk or beyond the proposed/future sidewalk in accordance with the Project Plans and Special Provisions. An exception to this requirement is permitted for pull boxes installed within a median or as otherwise called for on the Project Plans, Special Provisions, or by the Town Engineer or His/Her Designee.

12. Any pull boxes installed along an uncurbed roadway shall be installed adjacent to, but not within, the shoulder.

13. A ¾" diameter x 10' long ground rod (copper) shall be installed in all #7 pull boxes used for the High Voltage conductors. A ¾" diameter x 10' long ground rod (copper) shall be installed in the home run pull box (No. 7 with extension) adjacent to the controller cabinet. Two ground rod clamps shall be furnished for grounding the ground wire on each ground rod.

14. Two (2) ¾" diameter x 10' long ground rods (copper) shall be installed in the controller cabinet foundation a minimum of 8 feet apart. See Town of Marana's Controller Cabinet Foundation Standard Detail (730–210) for details.

15. The high voltage cables and conductors shall be separated from the low voltage cables and conductors, and shall be installed/constructed in separate conduit.

16. IMSA 19–1 20–conductor solid wire cable shall be installed continuous and unspliced from the controller cabinet through the No. 7 pull box on each corner to the poles traffic signal head wire splicing compartment.

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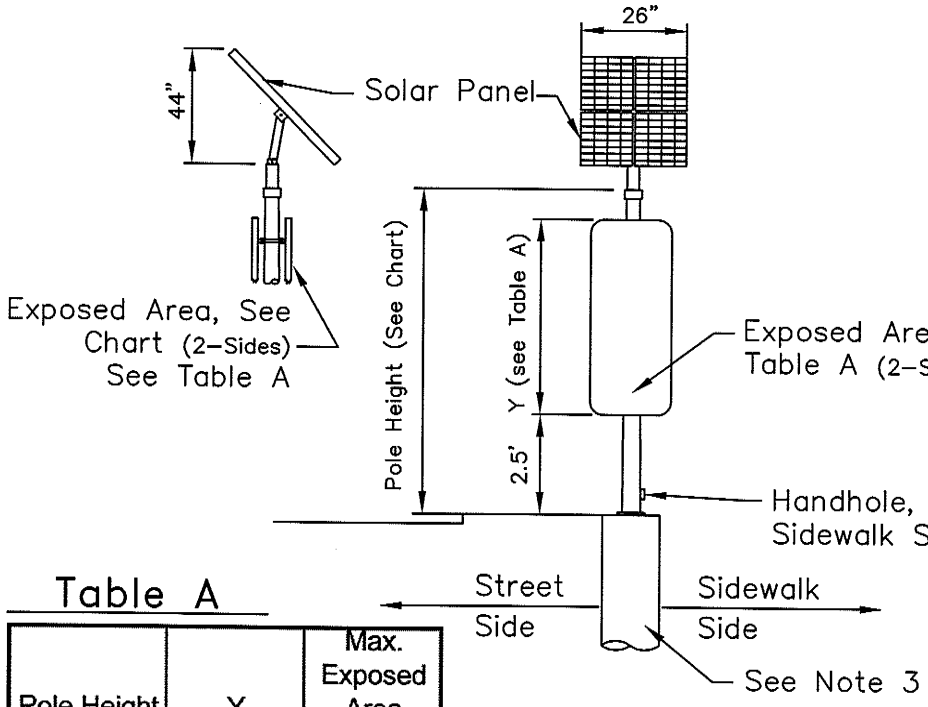
07/14/2006

Keith E. Brann, P.E., Town Engineer — Date

Registered Professional Engineer (Civil) Certificate No. 38119 SCOTT A. LESKA Date Signed 7/14/06 ARIZONA, U.S.A.

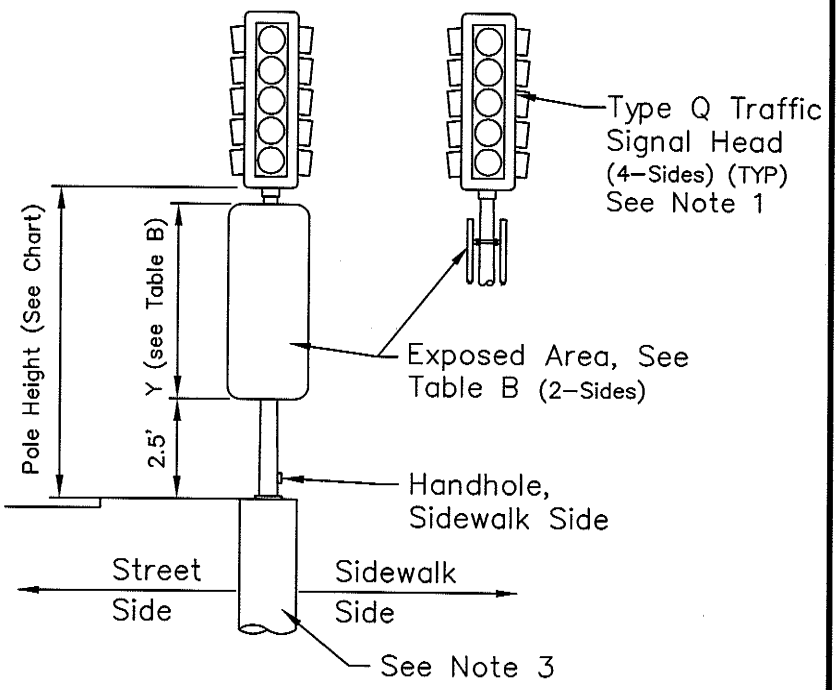
MARANA

STANDARD DETAIL		DETAIL NO:
GENERAL TRAFFIC SIGNAL NOTES		730–401a
DATE: 9/9/05	REVISED: 07/14/2006	SHEET 1 OF 3



Type A Pole With Solar Panel

Not To Scale



Type A Pole With Signal Head

Not To Scale

Table A

Pole Height	Y	Max. Exposed Area
7'	4.5'	45 sq. ft.
10'	7.5'	40 sq. ft.
12'	9.5'	35 sq. ft.
15'	12.5'	30 sq. ft.

Table B

Pole Height	Y	Max. Exposed Area
7'	4.5'	30 sq. ft.
10'	7.5'	25 sq. ft.
12'	9.5'	20 sq. ft.
15'	12.5'	15 sq. ft.

NOTES:

1. A maximum of one (1) four-sided signal head (4-Q) shall be installed on the pole as shown.
2. The Designer shall provide additional structural analysis for any deviations from the dimensions shown which will result in increased structural loading.
3. Foundation shall be a minimum of 6' in depth as measured from the top of finished grade and a minimum of 3' in diameter. All other foundation requirements shall adhere to Pima County/City of Tucson's Standard Details for Public Improvements, 2003 Ed.
4. The total exposed area shall be measured by the largest exposed area of a single installed item. Items may include signs, traffic signal heads, controller cabinets, etc.

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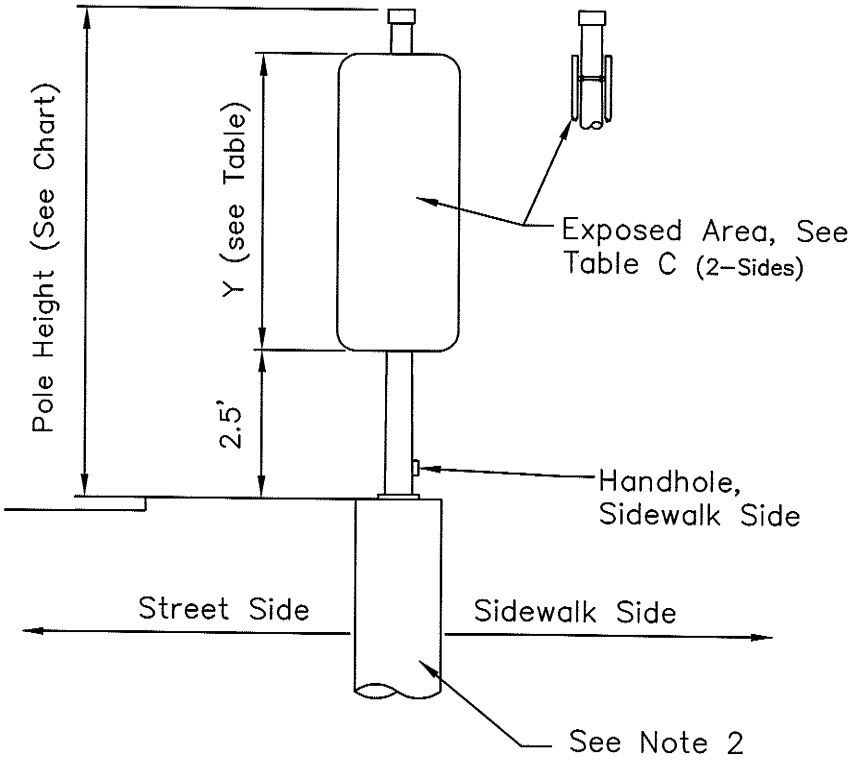
4/14/2006

Keith E. Brann, P.E., Town Engineer — Date

Registered Professional Engineer (Civil) — 38118 — Scott A. Leska — Arizona, U.S.A.

TOWN OF MARANA ARIZONA

STANDARD DETAIL	DETAIL NO:
POLE LOADING DETAIL TYPE A POLE	730-408
DATE: 4/14/06 — REVISED:	SHEET 1 OF 2



Type A Pole

Not To Scale

NOTES:

1. The Designer shall provide additional structural analysis for any deviations from the dimensions shown which will result in increased structural loading.
2. Foundation shall have a minimum depth as shown in Table C, and shall be measured from the top of finished grade. The foundation shall have a minimum diameter of 3'. All other foundation requirements shall adhere to Pima County/City of Tucson's Standard Details for Public Improvements, 2003 Ed.
3. The total exposed area shall be measured by the largest exposed area of a single installed item. Items may include signs, traffic signal heads, controller cabinets, etc.

Table C

Pole Height	Y	Max. Exposed Area (6ft Drilled Shaft)	Max. Exposed Area (3ft Drilled Shaft)
7'	4.5'	60 sq. ft.	35 sq. ft.
10'	7.5'	55 sq. ft.	30 sq. ft.
12'	9.5'	50 sq. ft.	25 sq. ft.
15'	12.5'	45 sq. ft.	20 sq. ft.

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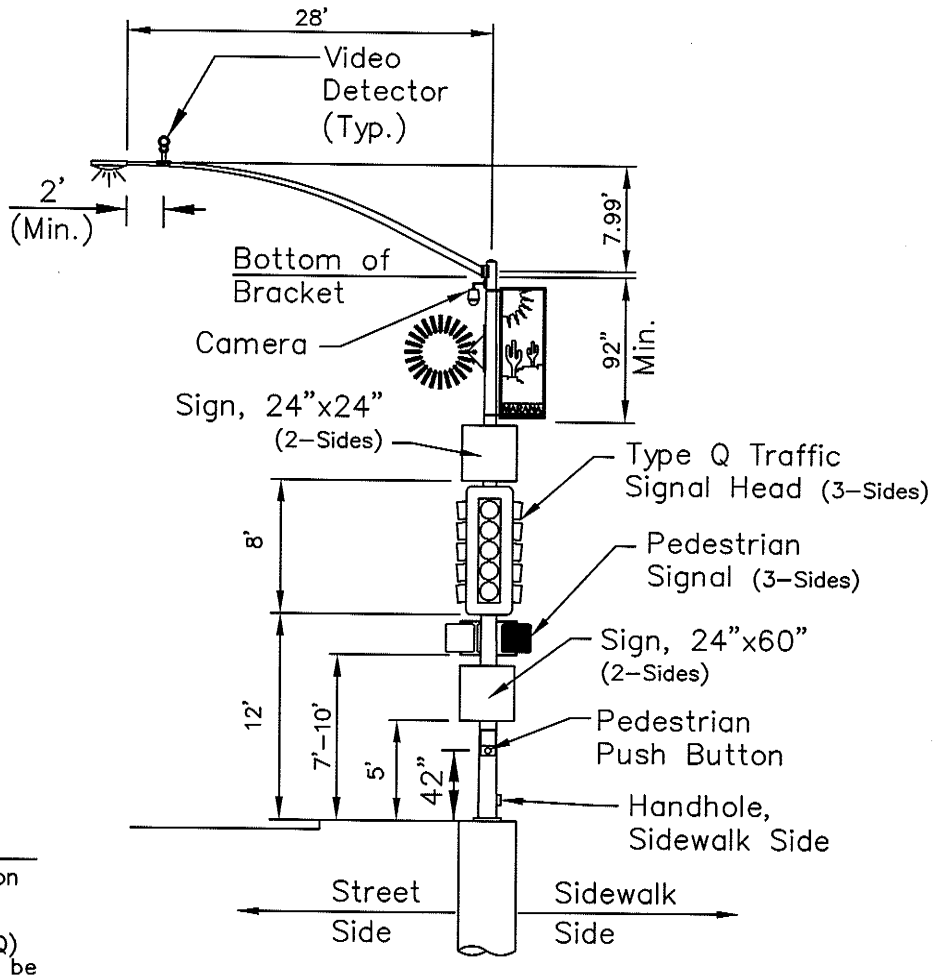
4/14/2006

Keith E. Brann, P.E., Town Engineer — Date

Registered Professional Engineer (Civil) CERTIFICATE NO. 38119 SCOTT A. LESKA Date Signed 04-14-06 ARIZONA, U.S.A.

TOWN OF MARANA ARIZONA

STANDARD DETAIL	DETAIL NO:
POLE LOADING DETAIL TYPE A POLE	730-408
DATE: 4/14/06 REVISED:	SHEET 2 OF 2



Type Q Pole
30' Mast Arm
Not To Scale

NOTES:

1. A maximum 20' length mast arm shall be installed on the Type G pole standard.
2. A maximum of one (1) three-sided signal head (3-Q) and one (1) three-sided pedestrian signal head shall be installed on the pole as shown.
3. Mast arm dimensions are measured from bracket connection point of upright to tip of mast arm.
4. The Designer shall provide additional structural analysis for any deviations from the dimensions shown which will result in increased structural loading.

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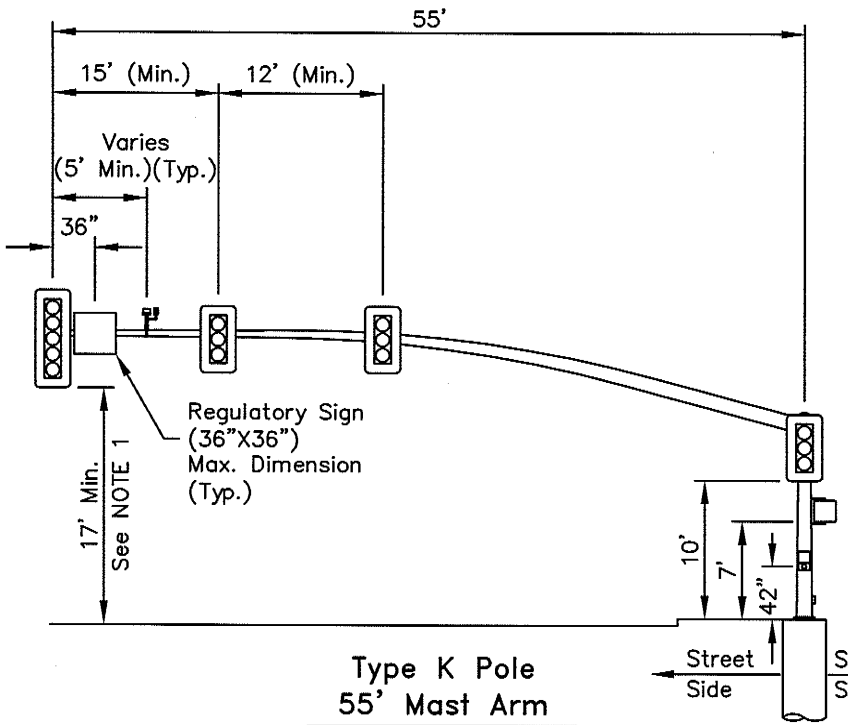
4/14/2006

Keith E. Brann, P.E., Town Engineer — Date

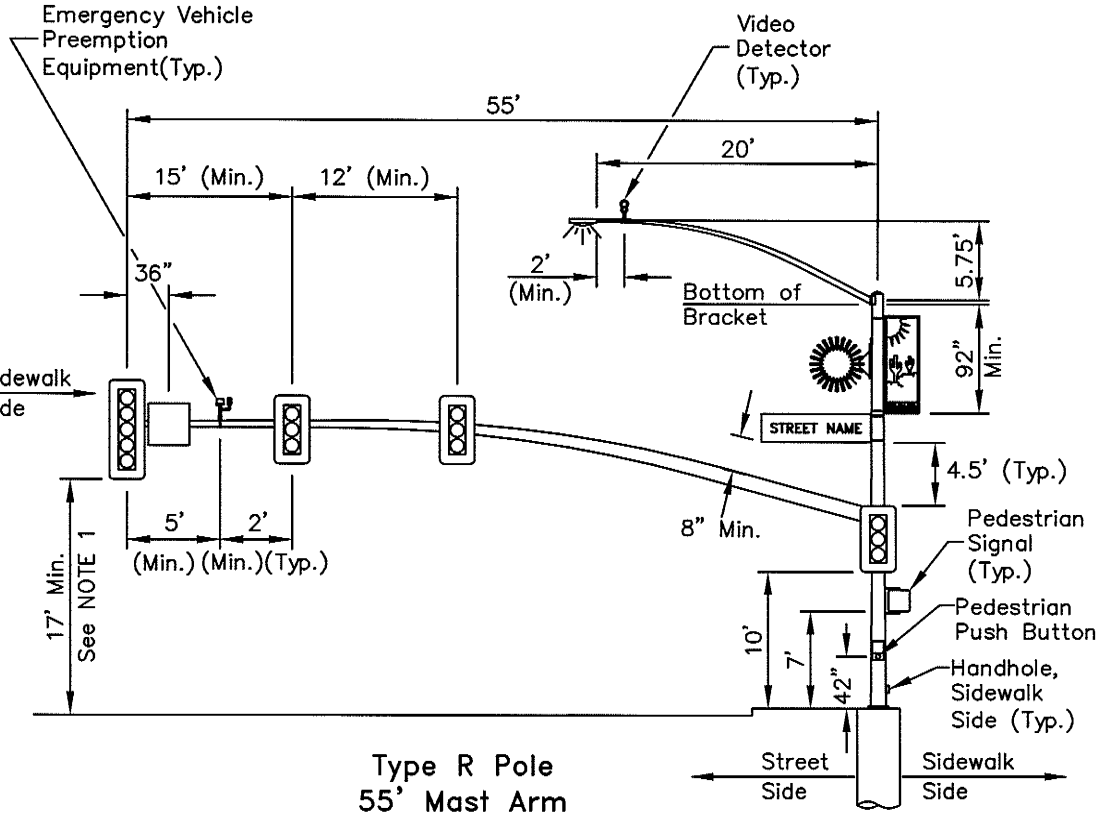
Registered Professional Engineer (Civil) Certificate No. 39119 Scott Leska Date Signed 04-14-06 Arizona, U.S.A.

TOWN OF MARANA ARIZONA

STANDARD DETAIL	DETAIL NO:
POLE AND MAST ARM LOADING DETAIL TYPE G POLE WITH 20 FT. MAST ARM	730-409
DATE: 4/14/06 REVISED:	SHEET 1 OF 1



Type K Pole
55' Mast Arm
Not To Scale



Type R Pole
55' Mast Arm
Not To Scale

NOTES:

1. There shall be a minimum of 17' clearance between the surface of the pavement and the bottom of each signal head back plate mounted on the mast arm.
2. A maximum of 3 signal heads (1–Q, 2–F) may be installed on the 55' mast arm as shown.
3. Mast arm dimension measured from center of upright to tip of mast arm.
4. The Designer shall provide additional structural analysis for any deviations from the dimensions shown which will result in increased structural loading.

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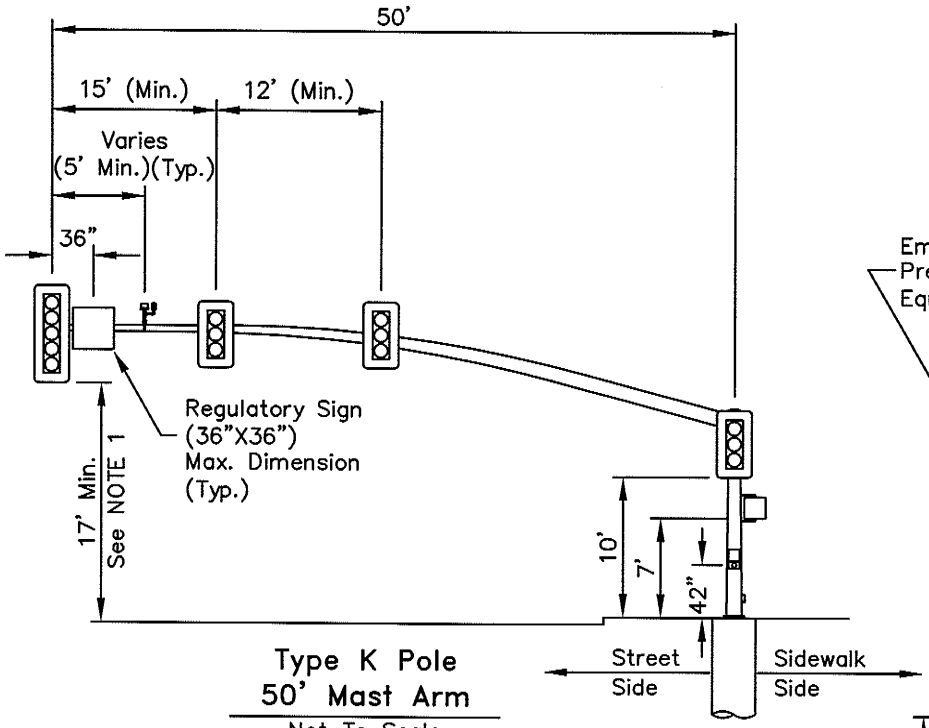
9/9/2005

Keith E. Brann, P.E., Date
Acting Town Engineer

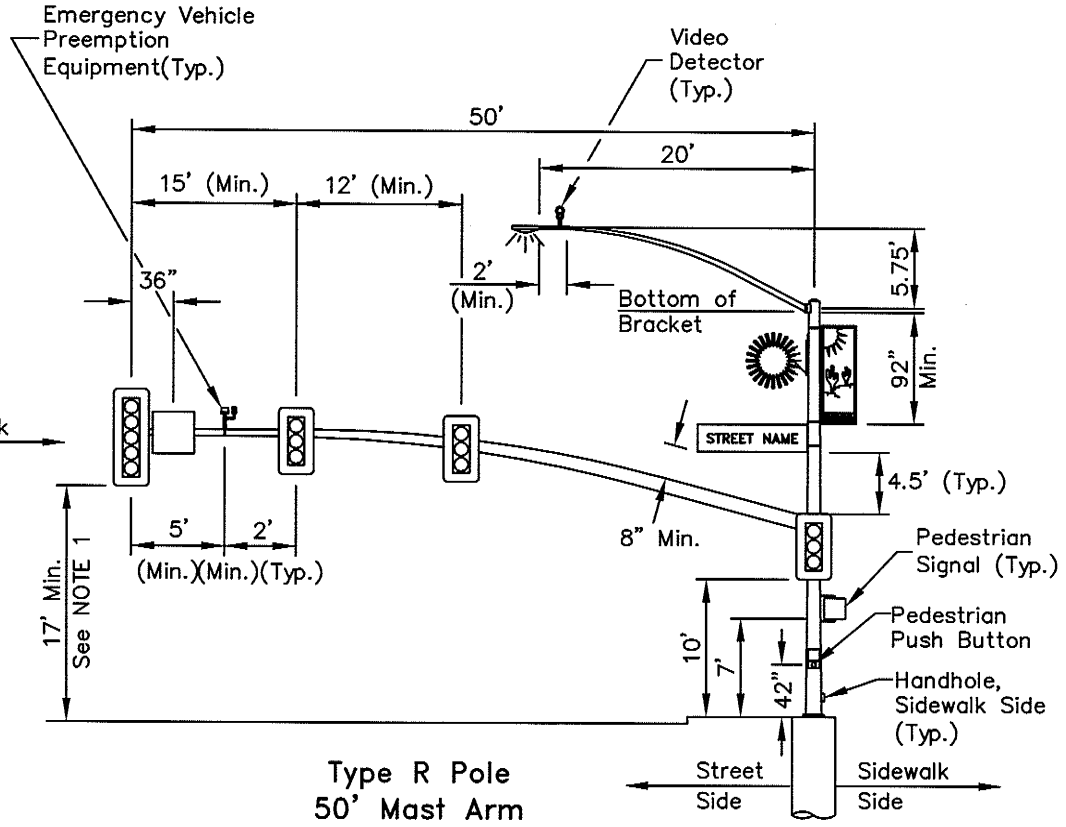
Registered Professional Engineer (Civil) No. 38119 SCOTT A. LESKA Date Signed 9/9/05 ARIZONA, U.S.A.

TOWN OF MARANA ARIZONA

STANDARD DETAIL		DETAIL NO:
MAST ARM LOADING DETAIL TYPE K AND R POLE WITH 55 FT. MAST ARM		730–410
DATE: 9/9/05	REVISED:	SHEET 1 OF 1



Type K Pole
50' Mast Arm
Not To Scale



Type R Pole
50' Mast Arm
Not To Scale

NOTES:

1. There shall be a minimum of 17' clearance between the surface of the pavement and the bottom of each signal head back plate mounted on the mast arm.
2. A maximum of 3 signal heads (1–Q, 2–F) may be installed on the 50' mast arm as shown.
3. Mast arm dimension measured from center of upright to tip of mast arm.
4. The Designer shall provide additional structural analysis for any deviations from the dimensions shown which will result in increased structural loading.

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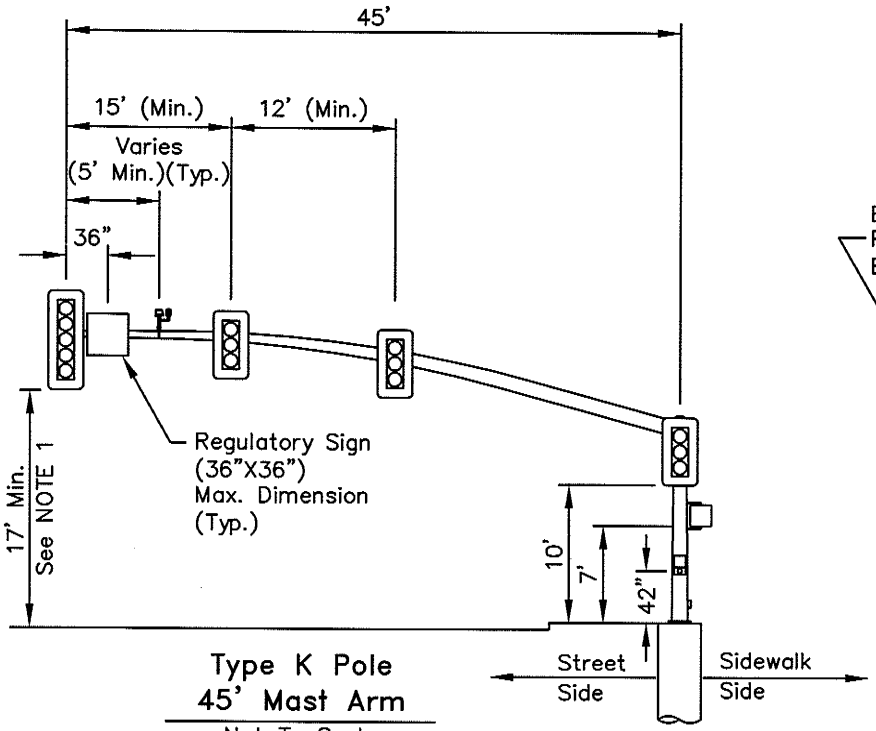
9/9/2005

Keith E. Brann, P.E., Date
Acting Town Engineer

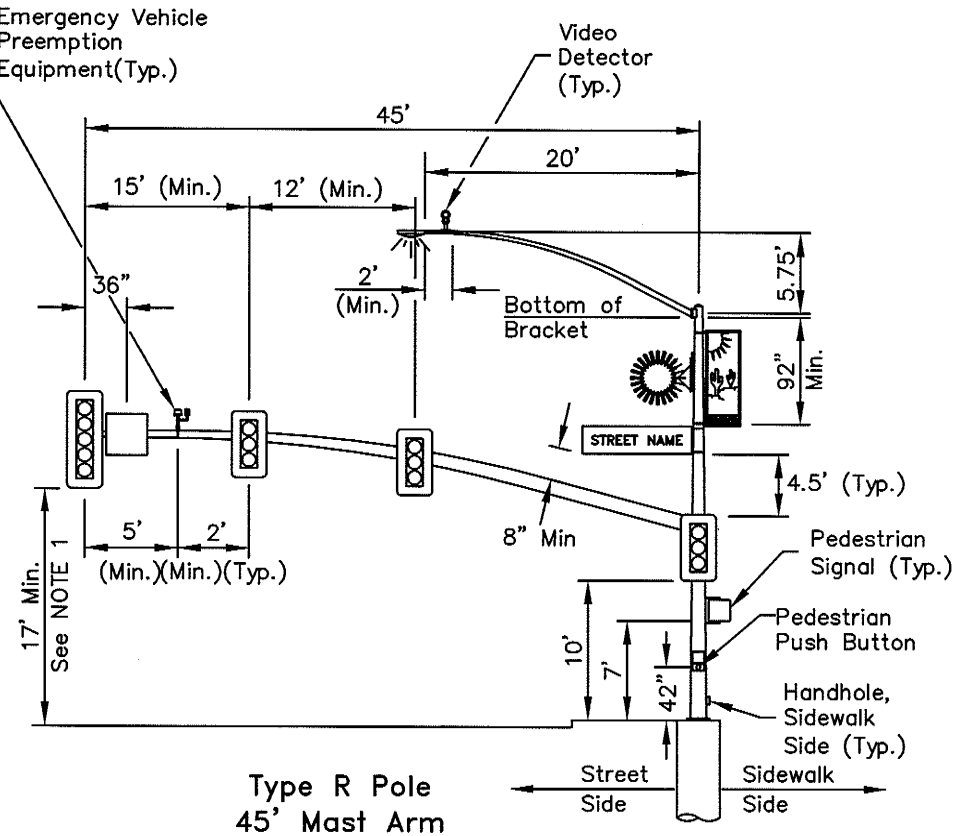
Professional Engineer (Civil) 38119 SCOTT A. LESKA Date Signed 9/9/05 ARIZONA, U.S.A.

TOWN OF MARANA 1977 ARIZONA

STANDARD DETAIL		DETAIL NO:
MAST ARM LOADING DETAIL TYPE K AND R POLE WITH 50 FT. MAST ARM		730–411
DATE: 9/9/05	REVISED:	SHEET 1 OF 1



Type K Pole
45' Mast Arm
Not To Scale



Type R Pole
45' Mast Arm
Not To Scale

NOTES:

1. There shall be a minimum of 17' clearance between the surface of the pavement and the bottom of each signal head back plate mounted on the mast arm.
2. A maximum of 3 signal heads (1–Q, 2–F) may be installed on the 45' mast arm as shown.
3. Mast arm dimension measured from center of upright to tip of mast arm.
4. The Designer shall provide additional structural analysis for any deviations from the dimensions shown which will result in increased structural loading.

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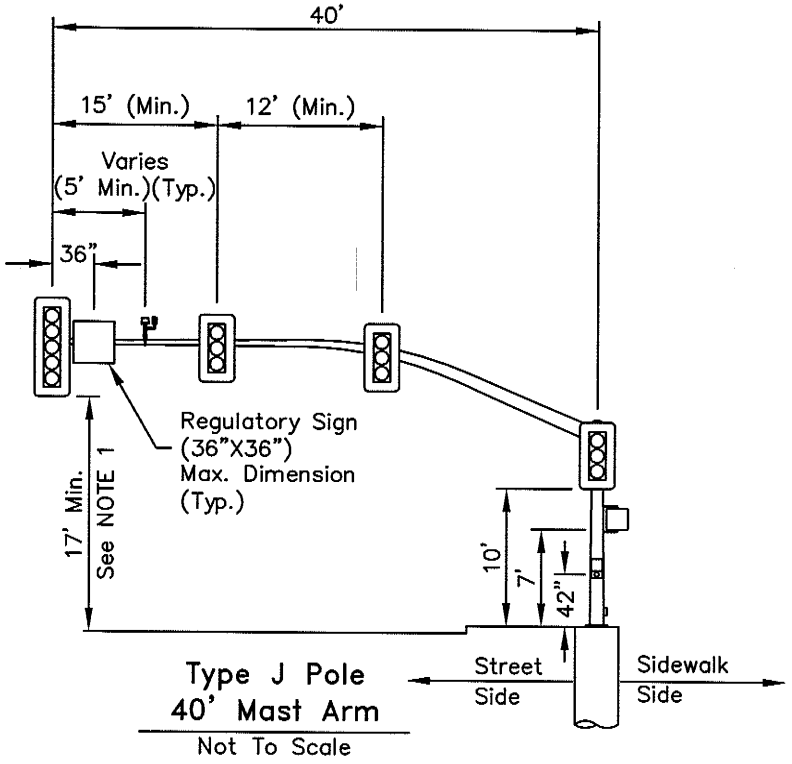
9/9/2005

Keith E. Brann, P.E., Date
Acting Town Engineer

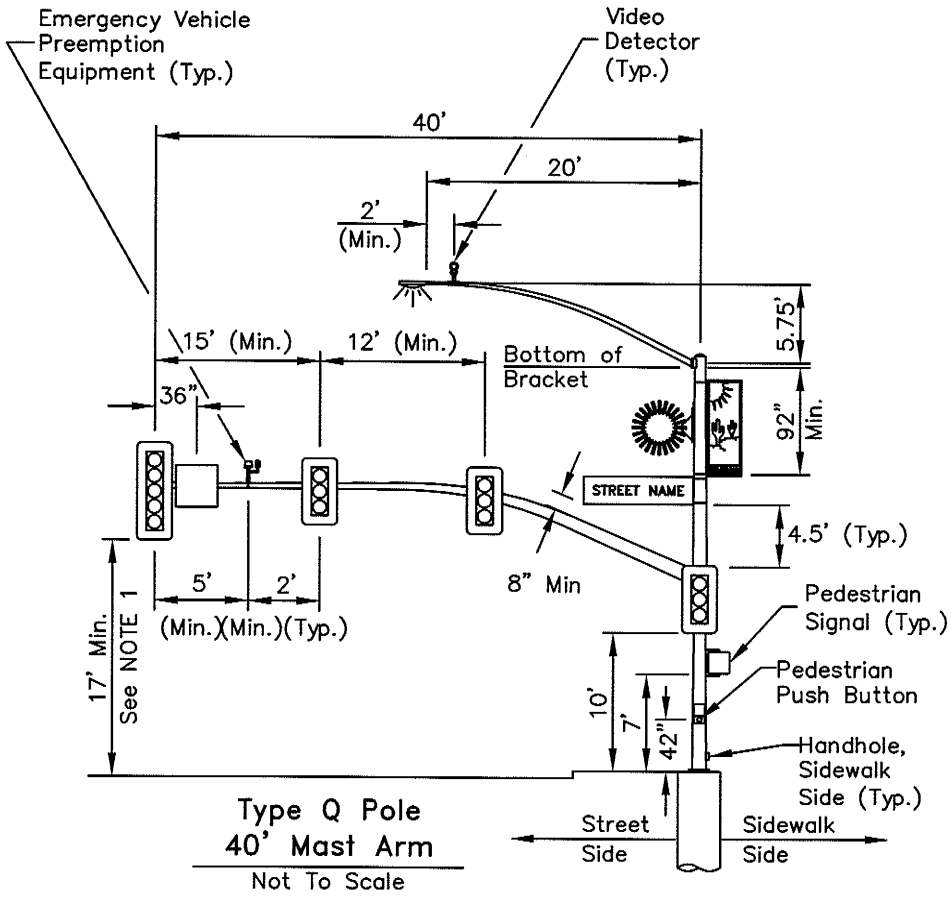
Registered Professional Engineer (Civil) 38119 SCOTT A. LESKA Date Signed 4-19-06 ARIZONA, U.S.A.

TOWN OF MARANA ARIZONA 1977

STANDARD DETAIL	DETAIL NO:
MAST ARM LOADING DETAIL TYPE K AND R POLE WITH 45 FT. MAST ARM	730–412
DATE: 9/9/05 / REVISED:	SHEET 1 OF 1



Type J Pole
40' Mast Arm
Not To Scale



Type Q Pole
40' Mast Arm
Not To Scale

NOTES:

1. There shall be a minimum of 17' clearance between the surface of the pavement and the bottom of each signal head back plate mounted on the mast arm.
2. A maximum of 3 signal heads (1–Q, 2–F) may be installed on the 40' mast arm as shown.
3. Mast arm dimension measured from center of upright to tip of mast arm.
4. The Designer shall provide additional structural analysis for any deviations from the dimensions shown which will result in increased structural loading.

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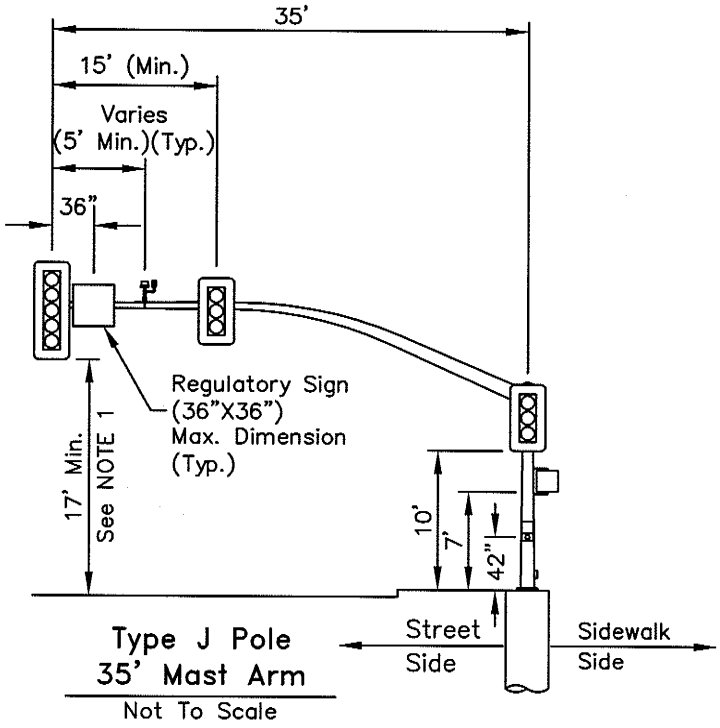
9/9/2005

Keith E. Brann, P.E., Date
Acting Town Engineer

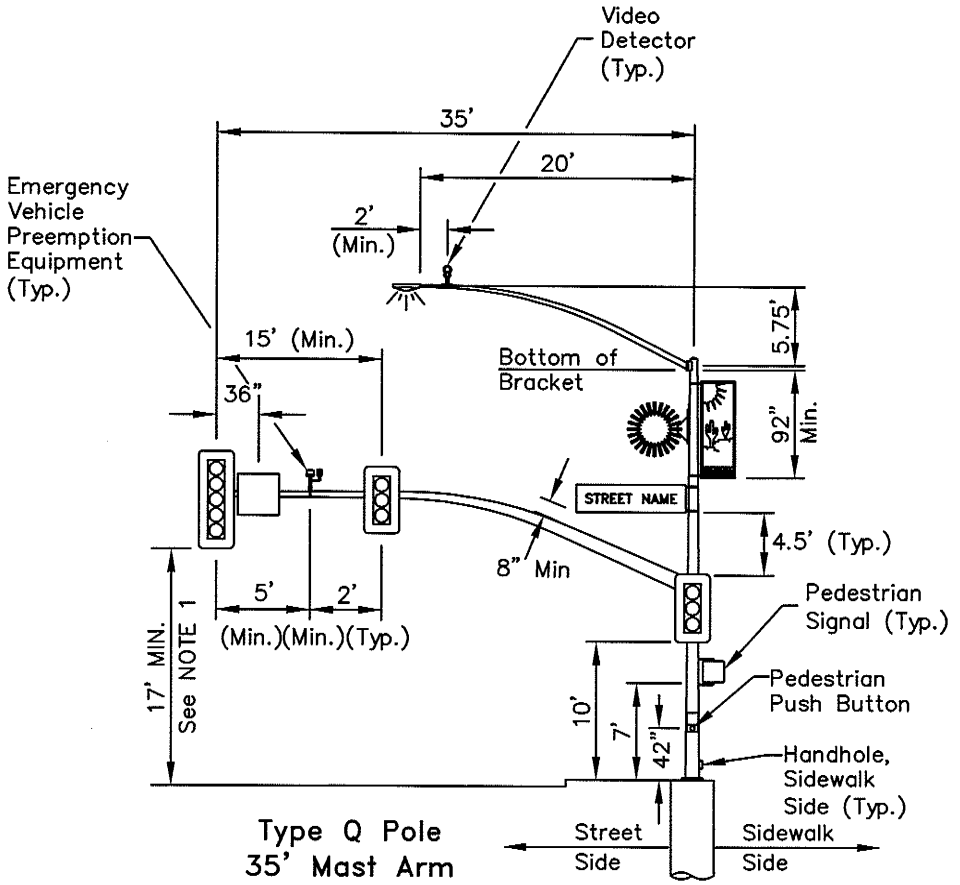
Registered Professional Engineer (Civil) 38119 SCOTT A. LESKA Date Signed 9/9/05 ARIZONA, U.S.A.

TOWN OF MARANA ARIZONA

STANDARD DETAIL	DETAIL NO:
MAST ARM LOADING DETAIL TYPE J AND Q POLE WITH 40 FT. MAST ARM	730–413
DATE: 9/9/05 / REVISED:	SHEET 1 OF 1



Type J Pole
35' Mast Arm
Not To Scale



Type Q Pole
35' Mast Arm
Not To Scale

NOTES:

1. There shall be a minimum of 17' clearance between the surface of the pavement and the bottom of each signal head back plate mounted on the mast arm.
2. A maximum of 2 signal heads (1–Q, 1–F) may be installed on the 35' mast arm as shown.
3. Mast arm dimension measured from center of upright to tip of mast arm.
4. The Designer shall provide additional structural analysis for any deviations from the dimensions shown which will result in increased structural loading.

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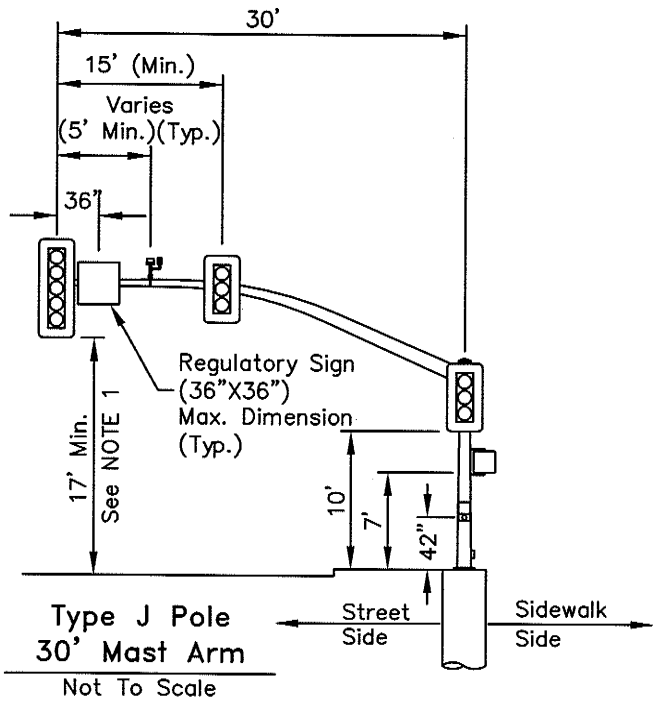
9/9/2005

Keith E. Brann, P.E., Date
Acting Town Engineer

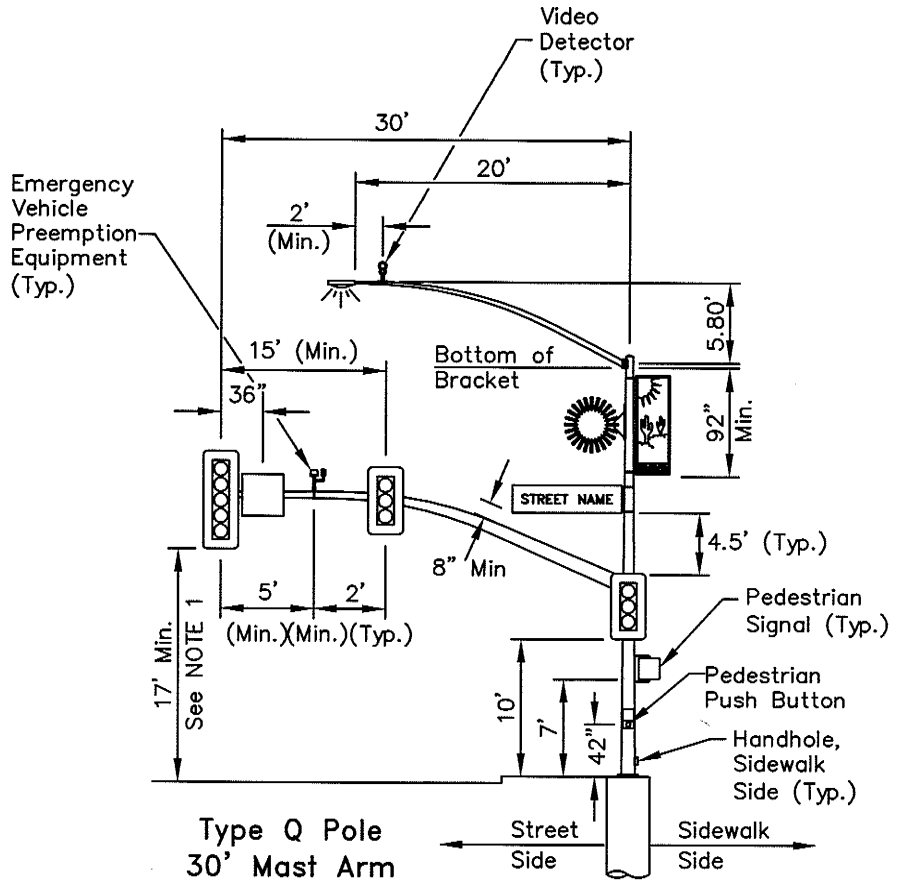
Registered Professional Engineer (Civil)
38119
SCOTT A. LESKA
Date Signed 9/9/05
ARIZONA, U.S.A.

TOWN OF MARANA ARIZONA 1977

STANDARD DETAIL		DETAIL NO:
MAST ARM LOADING DETAIL TYPE J AND Q POLE WITH 35 FT. MAST ARM		730-414
DATE: 9/9/05	REVISED:	SHEET 1 OF 1



Type J Pole
30' Mast Arm
Not To Scale



Type Q Pole
30' Mast Arm
Not To Scale

NOTES:

1. There shall be a minimum of 17' clearance between the surface of the pavement and the bottom of each signal head back plate mounted on the mast arm.
2. A maximum of 2 signal heads (1–Q, 1–F) may be installed on the 30' mast arm as shown.
3. Mast arm dimension measured from center of upright to tip of mast arm.
4. The Designer shall provide additional structural analysis for any deviations from the dimensions shown which will result in increased structural loading.

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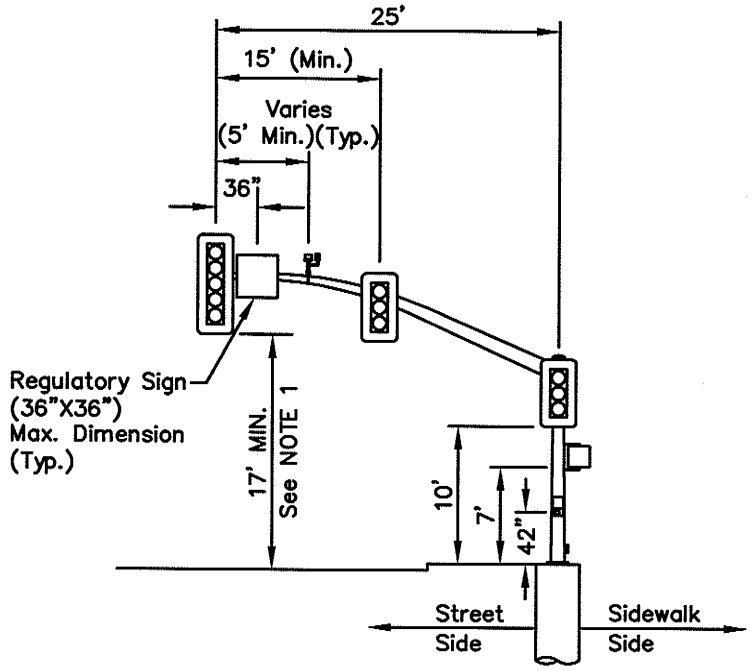
9/9/2005

Keith E. Brann, P.E., Date
Acting Town Engineer

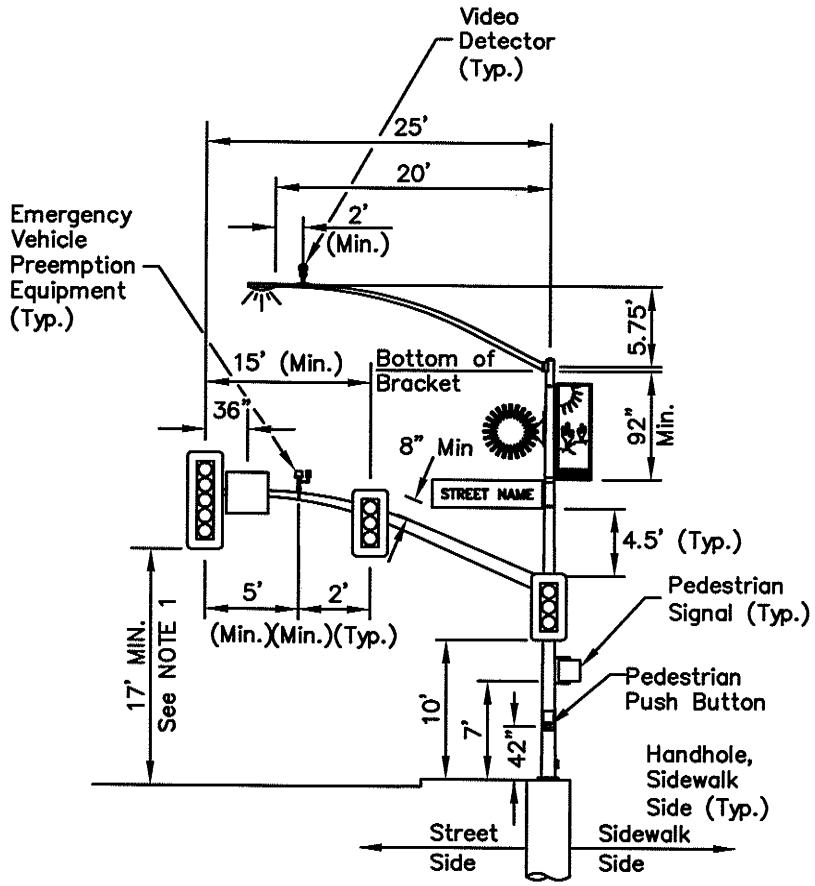
Registered Professional Engineer (Civil) — Certificate No. 38119 — SCOTT A. LESKA — Date Signed 9/9/05 — ARIZONA, U.S.A.

TOWN OF MARANA ARIZONA 1977

STANDARD DETAIL	DETAIL NO:
MAST ARM LOADING DETAIL TYPE J AND Q POLE WITH 30 FT. MAST ARM	730–415
DATE: 9/9/05 / REVISED:	SHEET 1 OF 1



Type J Pole
25' Mast Arm
Not To Scale



Type Q Pole
25' Mast Arm
Not To Scale

NOTES:

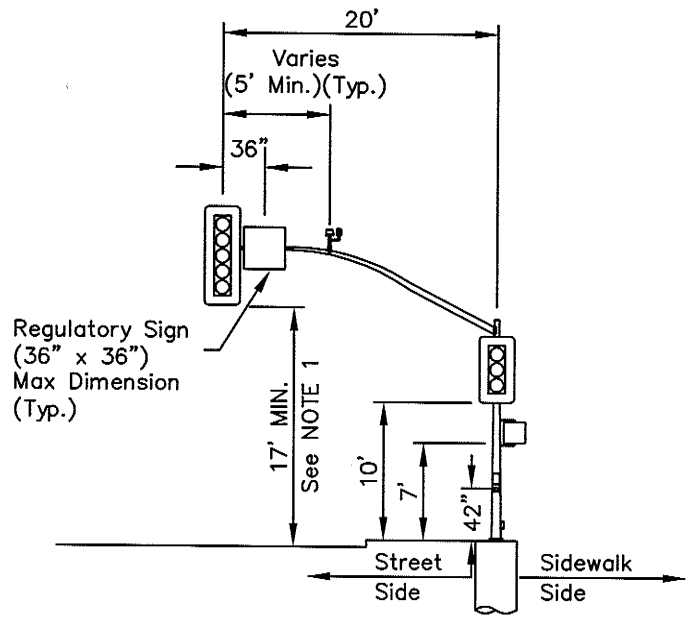
1. There shall be a minimum of 17' clearance between the surface of the pavement and the bottom of each signal head back plate mounted on the mast arm.
2. A maximum of 2 signal heads (1–Q, 1–F) may be installed on the 25' mast arm as shown.
3. Mast arm dimension measured from center of upright to tip of mast arm.
4. The Designer shall provide additional structural analysis for any deviations from the dimensions shown which will result in increased structural loading.

APPROVED FOR DISTRIBUTION:

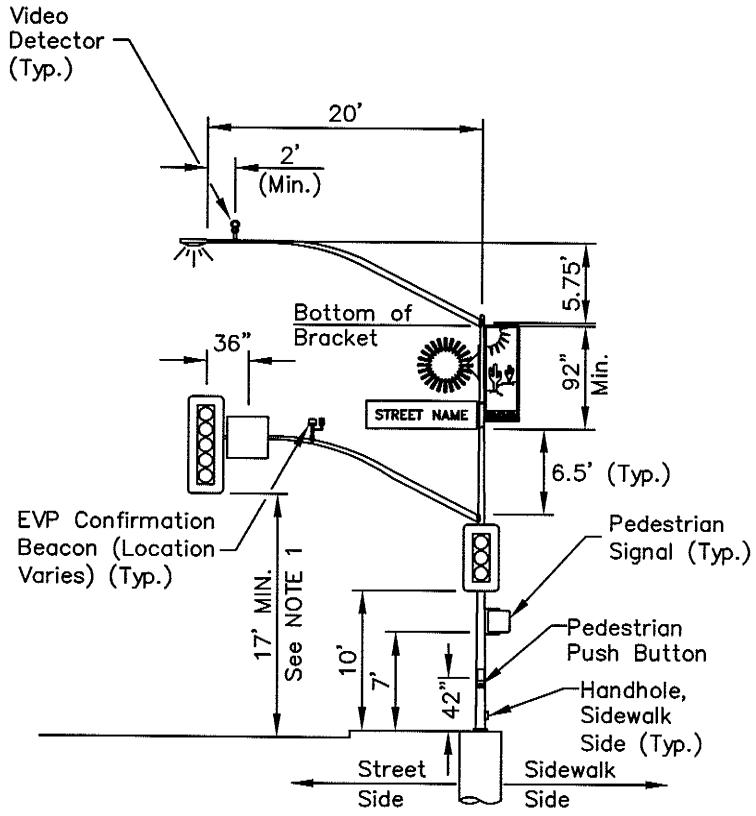
9/9/2005

Keith E. Brann, P.E., Date
Acting Town Engineer

STANDARD DETAIL		DETAIL NO:
MAST ARM LOADING DETAIL TYPE J AND Q POLE WITH 25 FT. MAST ARM		730–416
DATE: 9/9/05	REVISED:	SHEET 1 OF 1



Type E Pole
20' Mast Arm
Not To Scale



Type F Pole
20' Mast Arm
Not To Scale

NOTES:

1. There shall be a minimum of 17' clearance between the surface of the pavement and the bottom of each signal head back plate mounted on the mast arm.
2. A maximum of 1 signal head (1–Q or 1–F) may be installed on the 20' mast arm as shown.
3. Mast arm dimension measured from center of upright to tip of mast arm.
4. The Designer shall provide additional structural analysis for any deviations from the dimensions shown which will result in increased structural loading.

APPROVED FOR DISTRIBUTION:

9/9/2005

Keith E. Brann, P.E., Date
Acting Town Engineer

Registered Professional Engineer (Civil) 38119 SCOTT A. LESKA Date Signed 9/9/05 ARIZONA, U.S.A.

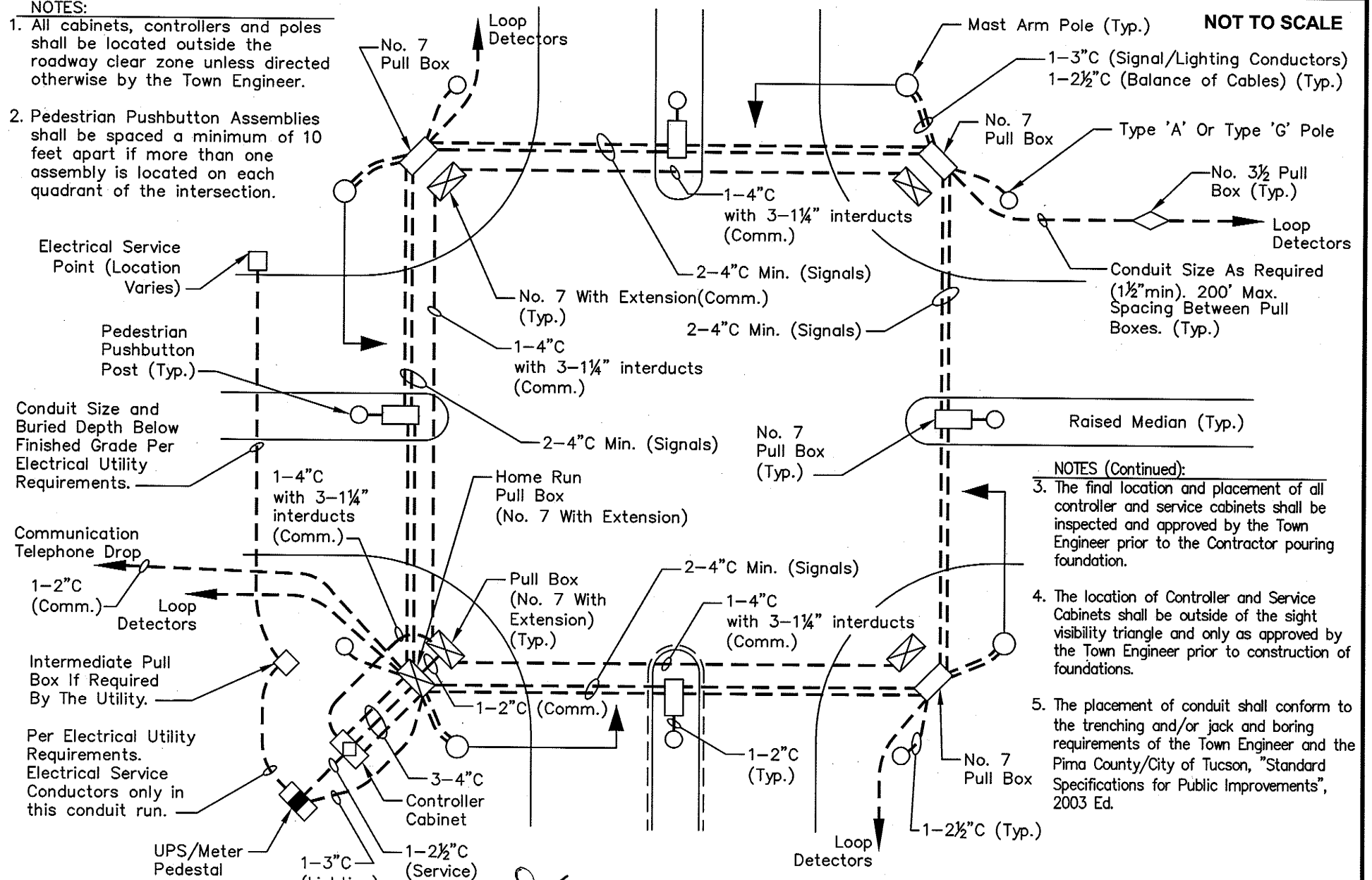
TOWN OF MARANA ARIZONA

STANDARD DETAIL		DETAIL NO:
MAST ARM LOADING DETAIL TYPE E AND F POLE WITH 20 FT. MAST ARM		730–417
DATE: 9/9/05	REVISED:	SHEET 1 OF 1

NOTES:

1. All cabinets, controllers and poles shall be located outside the roadway clear zone unless directed otherwise by the Town Engineer.
2. Pedestrian Pushbutton Assemblies shall be spaced a minimum of 10 feet apart if more than one assembly is located on each quadrant of the intersection.

NOT TO SCALE



NOTES (Continued):

3. The final location and placement of all controller and service cabinets shall be inspected and approved by the Town Engineer prior to the Contractor pouring foundation.
4. The location of Controller and Service Cabinets shall be outside of the sight visibility triangle and only as approved by the Town Engineer prior to construction of foundations.
5. The placement of conduit shall conform to the trenching and/or jack and boring requirements of the Town Engineer and the Pima County/City of Tucson, "Standard Specifications for Public Improvements", 2003 Ed.

APPROVED FOR DISTRIBUTION:

6/20/2006

Keith E. Brann, P.E. — Date

Town Manager/Engineer

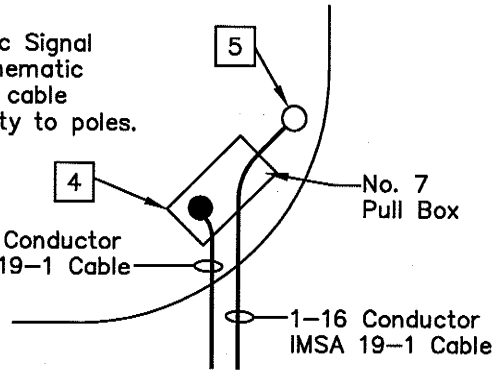
Registered Professional Engineer (Civil) — Certificate No. 38119 — Scott A. Leska — Date Signed — Arizona, U.S.A.

TOWN OF MARANA — 1977 — ARIZONA

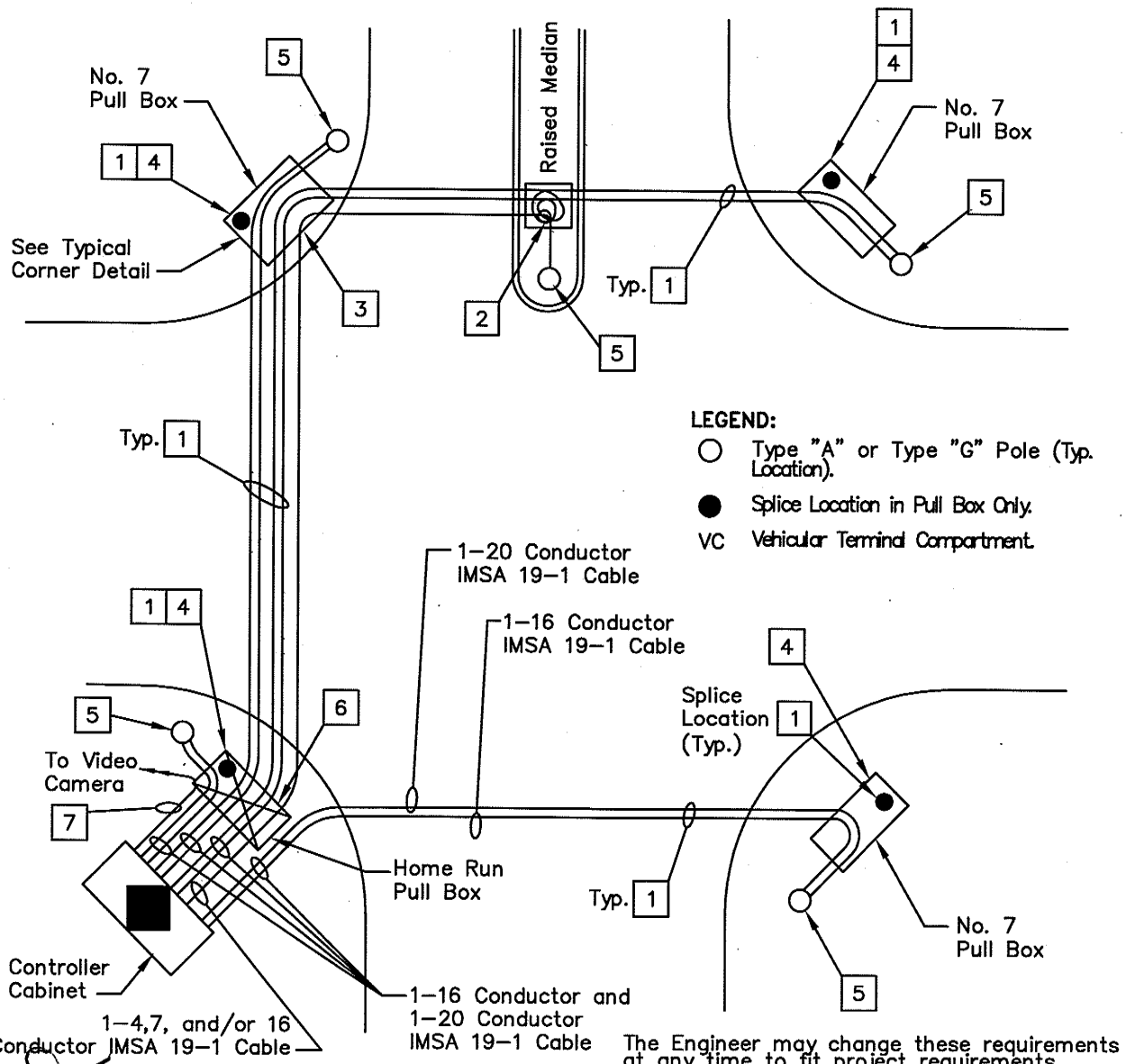
STANDARD DETAIL		DETAIL NO:
TOWN OF MARANA TYPICAL TRAFFIC SIGNAL CONDUIT SCHEMATIC		730–701
DATE: 09/09/05	REVISED: 06/20/06	SHEET 1 OF 1

NOT TO SCALE

NOTE:
See Traffic Signal Wiring Schematic Detail for cable connectivity to poles.



Typical Corner Detail



NOTES:

1. Splice permitted only at designated splice locations as shown on this plan. Each signal cable as shown shall be continuous and unspliced between the controller cabinet and the corner where it is terminated.
2. Provide 1 wrap of slack (5' min.) for each signal cable at intermediate median pull boxes. (Typ.)
3. Provide 2 wraps of slack (8' min.) for each signal cable passing through this pull box. (No splices permitted)
4. Provide 1 wrap of slack (5' min.) for all signal cables terminating in this pull box.
5. Terminate 4, 7, 16, and 20 Conductor IMSA 19–1 cable in VC on the Ped. Post, Type "A", Type "G", Type "Q", or Type "R" pole on corner. Provide 2 wraps of slack (8' min.) in adjacent pull box.
6. Provide 1 wrap of slack (5' min.) for each signal cable passing through the home run pull box (No. 7 with extension).
7. Terminate Video Cable (RG59 Cable, sheilded), Data Cable (18AWG, Sheilded), and Power Cable (3–12AWG CC) at Video Camera on pole designated by Project Plans or Town Engineer.

The Engineer may change these requirements at any time to fit project requirements.

APPROVED FOR DISTRIBUTION:

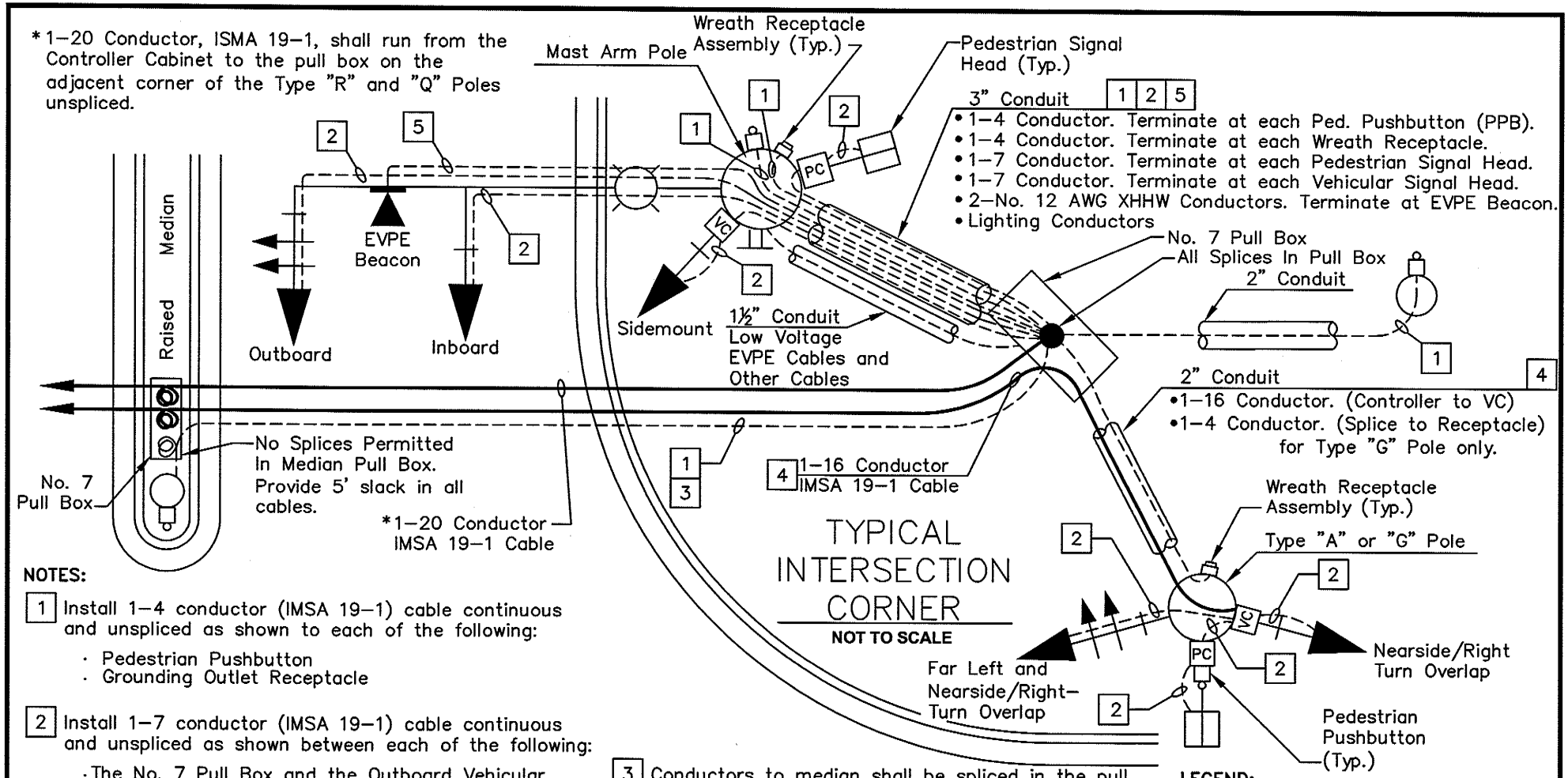
6/20/2006

Keith E. Brann, P.E., Date
Town Engineer

Registered Professional Engineer (Civil) 38119 SCOTT A. LESKA Date Signed 6/20/06 ARIZONA U.S.A.

TOWN OF MARANA ARIZONA

STANDARD DETAIL	DETAIL NO:
TYPICAL TRAFFIC SIGNAL CABLE SCHEMATIC	730–702
DATE: 9/9/05 REVISED: 06/20/06	SHEET 1 OF 1



TYPICAL INTERSECTION CORNER

NOT TO SCALE

NOTES:

1 Install 1–4 conductor (IMSA 19–1) cable continuous and unspliced as shown to each of the following:

- Pedestrian Pushbutton
- Grounding Outlet Receptacle

2 Install 1–7 conductor (IMSA 19–1) cable continuous and unspliced as shown between each of the following:

- The No. 7 Pull Box and the Outboard Vehicular Signal.
- The No. 7 Pull Box and the Inboard Vehicular Signal.
- The No. 7 Pull Box and the Sidemount Vehicular Signal.
- The VC and the Far Left Mounted Vehicular Signal.
- The VC and the Nearside/Right Turn Overlap Vehicular Signal.
- The No. 7 Pull Box and the Pedestrian Signal Head.
- The VC and the Pedestrian Signal Head/PPB.

3 Conductors to median shall be spliced in the pull box on the adjacent corner in the clockwise direction from the median.

4 Install 1–16 conductor (IMSA 19–1) cable continuous and unspliced as shown between VC (at type "A" or "G" pole) direct to controller.

5 2–No.12 AWG XHHW stranded white and blue conductors for EVPE beacon. Route beacon conductors direct to splice at No. 7 pull box.

LEGEND:

VC Vehicular Terminal Compartment

PC Pedestrian Terminal Compartment

● Splice Location in Pull Box

NOTE: Quantity of cables may vary based on actual field conditions or as directed by the Town Engineer.

APPROVED FOR DISTRIBUTION:

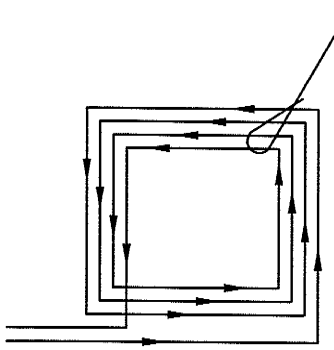
9/9/2005

Keith E. Brann, P.E. Date
Acting Town Engineer

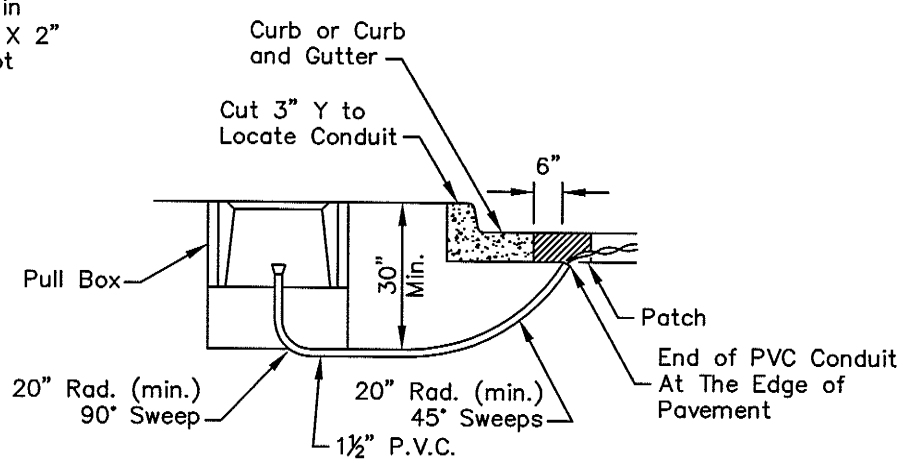
Registered Professional Engineer (Civil) 58319 SCOTT A. LESKA Date Signed 9/9/05 ARIZONA, U.S.A.

TOWN OF MARANA 1977 ARIZONA

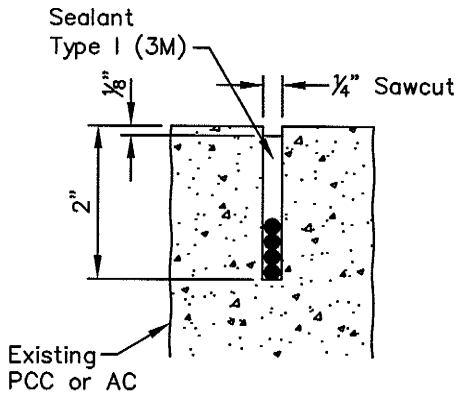
STANDARD DETAIL		DETAIL NO:
TOWN OF MARANA TRAFFIC SIGNAL WIRING SCHEMATIC		730–703
DATE: 9/9/05	REVISED:	SHEET 1 OF 1



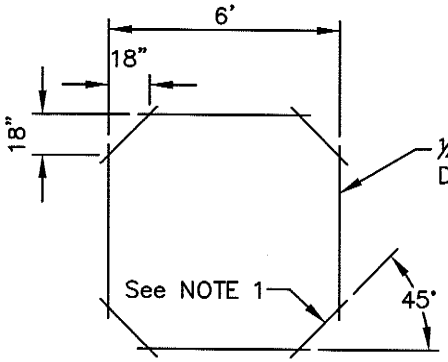
WIRE LAYOUT
Not To Scale



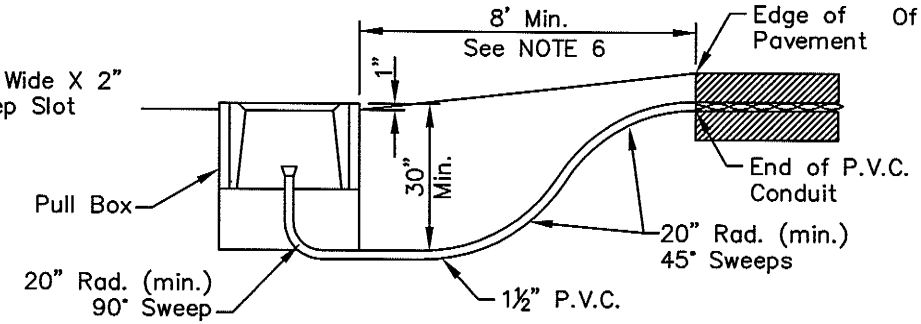
WITH CURB AND GUTTER
Not To Scale



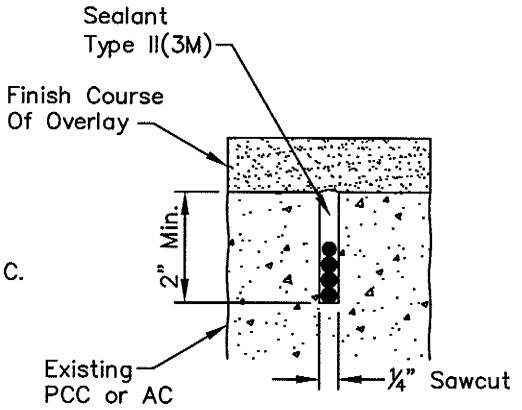
DETAIL 1
Not To Scale



SAWCUT LAYOUT
Not To Scale



WITHOUT CURB AND GUTTER
Not To Scale



DETAIL 2
Not To Scale

NOTES:

1. Sawcut across corners at a 45° angle to minimize sharp angles in loop run.
2. One loop detector shall be installed per lane and it shall be located in the center of the lane.
3. Loops shall be installed in accordance with the requirements of Detail 1 when there is to be no additional surfacing.
4. Loops shall be installed in accordance with the requirements of Detail 2 when an overlay or top course is installed/constructed.
5. No splices permitted in loop wire.
6. Any pull boxes installed along an uncurbed roadway shall be installed adjacent to, but not within, the shoulder.
7. All pull boxes shall be located on the Project Plans with Station and Offset call-outs.

APPROVED FOR DISTRIBUTION:

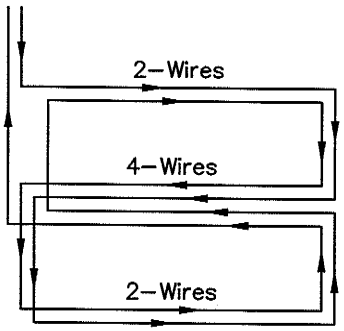
9/9/2005

Keith E. Brann, P.E., Date
Acting Town Engineer

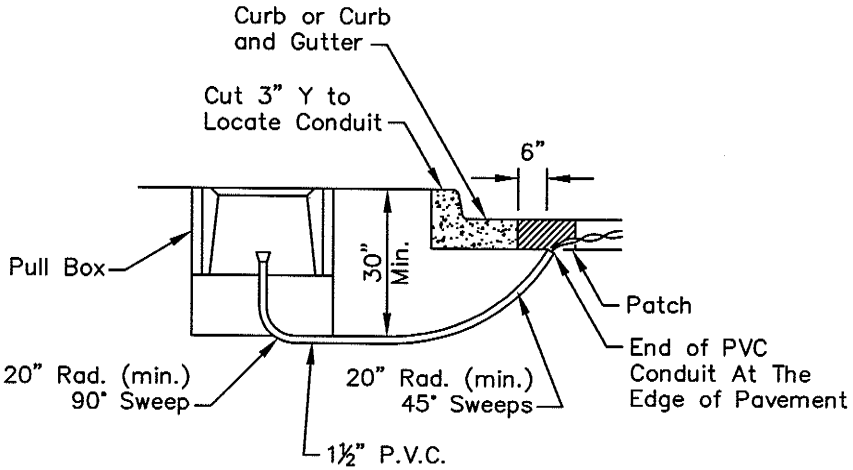
Registered Professional Engineer (Civil) 38119 SCOTT A. LESKA Date Signed 9/9/05 ARIZONA, U.S.A.

TOWN OF MARANA ARIZONA

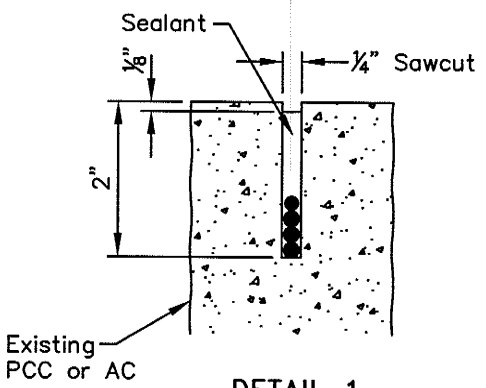
STANDARD DETAIL	DETAIL NO:
6' X 6' LOOP DETECTOR	730-710
DATE: 9/9/05 / REVISED:	SHEET 1 OF 1



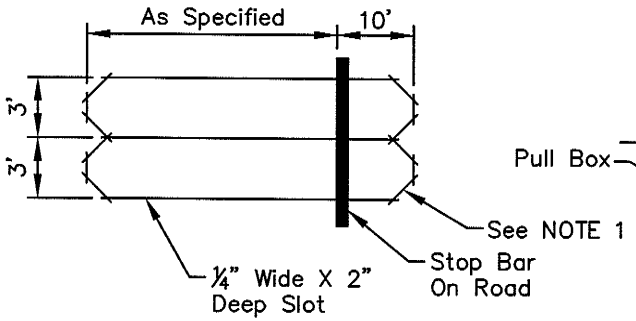
WIRE LAYOUT
Not To Scale



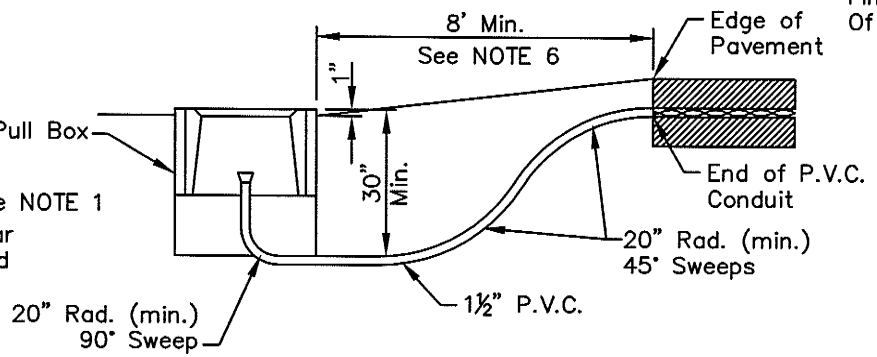
WITH CURB AND GUTTER
Not To Scale



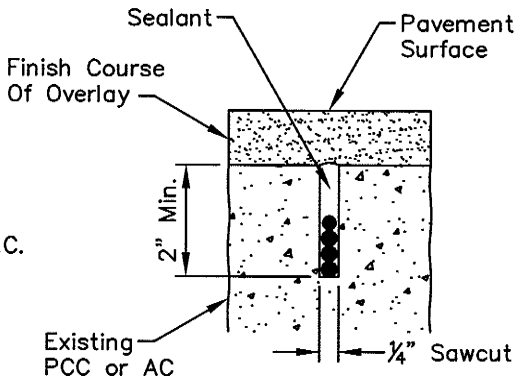
DETAIL 1
Not To Scale



SAWCUT LAYOUT
Not To Scale



WITHOUT CURB AND GUTTER
Not To Scale



DETAIL 2
Not To Scale

NOTES:

1. Sawcut across corners at a 45° angle to minimize sharp angles in loop run.
2. One loop detector shall be installed per lane and it shall be located in the center of the lane.
3. Loops shall be installed in accordance with the requirements of Detail 1 when there is to be no additional surfacing.
4. Loops shall be installed in accordance with the requirements of Detail 2 when an overlay or top course is installed/constructed.
5. No splices permitted in loop wire.
6. Any pull boxes installed along an uncurbed roadway shall be installed adjacent to, but not within, the shoulder.
7. All pull boxes shall be located on the Project Plans with Station and Offset call—outs.

APPROVED FOR DISTRIBUTION:

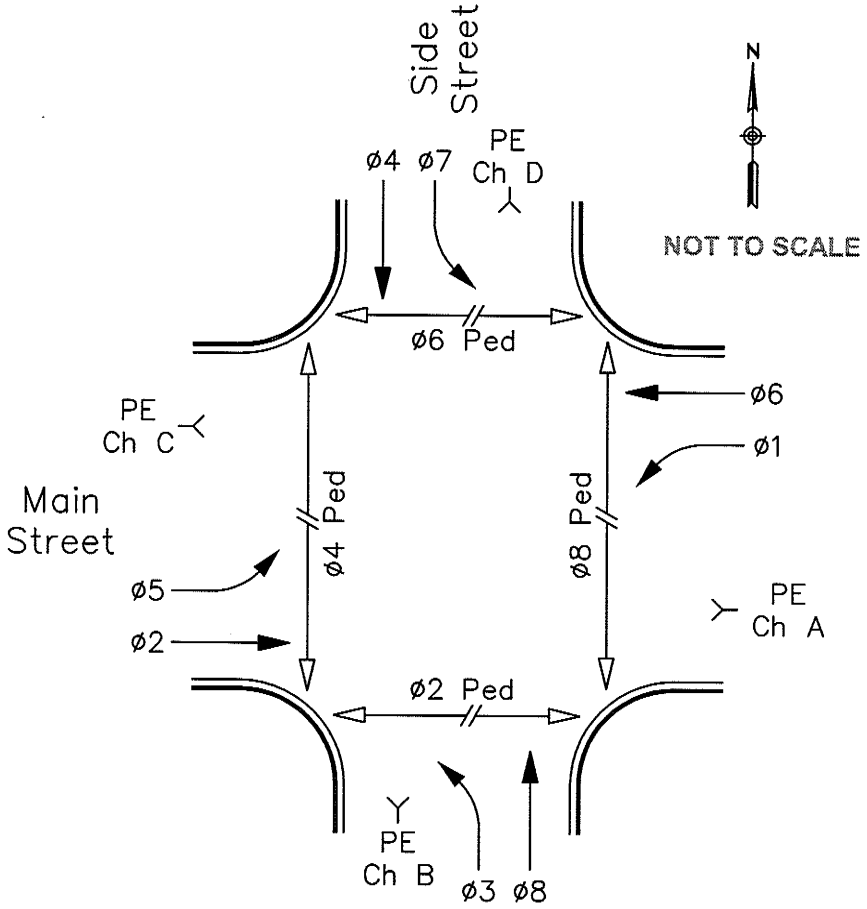
9/9/2005

Keith E. Brann, P.E., Date
Acting Town Engineer

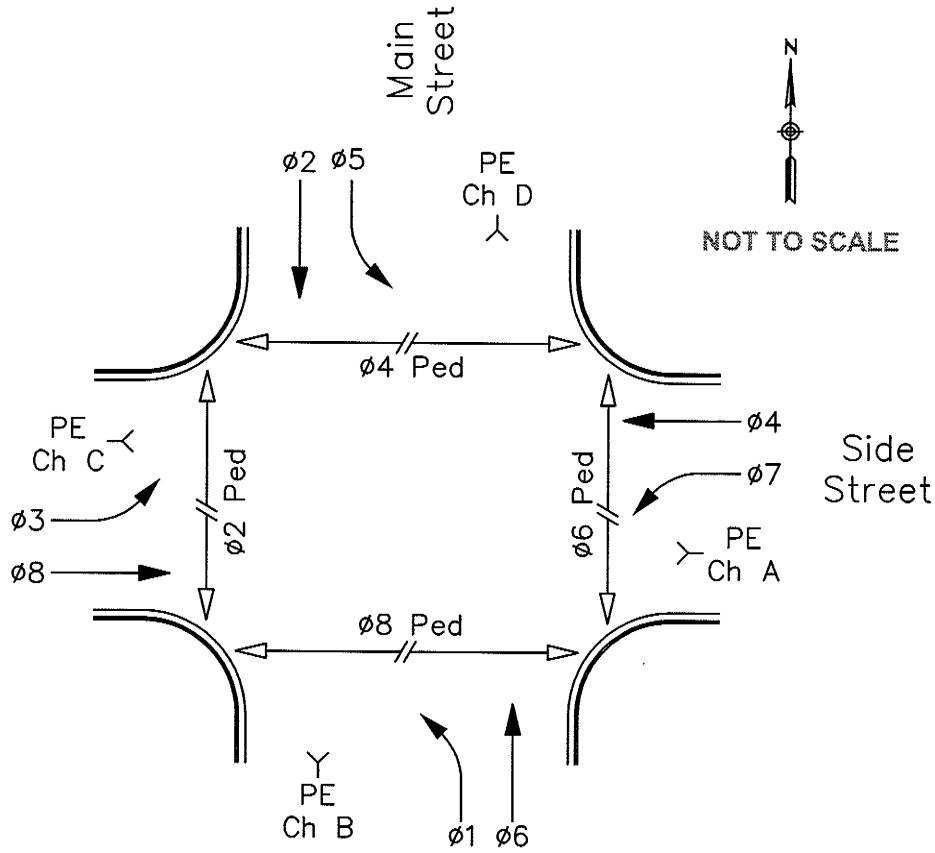
Registered Professional Engineer (Civil) 38119 SCOTT A. LESKA Date Signed 9/9/05 ARIZONA, U.S.A.

TOWN OF MARANA ARIZONA

STANDARD DETAIL		DETAIL NO:
PRESENCE LOOP DETECTOR		730—712
DATE: 9/9/05	REVISED:	SHEET 1 OF 1



EAST / WEST MAIN STREET



NORTH / SOUTH MAIN STREET

PREEMPTION CHANNELS

PE Channel A = EB Preemptor 1
PE Channel B = SB Preemptor 2
PE Channel C = WB Preemptor 3
PE Channel D = NB Preemptor 4

APPROVED FOR DISTRIBUTION:

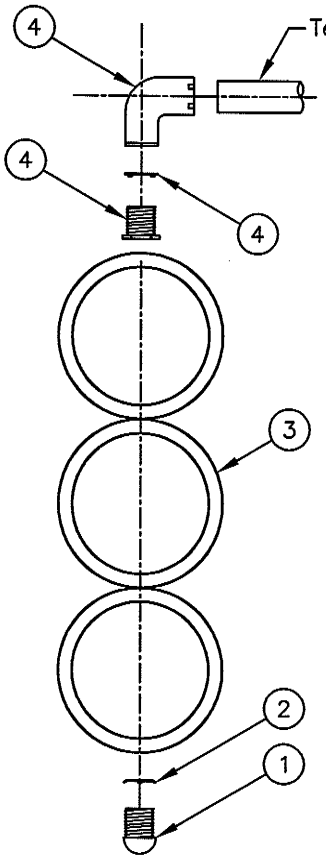
10/14/2005

Keith E. Brann, P.E., Date
Acting Town Engineer

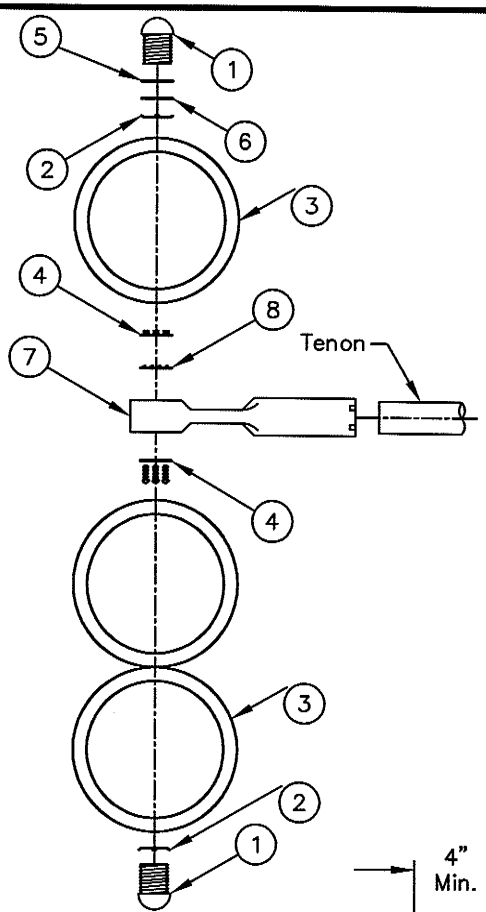
Registered Professional Engineer (Civil) 38119 SCOTT A. LESKA Date signed 10/14/05 ARIZONA, U.S.A.

TOWN OF MARANA 1977 ARIZONA

STANDARD DETAIL	DETAIL NO:
STANDARD TRAFFIC SIGNAL PHASING	730-800
DATE: 9/9/05 / REVISED: 10/14/2005	SHEET 1 OF 1



TYPE I MOUNT
Not To Scale



TYPE II MOUNT
Not To Scale

TYPE I MOUNT

LIST OF MATERIALS

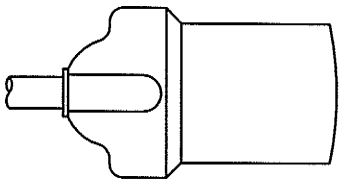
Itm.	Qty.	Description
1	1	Mast Arm Plumbizer With Locking Device. (See T.S. 10–2)*
2	1	12" Signal Head. See Plans.
3	1	Conduit Lockout.
4	1	1 ½" x 1 ¾" Lock Nipple.
5	1	Lock Ring. (See T.S. 10–1–4)*
6	1	Ornamental Cap. (See T.S. 10–1–6)*

TYPE II MOUNT

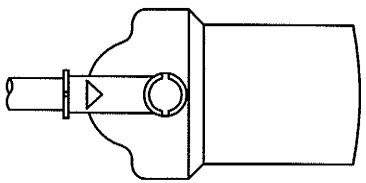
LIST OF MATERIALS

Itm.	Qty.	Description
1	2	Ornamental Cap. (See T.S. 10–1–6)*
2	2	Conduit Locknut.
3	1	12" Signal Head. See Plans.
4	2	Attaching Washers W/3–1/4–20 UNC x 3 ½ Carriage
		Bolts and Nuts.
5	1	Flat Washer.
6	1	Neoprene Washer.
7	1	Elevator Plumbizer. (See T.S. 10–2)*
8	1	Lock Washer.

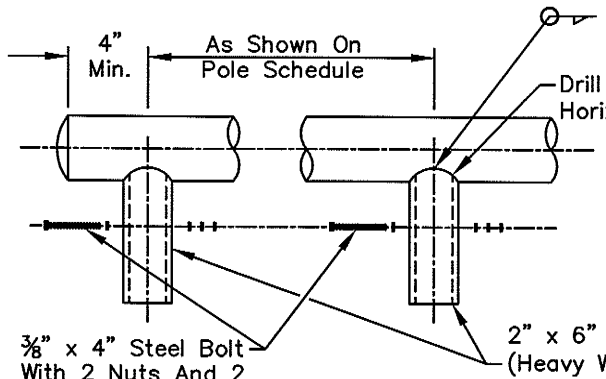
* Standard Details for Public Improvements COT/PC 1994 edition



MOUNTING ORIENTATION PLAN
Not To Scale



MOUNTING ORIENTATION PLAN
Not To Scale



TENON DETAIL
Not To Scale

NOTES:

1. All mounts shall be used with polycarbonate vehicular traffic signal heads only.
2. All materials shall be black.

APPROVED FOR DISTRIBUTION:

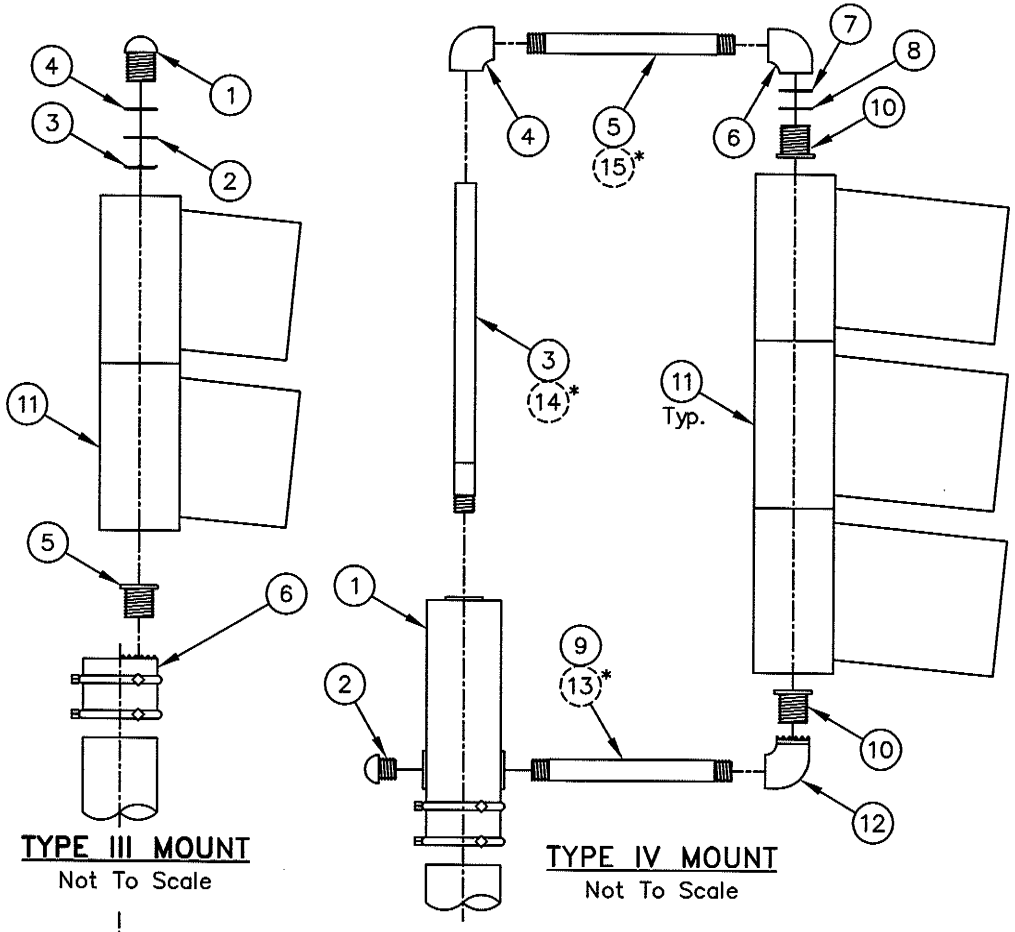
9/9/2005

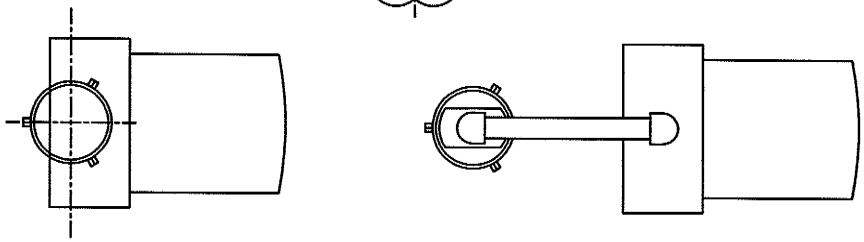
Keith E. Brann, P.E., Acting Town Engineer — Date

Registered Professional Engineer (Civil) 38119 SCOTT A. LESKA Date Signed 9/9/05 ARIZONA, U.S.A.

TOWN OF MARANA ARIZONA 1977

STANDARD DETAIL	DETAIL NO:
TYPE I AND II MOUNTING ASSEMBLIES	730–901
DATE: 9/9/05 — REVISED:	SHEET 1 OF 1





TYPE III MOUNT

LIST OF MATERIALS		
Itm.	Qty.	Description
1	1	Ornamental Cap. (T.S. 10–1–6)**
2	1	Neoprene Washer.
3	1	Conduit Locknut.
4	1	Flat Washer.
5	1	1½" Lock Nipple 1⅛" Long.
6	1	Pole Top Offset Mount. (T.S. 10–1–3)**
7	1	Signal Head, See Plans.

TYPE IV MOUNT

LIST OF MATERIALS		
Itm.	Qty.	Description
1	1	Pole Top Mounted Terminal Compartment. (T.S. 10–4–2)**
2	1	Ornamental Cap. (T.S. 10–1–6)**
3	1	1½" Center Pipe ***
4	1	90° Elbow, Drill & Tap for Setscrew.
5	1	1½" Pipe Nipple, 12½" Long For Pedestrian & Signal Heads.
6	1	90° Elbow.
7	1	Flat Washer.
8	1	Neoprene Washer.
9	1	1½" Pipe Nipple, 12" Long.
10	2	1½" Lock Nipple See Note 1.
11	1	12" Signal Head. See Plans.
12	1	90° Elbow With Locking Device. (TS 10–1–2)**
13*	1	1½" Pipe Nipple, 12" Long.
14*	1	1½" Pipe Nipple, 9 1/2" Long for Ped. Signal, For Illuminated Message Units Use 23⅝" x 1½" Pipe.
15*	1	1½" Pipe Nipple, 12 1/2" Long.

** Standard Details for Public Improvements COT/PC 1994 edition.

*** Nipple length shall be determined by Contractor to ensure a correct fit for the type of vehicular traffic signal head being installed.

NOTES:

1. Lock nipple length shall be 1¾" for 12" heads.
2. All materials shall be black.

APPROVED FOR DISTRIBUTION:

9/9/2005

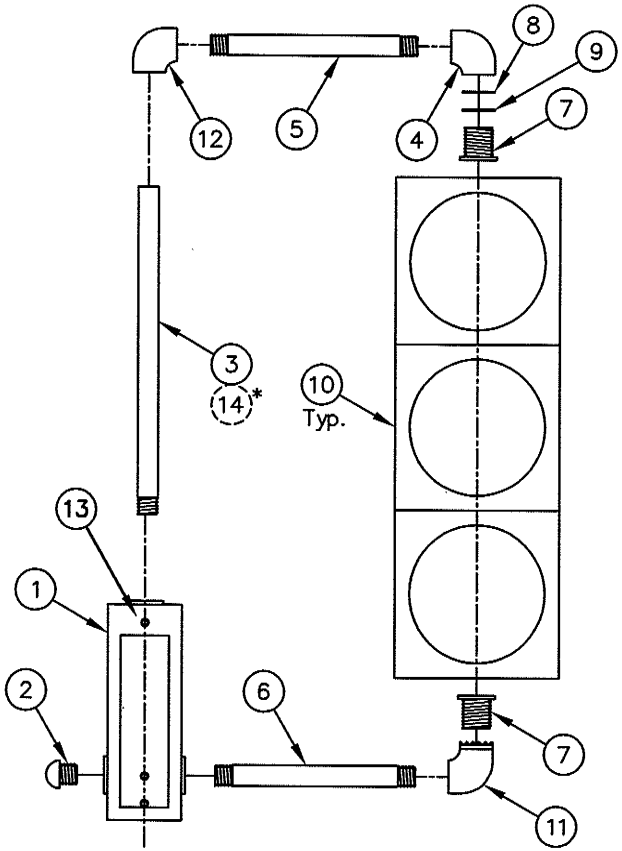
Keith E. Brann, P.E., Date
Acting Town Engineer

Marana Special Council Meeting 06/28/2016

Registered Professional Engineer (Civil) 38119 SCOTT A. LESKA Date Signed 9/9/05 ARIZONA, U.S.A.

TOWN OF MARANA ARIZONA

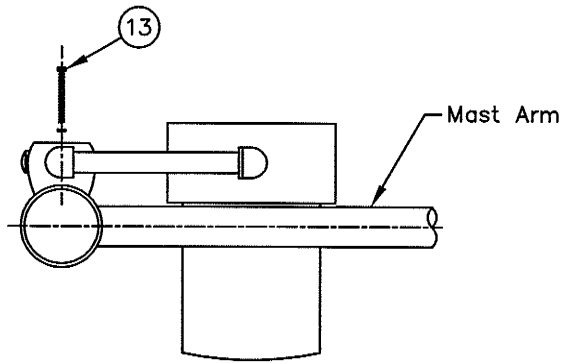
STANDARD DETAIL	DETAIL NO:
TYPE III AND IV MOUNTING ASSEMBLIES	730–902
DATE: 9/9/05 REVISED:	SHEET 1 OF 1



TYPE V MOUNT
Not To Scale

LIST OF MATERIALS		
Itm.	Qty.	Description
1	1	Terminal Compartment For Side Mtg. (See T.S. 10–4–1)**
2	1	Ornamental Cap. (See T.S. 10–1–6)**
3	1	1½" I.D. Pipe ***
4	1	1½" I.D. Pipe, 90° Elbow.
5	1	1½" I.D. Pipe Nipple, 24½" Long.
6	1	1½" I.D. Pipe Nipple, 24" Long
7	1	1½" Lock Nipple, See Note No. 1.
8	1	Flat Washer.
9	1	Neoprene Washer.
10	1	12" Signal Head. See Plans.
11	1	90° Ell With Locking Device. (T.S. 10–1–2)**
12	1	1½" I.D. Pipe 90° Elbow, Drill & Tap For Setscrew.
13	2	½" x 2" Galvanized Steel Bolt 13–UNC With Flat Washer and Lock Washer.
14*	1	1½" Pipe Nipple 9½"–For Pedestrian Signal Units Only. (For Illuminated Message, Use 25⅜" Pipe)

** Standard Details for Public Improvements COT/PC 1994 edition.
*** Nipple length shall be determined by Contractor to ensure a correct fit for the type of vehicular traffic signal head being installed.



MOUNTING
ORIENTATION PLAN
Not To Scale

NOTES:
1. Lock nipple length shall be 1¾" for 12" heads.
2. All materials shall be black.

APPROVED FOR DISTRIBUTION:

9/9/2005

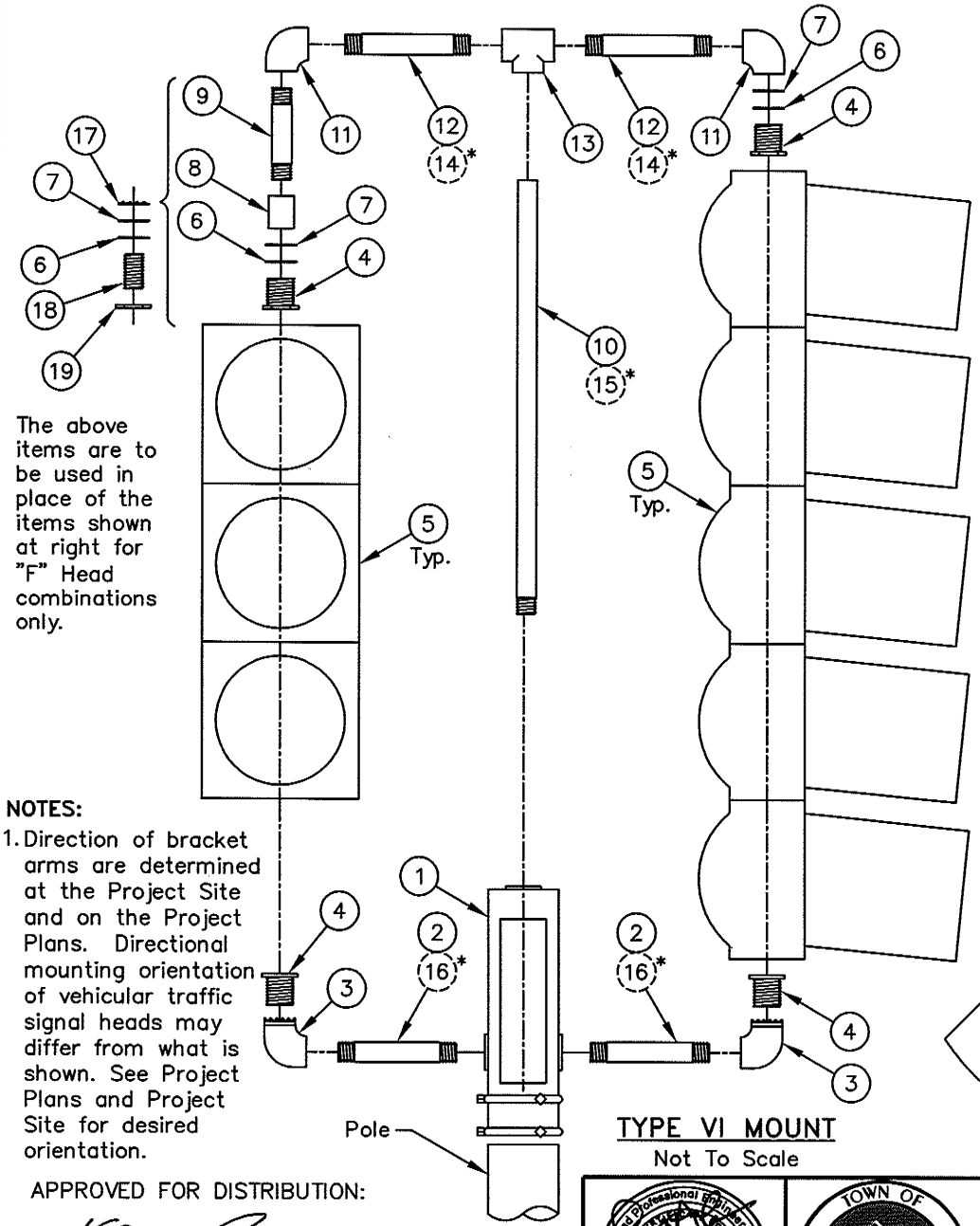
Keith E. Brann, P.E., Date
Acting Town Engineer

Marana Special Council Meeting 06/28/2016

Registered Professional Engineer (Civil) 38119 SCOTT A. LESKA Date Signed 9/9/05 ARIZONA, U.S.A.

TOWN OF MARANA 1977 ARIZONA

STANDARD DETAIL		DETAIL NO:
TYPE V MOUNTING ASSEMBLY		730–903
DATE: 9/9/05	REVISED:	SHEET 1 OF 1



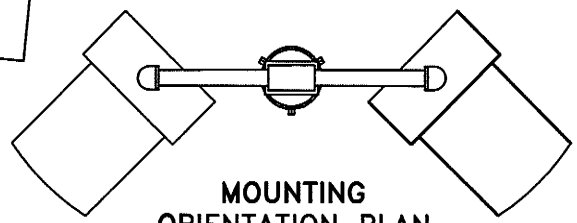
TYPE VI MOUNT
Not To Scale

LIST OF MATERIALS		
Itm.	Qty.	Description
1	1	Terminal Compartment Pole Top Mtg. (See T.S. 10–4–1)**
2	2	1½" I.D. Pipe Nipple, 12" Long.
3	2	90° Ell With Locking Device. (See T.S. 10–1–2)**
4	4	1½" Lock Nipple, See NOTE No. 1.
5	2	12" Signal Head. See Plans.
6	2	Neoprene Washer.
7	2	Flat Washer.
8	1	1½" Pipe Coupling, As Required.
9	1	1½" Pipe Nipple ***
10	1	1½" Center Pipe ***
11	2	90° Elbow, 1½".
12	2	1½" Pipe Nipple, 12½" Long.
13	1	Pipe Tee, Drill & Tap for Setscrew.
14*	2	1½" Pipe Nipple, 12½" Long For Ped. Signal Heads.
15*	1	1½" Pipe Nipple, 9½" Long For Ped. Signal Heads.
16*	2	1½" Pipe Nipple, 12" Long For Ped. Signal Heads.
17	1	Conduit Lock Nut. (For 'F' & 'R' Combination Only)
18	1	1½" Pipe Nipple, 3" Long. (For 'F' & 'R' Combination Only)
19	1	Malleable Hex Nut. (For 'F' & 'R' Combination Only)

** Standard Details for Public Improvements COT/PC 1994 edition.
*** Nipple length shall be determined by Contractor to ensure a correct fit for the type of vehicular traffic signal head being installed.

NOTES:

1. Direction of bracket arms are determined at the Project Site and on the Project Plans. Directional mounting orientation of vehicular traffic signal heads may differ from what is shown. See Project Plans and Project Site for desired orientation.



MOUNTING ORIENTATION PLAN
Not To Scale

NOTES (Cont.):

2. Lock nipple length shall be 1¾" for 12" heads.
3. All materials shall be black.
4. Mounting orientation may differ from what is shown. See Project Plans and Project Site for desired orientation.

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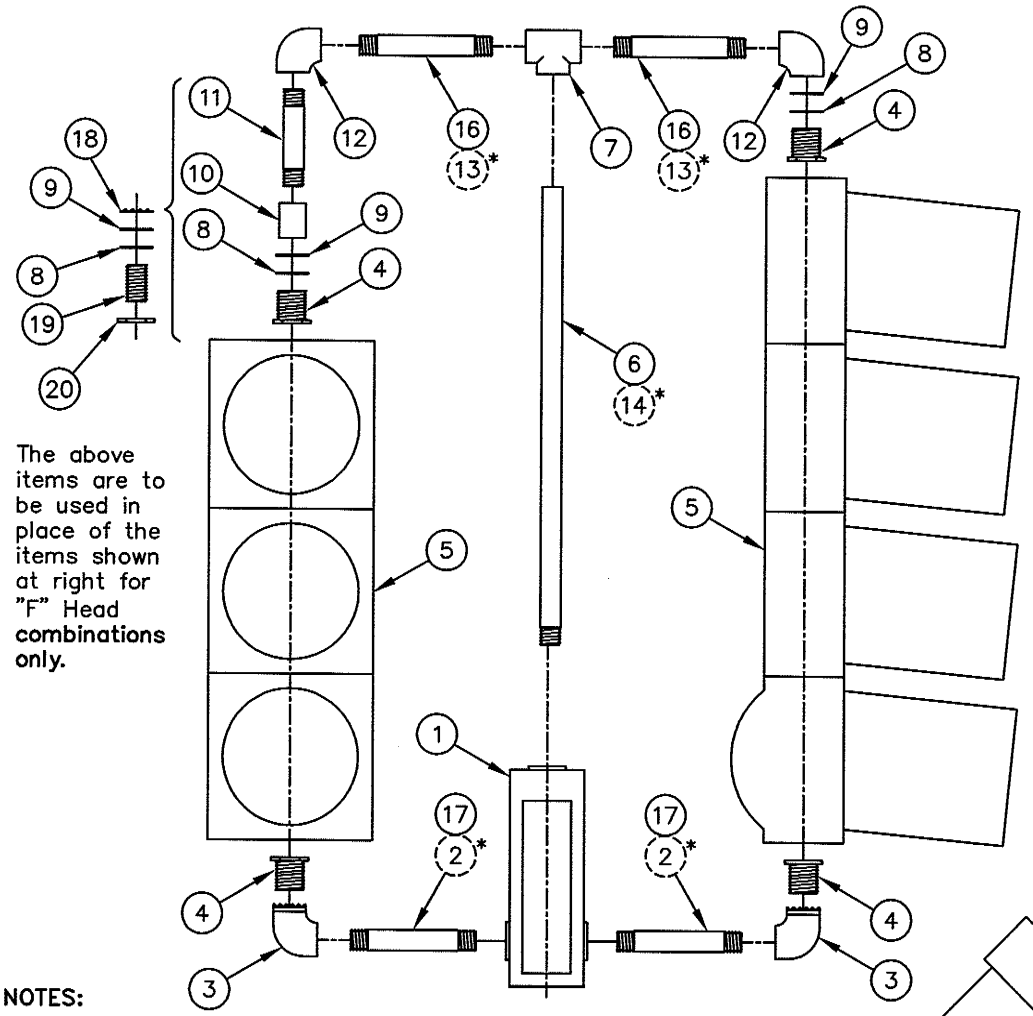
9/9/2005

Keith E. Brann, P.E., Date
Acting Town Engineer

Registered Professional Engineer (Civil) 38119 SCOTT A. LESKA Date Signed 9/9/05 ARIZONA, U.S.A.

TOWN OF MARANA ARIZONA 1977

STANDARD DETAIL		DETAIL NO:
TYPE VI MOUNTING ASSEMBLY		730–904
DATE: 9/9/05	REVISED:	SHEET 1 OF 1



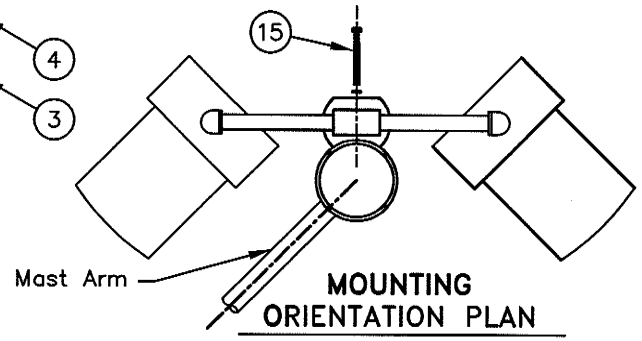
The above items are to be used in place of the items shown at right for "F" Head **combinations only.**

TYPE VII MOUNT
Not To Scale

LIST OF MATERIALS		
Itm.	Qty.	Description
1	1	Terminal Compartment Pole Top Mtg. (See T.S. 10–4–1)**
2*	2	1½" Pipe Nipple, 11½" Long. (For Ped. Signal Heads)
3	2	90° Elbow With Locking Device. (See T.S. 10–1–2)**
4	4	1½" Lock Nipple, See NOTE 1.
5	2	12" Signal Head. See Plans.
6	1	Center Pipe ***
7	1	Tee, Drill & Tap For Setscrew.
8	2	Neoprene Washer.
9	2	Flat Washer.
10	1	1½" Pipe Coupling, As Required.
11	1	1½" Pipe Nipple ***
12	2	90° Elbow.
13*	2	1½" Pipe Nipple, 12" Long. (For Ped. Signal Heads)
14*	1	1½" Pipe Nipple, 9½" Long. (For Ped. Signal Heads)
15	2	½"x2" Galvanized Steel Bolt 13 UNC With Flat Washer And Lock Washer.
16	2	1½" Pipe Nipple, 24½" Long.
17	2	1½" Pipe Nipple, 24" Long.
18	1	Conduit Lock Nut. (For 'F' & 'R' Combination Only)
19	1	1½" Pipe Nipple, 3" Long. (For 'F' & 'R' Combination Only)
20	1	Malleable Hex Nut. (For 'F' & 'R' Combination Only)

** Standard Details for Public Improvements COT/PC 1994 edition.

*** Nipple length shall be determined by Contractor to ensure a correct fit for the type of vehicular traffic signal head being installed.



MOUNTING ORIENTATION PLAN
Not To Scale

NOTES:

1. Direction of bracket arms are determined at the Project Site and on the Project Plans. Directional mounting orientation of vehicular traffic signal heads may differ from what is shown. See Project Plans and Project Site for desired orientation.

NOTES (Cont.):

2. Lock nipple length shall be and 1¾" for 12" heads.
3. All materials shall be black.
4. Mounting orientation may differ from what is shown. See Project Plans and Project Site for desired orientation.

APPROVED FOR DISTRIBUTION:

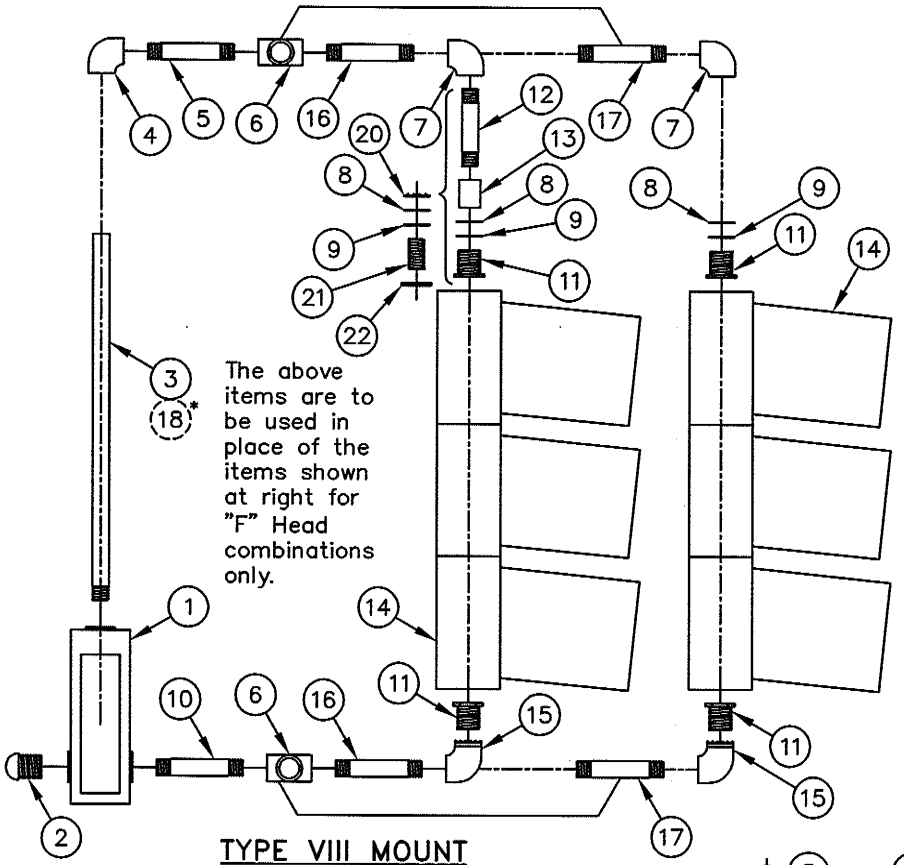
9/9/2005

Keith E. Brann, P.E., Date
Acting Town Engineer

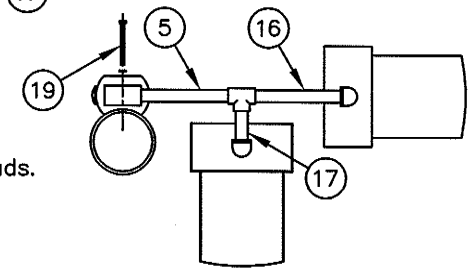
Registered Professional Engineer (Civil) 38119 SCOTT A. LESKA Date Signed 9/9/05 ARIZONA, U.S.A.

TOWN OF MARANA ARIZONA 1777

STANDARD DETAIL	DETAIL NO:
TYPE VII MOUNTING ASSEMBLY	730–905
DATE: 9/9/05 REVISED:	SHEET 1 OF 1



TYPE VIII MOUNT
Not To Scale



MOUNTING ORIENTATION PLAN
Not To Scale

LIST OF MATERIALS		
Itm.	Qty.	Description
1	1	Terminal Compartment Pole Top Mtg. (See T.S. 10–4–1)**
2	1	Ornamental Cap. (See T.S. 10–1–6)**
3	1	1½" Pipe ***
4	1	1½" 90° Elbow, Drill & Tap For Setscrew.
5	11	1½" I.D. Pipe Nipple, 12½" Long.
6	2	1½" Pipe Tee.
7	2	90° Elbow.
8	2	Flat Washer.
9	1	Neoprene Washer.
10	4	1½" I.D. Pipe Nipple, 12" Long.
11	1	1½" Lock Nipple, See NOTE 1.
12	1	1½" I.D. Pipe Nipple ***
13	2	1½" Coupling, As Required.
14	2	12" Signal Head. See Plans.
15	2	90° Elbow With Locking Device. (See T.S. 10–1–2)**
16	2	1½" I.D. Pipe Nipple, 12" Long.
17	1	1½" I.D. Pipe Nipple, 12" Long.
18*	2	1½" I.D. Pipe Nipple, 9½" Long. For Ped Signal Only.
19	1	½" x 2" Galvanized Steel Bolt 13–UNC With Flat Washer And Lock Washer.
20	1	Conduit Lock Nut. (For 'F' & 'R' Combination Only)
21	1	1½" I.D. Pipe Nipple, 3" Long. (For 'F' And 'R' Combination Only)
22	1	Malleable Hex Nut. (For 'F' & 'R' Combination Only)

** Standard Details for Public Improvements COT/PC 1994 edition.

*** Nipple length shall be determined by Contractor to ensure a correct fit for the type of vehicular traffic signal head being installed.

NOTES:

1. Lock nipple length shall be and 1 ¾" for 12" heads.
2. All materials shall be black.
3. Direction of bracket arms are determined at the Project Site and on the Project Plans. Directional mounting orientation of vehicular traffic signal heads may differ from what is shown. See Project Plans and Project Site for desired orientation.

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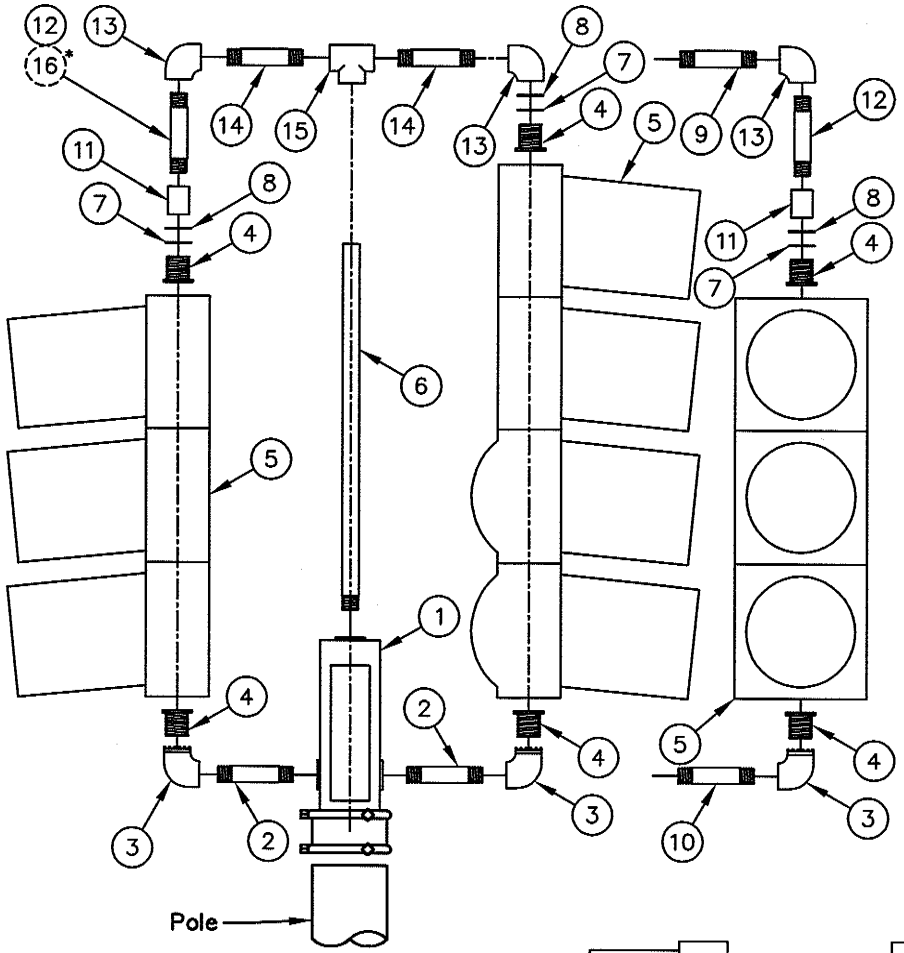
9/9/2005

Keith E. Brann, P.E., Date
Acting Town Engineer

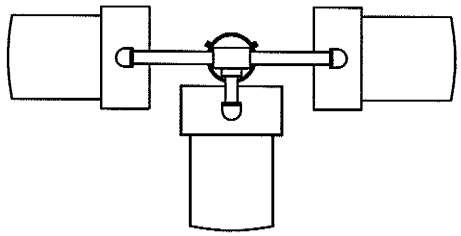
Registered Professional Engineer (Civil) 38119 SCOTT A. LESKA Date Signed 9/9/05 ARIZONA, U.S.A.

TOWN OF MARANA 1977 ARIZONA

STANDARD DETAIL		DETAIL NO:
TYPE VIII MOUNTING ASSEMBLY		730–906
DATE: 9/9/05	REVISED:	SHEET 1 OF 1



TYPE IX MOUNT
Not To Scale



MOUNTING ORIENTATION PLAN
Not To Scale

LIST OF MATERIALS		
Itm.	Qty.	Description
1	1	Pole Top Mtd. Terminal Compartment. (T.S. 10–4–2)**
2	2	1½" Pipe Nipple, 6" Long.
3	3	90° Elbow With Locking Device. (See T.S. 10–1–2)**
4	6	1½" Lock Nipple, See NOTES 1 & 3.
5	3	12" Signal Head. See Plans.
6	1	1½" Pipe ***
7	3	Neoprene Washer.
8	3	Flat Washer.
9	1	1½" Pipe Nipple, 12½" Long.
10	1	1½" Pipe Nipple, 12" Long.
11	2	1½" Coupling, As Required.
12	2	1½" Pipe Nipple ***
13	3	90° Elbow.
14	2	1½" Pipe Nipple, 6½" Long.
15	1	Tee With Side Outlet, Drill & Tap For Setscrew.
16	1	1½" I.D. Pipe Nipple, 49" Long For Pedestrian Signal.

** Standard Details for Public Improvements COT/PC 1994 edition.

*** Nipple length shall be determined by Contractor to ensure a correct fit for the type of vehicular traffic signal head being installed.

NOTES:

1. Lock nipple length shall be and 1¾" for 12" heads.
2. All materials shall be black.
3. Lock Nut is required in place of Lock Nipple when "F" face face or "R" face are hung on same frame.
4. Direction of bracket arms are determined at the Project Site and on the Project Plans. Directional mounting orientation of vehicular traffic signal heads may differ from what is shown. See Project Plans and Project Site for desired orientation.

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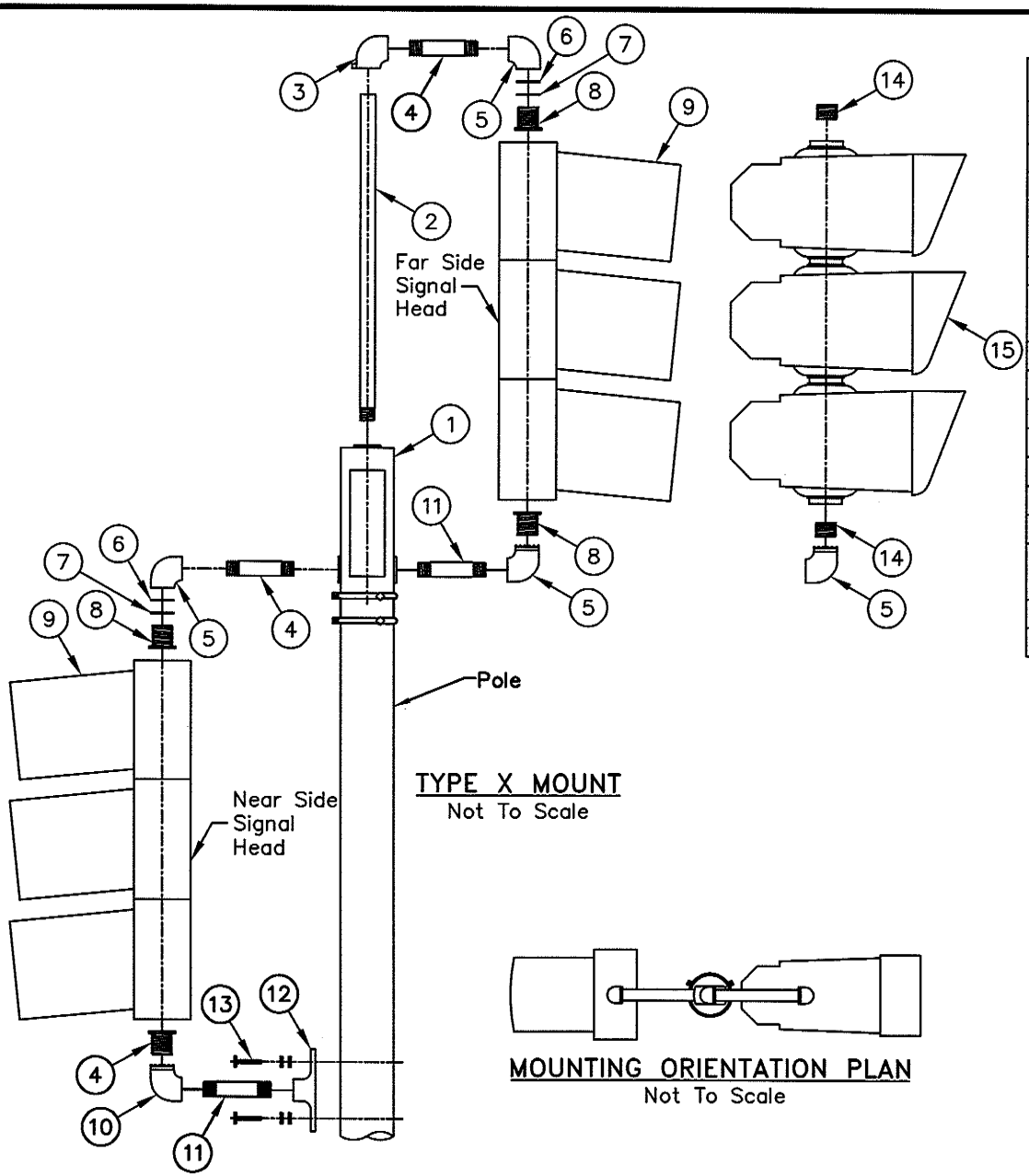
9/9/2005

Keith E. Brann, P.E., Date
Acting Town Engineer

Professional Engineer (Civil) 38119 SCOTT A. LESKA Date Signed 9/9/05 ARIZONA, U.S.A.

TOWN OF MARANA ARIZONA 1977

STANDARD DETAIL		DETAIL NO:
TYPE IX MOUNTING ASSEMBLY		730–907
DATE: 9/9/05	REVISED:	SHEET 1 OF 1



TYPE X MOUNT
Not To Scale

MOUNTING ORIENTATION PLAN
Not To Scale

LIST OF MATERIALS		
Itm.	Qty.	Description
1	1	Pole Top Mtd. Terminal Compartment. (T.S. 10–4–2)*
2	1	½" Pipe ***
3	1	Elbow, 1½", 90°, Reamed, Drilled, and Tapped For Screw.
4	2	Nipple, 1½" x 14½".
5	2	Elbow, 1½", 90° (3 Required When Optical Signal is Used.)
6	2	Flat Washer.
7	2	Neoprene Washer.
8	4	1½" Lock Nipple, See NOTE 1.
9	2	12" Signal Head. See Plans.
10	2	Elbow, 1½", 90°, With Locking Device.
11	2	Nipple, 1½" x 14"
12	1	Pole Plate. (T.S. 10–3–2)*
13	2	½" x 2" Galvanized Steel Bolt 13–UNC With Flat Washer and Lock Washer.
14	2	Close Nipple, 1½" x 1¾".
15	1	Programmed Visibility Signal Assembly.

** Standard Details for Public Improvements COT/PC 1994 edition.

*** Pipe nipple length shall be determined by Contractor to ensure a correct fit for the type of vehicular traffic signal head being installed.

NOTES:

1. Lock nipple length shall be and 1¾" for 12" heads.
2. All materials shall be black.
3. Direction of Bracket arms are determined at the Project Site and on the Project Plans. Directional mounting orientation of vehicular traffic signal heads may differ from what is shown. See Project Plans and Project Site for desired orientation.

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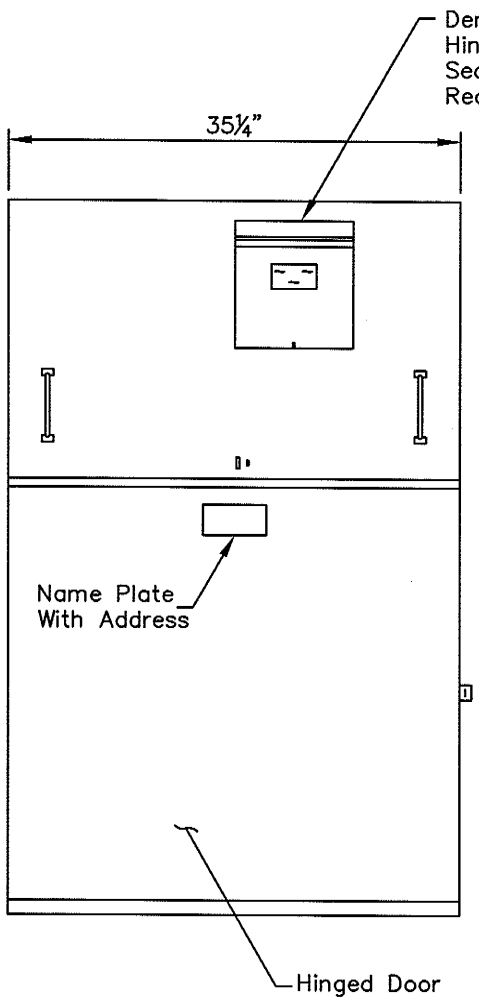
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Keith E. Brann, P.E., Date
Acting Town Engineer

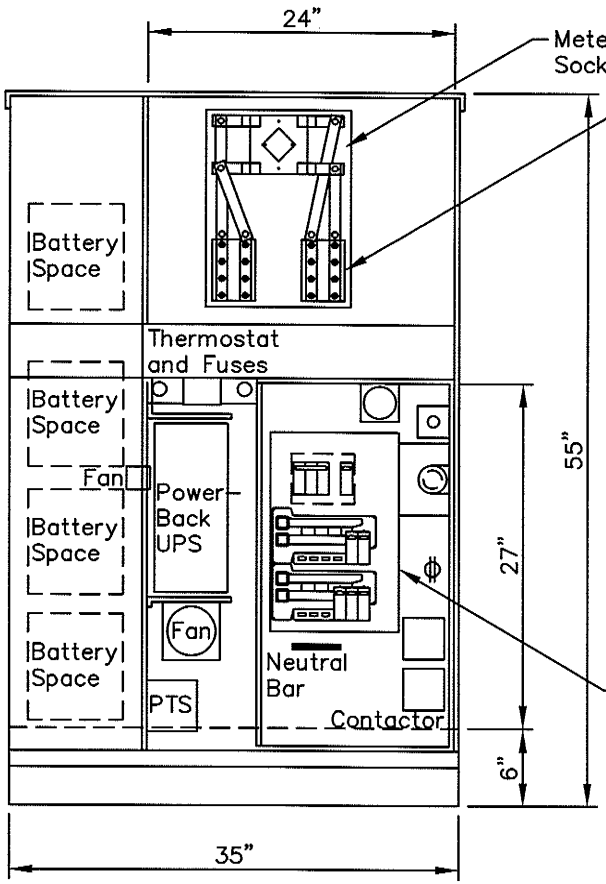
Registered Professional Engineer (Civil) 38119 SCOTT A. LESKA Date Signed 9/9/05 ARIZONA, U.S.A.

TOWN OF MARANA ARIZONA

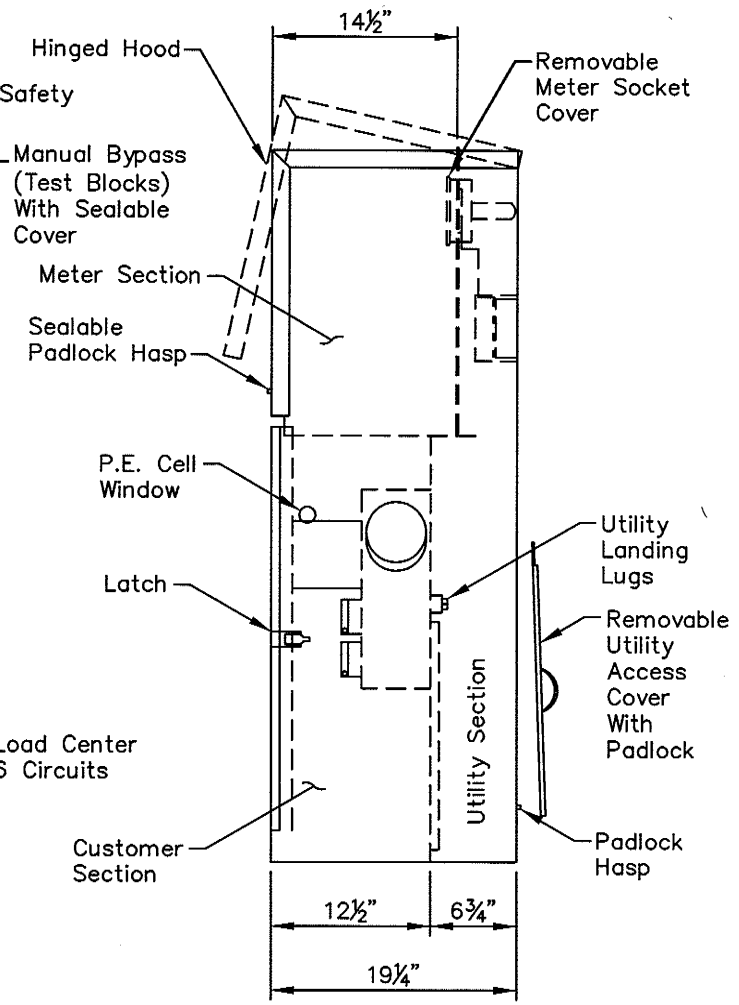
STANDARD DETAIL		DETAIL NO:
TYPE X MOUNTING ASSEMBLY		730–908
DATE: 9/9/05	REVISED:	SHEET 1 OF 1



FRONT VIEW
Not To Scale



FRONT VIEW
LESS DOOR, DEADFRONT, AND COVER
Not To Scale



SIDE VIEW
Not To Scale

Note:

1. Load service calculations shall be provided and shown on the plans.
2. Single line electrical service diagrams to shall be shown on plans.

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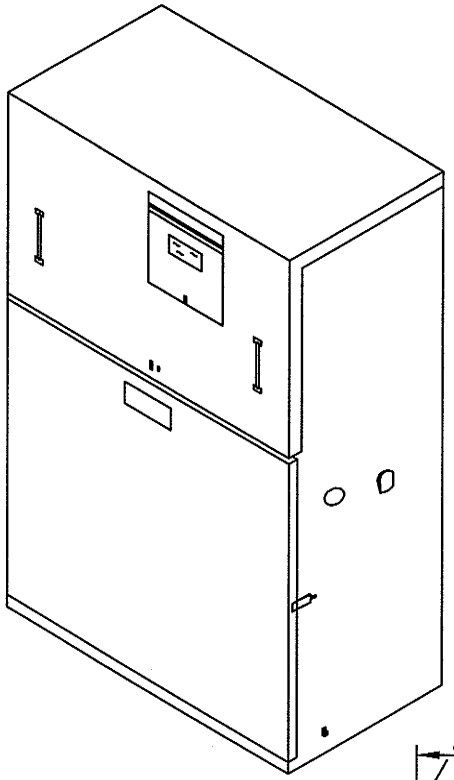
9/9/2005

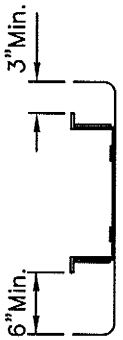
Keith E. Brann, P.E., Date
Acting Town Engineer

Registered Professional Engineer (Civil) 38119 SCOTT A. LESKA Date Signed 9/9/05 ARIZONA, U.S.A.

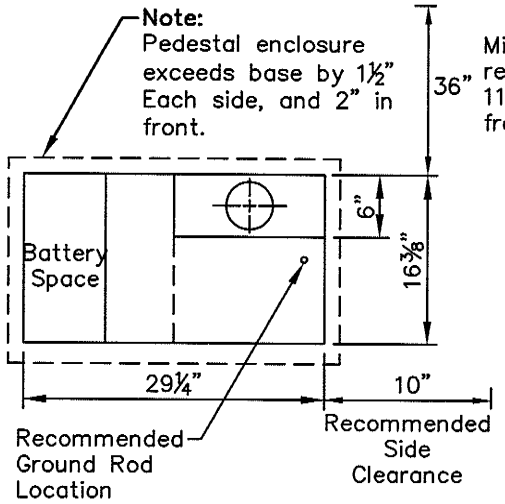
TOWN OF MARANA ARIZONA

STANDARD DETAIL	DETAIL NO:
UPS AND ELECTRIC SERVICE	730-1810
DATE: 9/9/05 / REVISED:	SHEET 1 OF 2

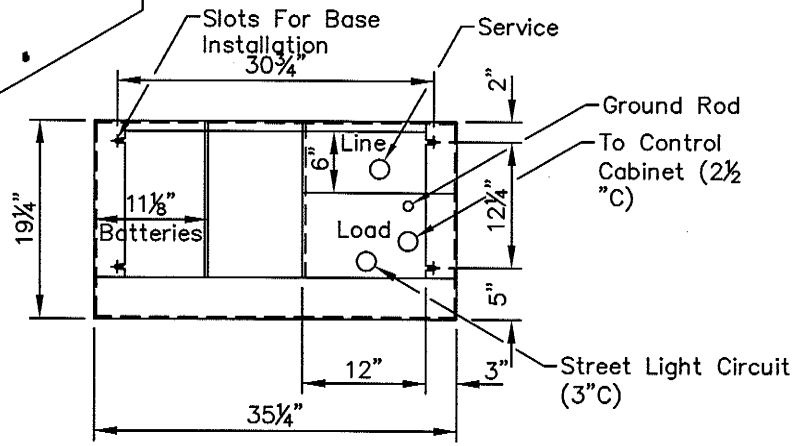




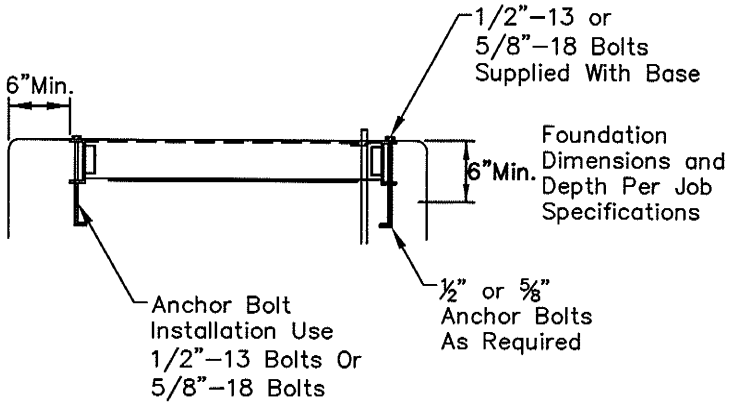
SIDE VIEW
Not To Scale



PLAN VIEW
Not To Scale



PEDESTAL PLAN VIEW
MOUNTING SLOT DETAIL
Not To Scale



FRONT VIEW
Not To Scale

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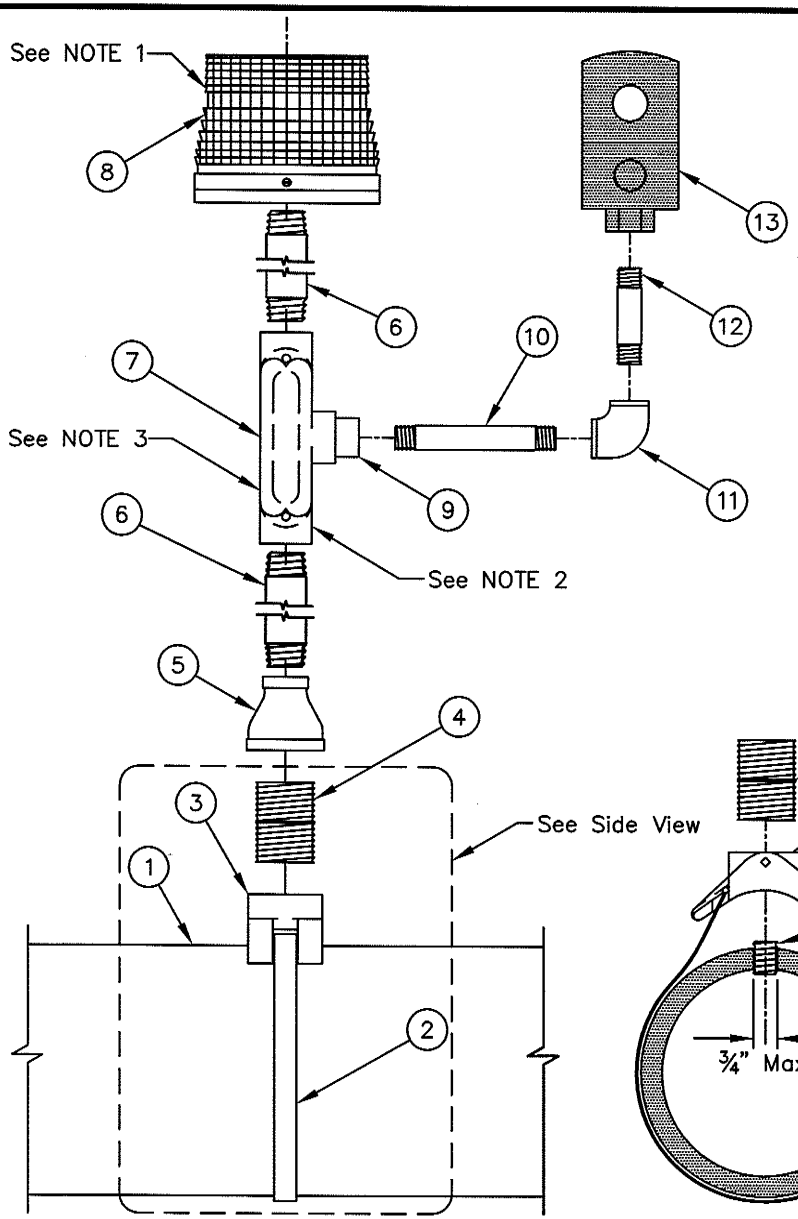
9/9/2005

Keith E. Brann, P.E., Date
Acting Town Engineer

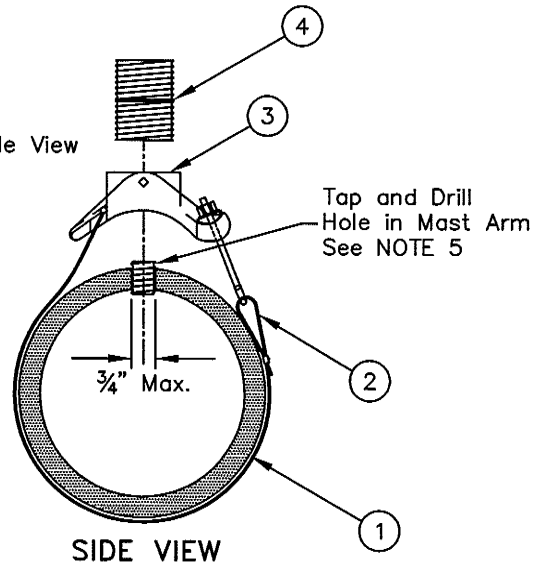
Registered Professional Engineer (Civil) 38119 SCOTT A. LESKA Date Signed 9/9/05 ARIZONA, U.S.A.

TOWN OF MARANA ARIZONA 1977

STANDARD DETAIL	DETAIL NO:
UPS AND ELECTRIC SERVICE	730–1810
DATE: 9/9/05 REVISED:	SHEET 2 OF 2



FRONT VIEW
Not To Scale



SIDE VIEW
Not To Scale

LIST OF MATERIALS		
Itm.	Qty.	Description
1	1	Signal Mast Arm (See Plans)
2	1	⅝" Banding
3	1	Pelco Astro Mini–Brac Band Mount AB–0121–42–NPT Or Approved Equal
4	1	1½" Chase Nipple (Black Pipe)
5	1	1½"–1" Reducer (Black Pipe, Painted Black)
6	2	12" Chase Nipple (Black Pipe)
7	1	1" Conduit Body C Style
8	1	Flashing Beacon, See Note 1
9	1	1"–¾" Reducer
10	1	3/4" Pipe Nipple, 5" Long
11	1	3/4" 90° Elbow
12	1	3/4" Pipe Nipple, 3" Long
13	1	Optical Detector

NOTES:

1. North/South pre–emption: Use clear beacon. East/West pre–emption: Use blue beacon. Whelen part No. IS3220I or approved equal.
2. Face plate shall face away from approaching traffic.
3. Conduit body shall be primed and then painted black.
4. 2' minimum spacing from any other penetration into mast arm.

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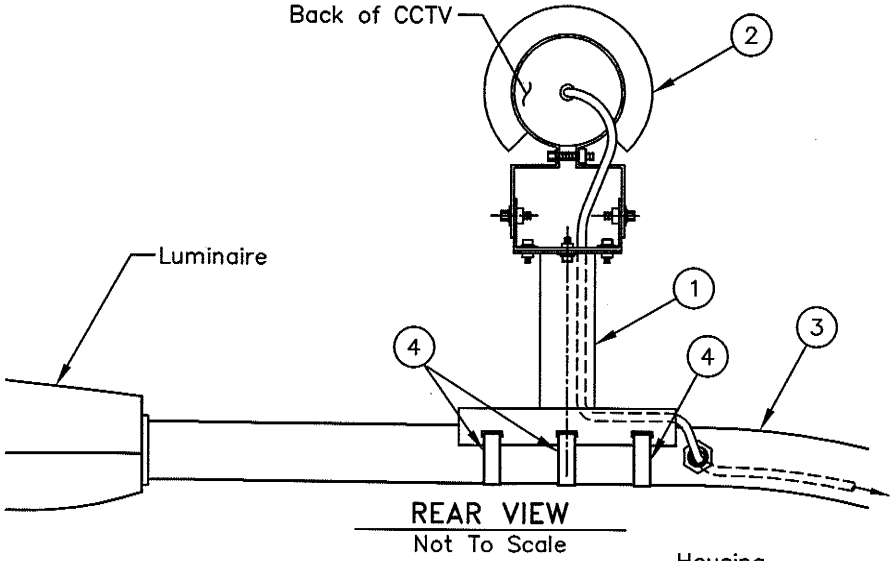
9/9/2005

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Acting Town Engineer

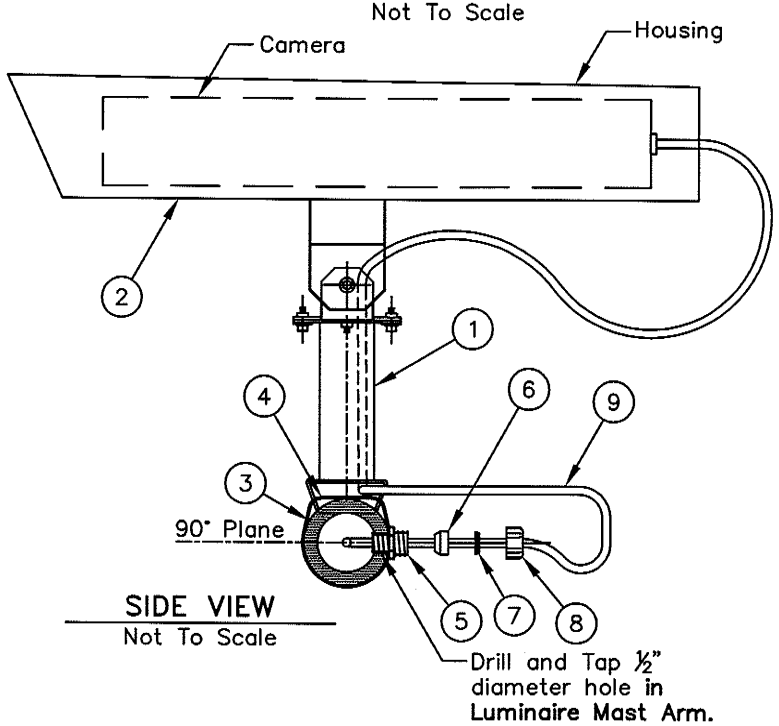
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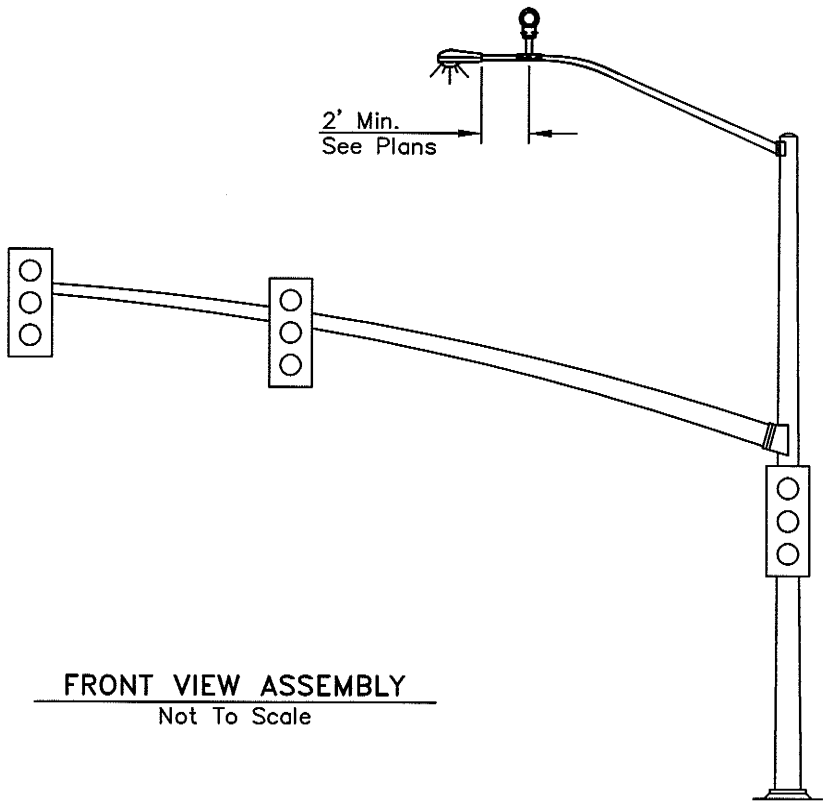
TOWN OF MARANA ARIZONA 1977

STANDARD DETAIL	DETAIL NO:
PRE–EMPTION MOUNTING DETAIL	730–1910
DATE: 9/9/05 REVISED:	SHEET 1 OF 1



LIST OF MATERIALS		
Itm.	Qty.	Description
1	1	Camera Mount
2	1	Camera
3	1	Luminaire Mast Arm
4	3	Banding
5	1	Chase Nipple (Black Pipe)
6	1	Gasket
7	1	Plastic Washer
8	1	Bolt
9	1	CCTV Cable Per Manufacturer Requirements





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9/9/2005

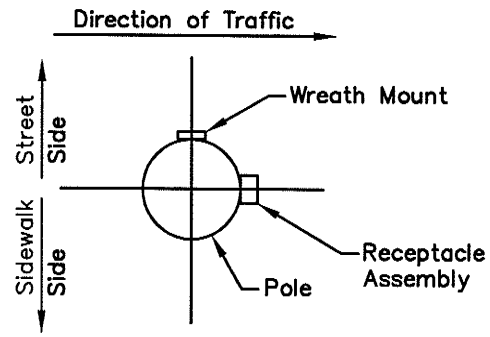
Keith E. Brann, P.E., Date
Acting Town Engineer

Marana Special Council Meeting 06/28/2016

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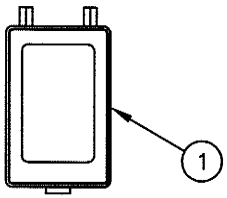
TOWN OF MARANA ARIZONA

STANDARD DETAIL	DETAIL NO:
CAMERA AND MOUNT ASSEMBLY	730-1911
DATE: 9/9/05 REVISED:	SHEET 1 OF 1

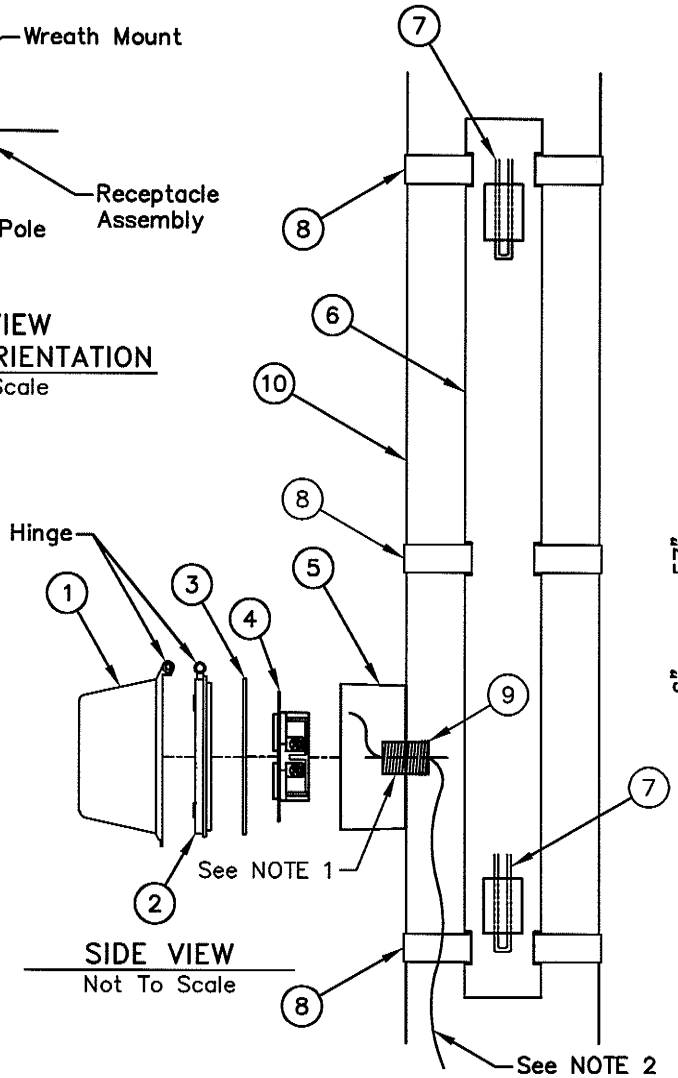


PLAN VIEW
SCHEMATIC ORIENTATION
Not To Scale

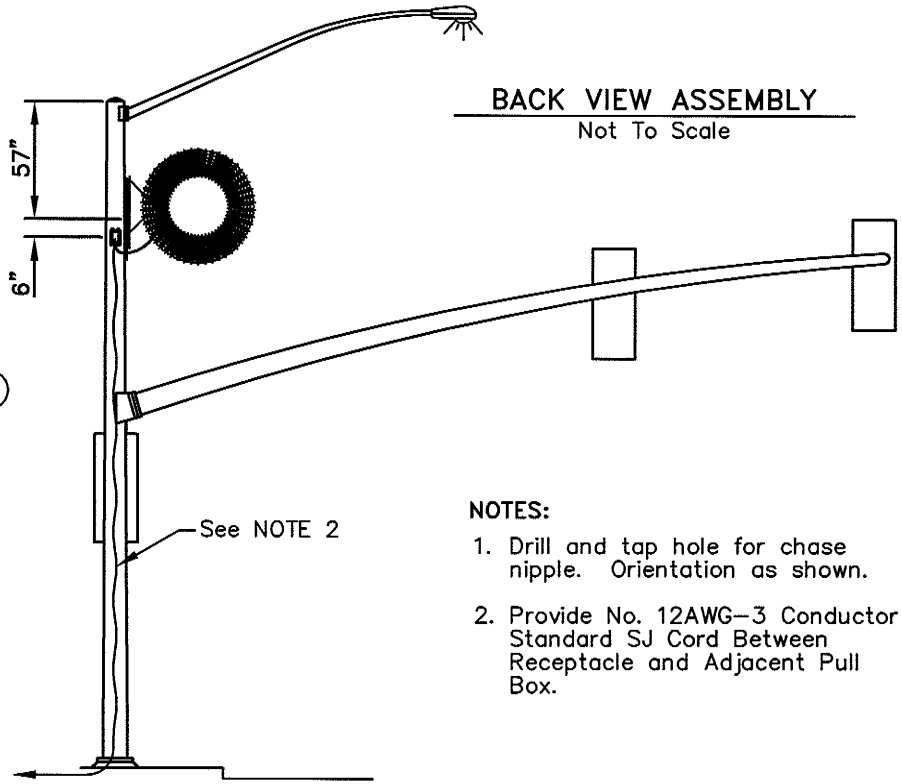
LIST OF MATERIALS			
Itm.	Qty.	Description	
1	1	Steel Receptacle Cover	Red Dot #CK MGV Or Approved Equal
2	1	Steel Receptacle Base	
3	1	Gasket	
4	1	Grounding Outlet, 2–Pole, 3–Wire 15 Amp–125 Volt Rated Capacity	
5	1	Outlet Box, Red Dot 14252 Or Approved Equal	
6	1	Wreath Mount	
7	1	Wreath	
8	3	Banding	
9	1	1" Chase Nipple (Black Pipe)	
10	1	Pole (See Plans)	



FRONT VIEW
Not To Scale



SIDE VIEW
Not To Scale



BACK VIEW ASSEMBLY
Not To Scale

NOTES:

1. Drill and tap hole for chase nipple. Orientation as shown.
2. Provide No. 12AWG–3 Conductor Standard SJ Cord Between Receptacle and Adjacent Pull Box.

APPROVED FOR DISTRIBUTION:

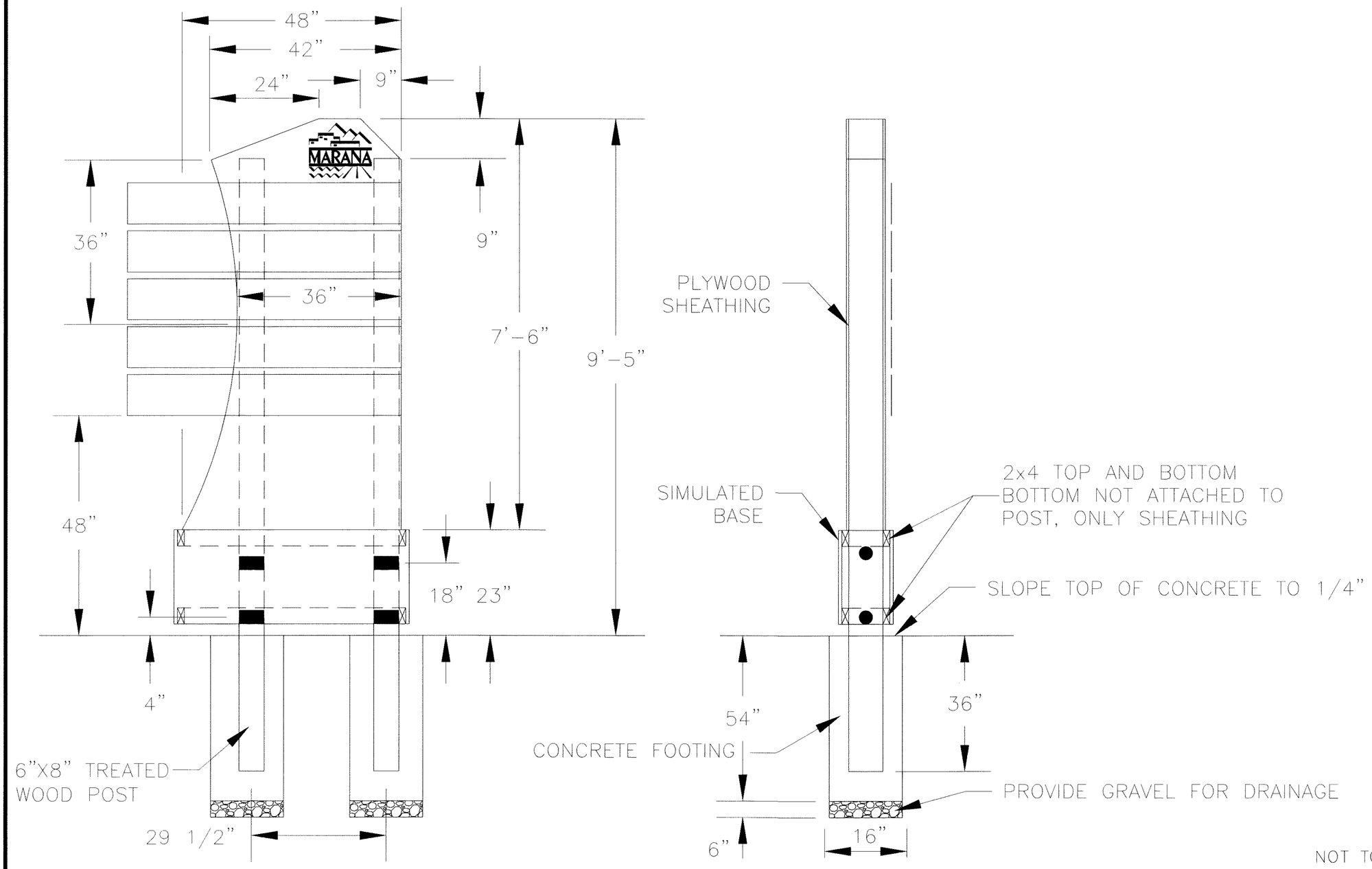
9/9/2005

Keith E. Brann, P.E., Date
Acting Town Engineer

Registered Professional Engineer (Civil) 38119 SCOTT A. LESKA Date Signed 9/9/05 ARIZONA, U.S.A.

TOWN OF MARANA ARIZONA

STANDARD DETAIL	DETAIL NO:
RECEPTACLE AND WREATH MOUNT	730–1912
DATE: 9/9/05 REVISED:	SHEET 1 OF 1



NOT TO SCALE

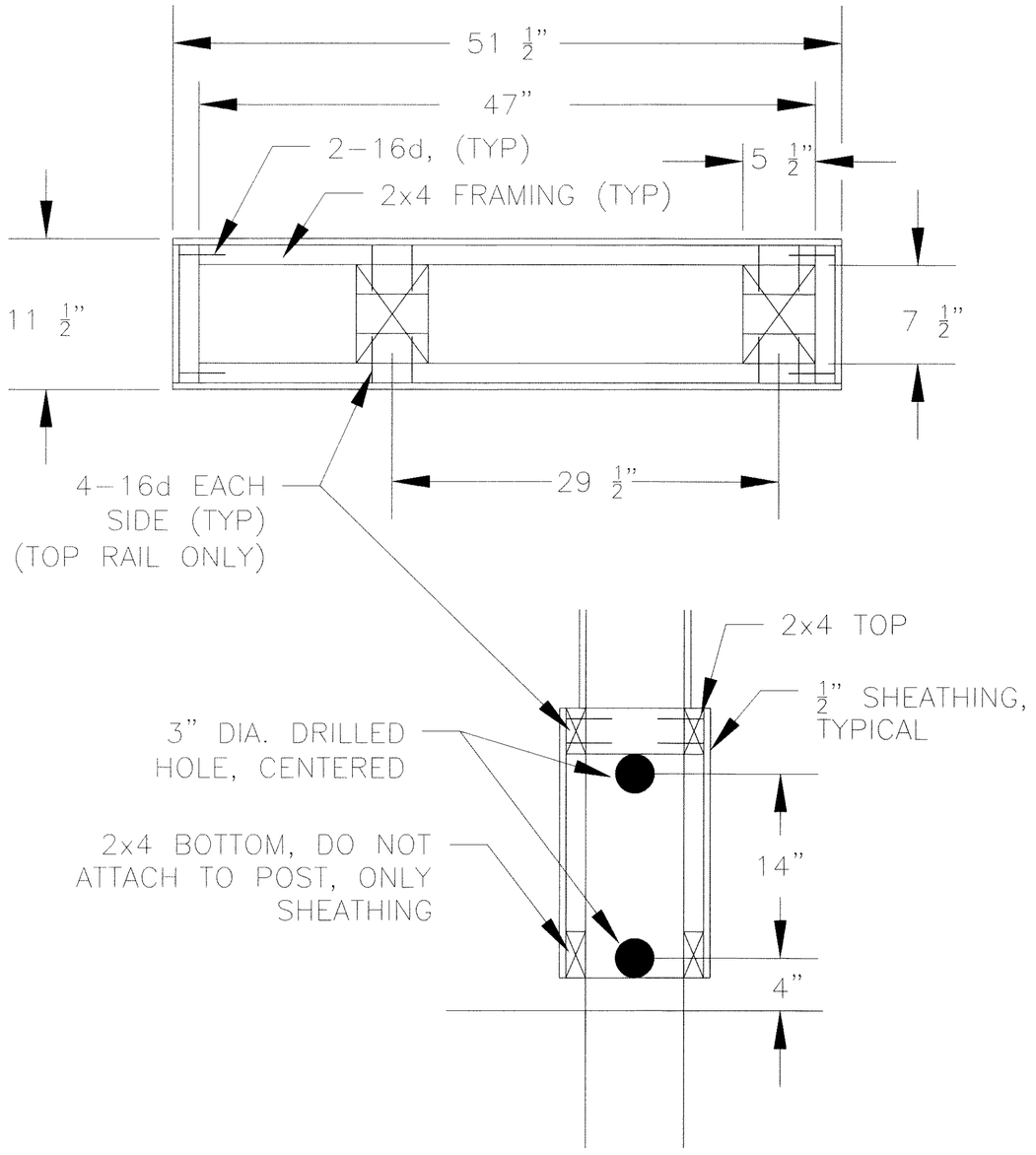
APPROVED FOR DISTRIBUTION:

Keith E. Brann, P.E.,
Town Engineer

Registered Professional Engineer (Structural) CERTIFICATE NO. 43897 KELLY A. MORALES Date Signed 02/24/11 ARIZONA U.S.A.
EXP. 03/2012

TOWN OF MARANA ARIZONA 1917

MARANA STREET STANDARDS		DETAIL NO:
WAYFINDING SIGN		740-1
DATE: 3/28/2011	REVISED:	SHEET 1 OF 2



DESIGN NOTES

1. SHEATHING TO BE ½" EXTERIOR GRADE PLYWOOD
2. POSTS ARE 6"X8" D.F. NO 1 PRESSURE TREATED.
3. THREE INCH DIAMETER HOLES TO BE DRILLED PARALLEL TO SIX INCH SIDE OF POSTS PER DETAILS
4. SIGN PLATES ARE ALUMINUM SHEETING, RETROREFLECTIVE WITH MUTCD TYPE 6B LETTERING
5. SIMULATED BASE SHALL NOT HAVE ANY FIXED MOUNTING AT OR BELOW BREAK–AWAY HOLES
6. FRAMING FOR SIMULATED BASE SHALL BE 2x4 D.F. NO 2 PRESSURE TREATED LUMBER
7. CONCRETE STRENGTH, F'c=2500psi (SPECIAL INSPECTION NOT REQUIRED)
8. SOIL BEARING PRESSURE=1500psf, SOIL LATERAL BEARING PRESSURE=100psf PER 2006 IBC TABLE 1804.2
9. THE SITE DESIGN IS NOT CONSIDERED SUBJECT TO WIND SPEED–UP EFFECT, Kzt≤1.0 AS DEFINED IN SECTION 6.5.7.2 OF ASCE 7–05. ANY SIGN LOCATED WITHIN 125 FEET OF A 25 FOOT OR HIGHER HILL OR ESCARPMENT MAY BE SUBJECT TO SUCH EFFECTS AND SIGN REDESIGN WOULD BE REQUIRED. CONTACT ENGINEER OF RECORD IF SUCH EFFECTS ARE PRESENT. (1)
10. PROVIDE GRADE SLOPE AWAY FROM BASE OF POLES.
11. IT IS RECOMMENDED TO REPLACE WOOD POSTS EVERY FIVE YEARS DUE TO NORMAL CLIMATE EXPOSURE
12. ALL NAILING SHALL BE PER THE 2006 IBC TABLE 2304.9.1
13. SIMULATED BASE SHALL NOT HAVE ANY FIXED MOUNTING AT OR BELOW BREAK–AWAY HOLES.

(1) WIND FACTOR CLARIFICATION 03.28.11

NOT TO SCALE

APPROVED FOR DISTRIBUTION:

Keith E. Brann, P.E.,
Town Engineer

Certified Professional Engineer (Structural) CERTIFICATE NO. 43897 KELLY A. MORALES Date Signed 03/28/11 ARIZONA U.S.A. EXP. 03/2012

TOWN OF MARANA 1977 ARIZONA

MARANA STREET STANDARDS		DETAIL NO:
WAYFINDING SIGN		740–1
DATE: 3/28/2011	REVISED:	SHEET 2 OF 2

1. Statement discouraging private streets removed
2. Removed the 2500 ADT cap on collectors
3. Made reference to the Town's Procedural guide for preparing traffic studies instead of ADOT (the procedural guide was written after the original 2004 standards)
4. Level of service for street function has been changed from LOS C to LOS D in accordance with other Town documents such as impact fee studies
5. Street details are being pulled out of the street standards and collected with other Town details into a standard details book
6. Removed the ability to have driveways in a "T" or "Y" turnaround area as the geometry does not support them.
7. Created guidance for long cul de sacs to provide turnaround areas every 600 feet
8. Uncurbed intersection radius requirements removed, having the effect of the radius being tied to the nature of the road.
9. Clarified that when a deceleration lane is used on an arterial, the radius at that quadrant can be reduced to 25 feet from 40 feet.
10. Restricted mountainous terrain speed limits of less than 25mph to private streets. State law precludes posting a public street less than 25 mph.
11. The access requirements from ORD 2013.008 incorporated
12. Removed option for stabilized DG path in lieu of sidewalk as an outright option for large lot subdivisions. DG path would still be available as a design exception. The Town will only maintain hard surface sidewalks.
    a. Also removed reference to non-sidewalk subdivisions maintaining a 4 foot clear area.
13. Added a requirement that trees within 6 feet of the road edge use a root barrier that extends 3 feet below finished grade for a distance of 10 feet centered on the tree.
14. Removed restriction on outlet structures from private detention/retention facilities discharging into the right of way. That may be the natural discharge point. The Town will control how the discharge is done including energy dissipation.
15. Offsite flows are not allowed to be accepted into the street drainage system.
16. Cut off walls must extend 5 feet wider than the flow width on dip crossings.
17. Stipulated layer coefficients for pavement design rather than referring to ADOT guidelines. The layer coefficients are from the Pima County Roadway design guide that is normally used by the region.
18. Set the minimum pavement section for local streets to be 3" of asphalt over 4" of aggregate base in accordance with our new pavement management program. Set the minimum pavement section for commercial/industrial collector to be 6" of asphalt over 6" of aggregate base. Residential collector pavement section remains 3" of asphalt over 6" of aggregate base minimum. Note that Pima County has added a new equation to correlated R values in the region that leads to stouter pavement sections. The 3"/4" minimum section satisfies this new method of pavement design.
19. Changed the ESAL factors to comply with modern factors from the City of Tucson
20. End of Road marking updated to be more in line with what has been requested over the years.

21. “Not a Town Maintained Street” signage will not be required if the private street is gated.
22. Design exceptions will no longer go to directly Planning Commission, but will be decided by the Town Engineer with the Planning Commission as an appeal body.
23. In consultation with Northwest Fire, street width for local streets has been reduced by 4 feet. The new section is 32’ back to back of rolled curb. This supports 2-6’ parking lanes and a 20’ fire apparatus/two-way driving lanes.

MARANA ENGINEERING

INTEROFFICE MEMORANDUM

TO: File

FROM: Keith Brann, P.E., CFM, Town Engineer

SUBJECT: 2016 Subdivision Street Standards update – comments received

DATE: June 1, 2016

As part of the outreach for the 2016 Subdivision Street Standards update, Town staff met with the technical advisory committee of SAHBA and the technical committee of the MPA. Staff also conducted a roundtable / over the shoulder review of the proposed changes. There have been a few refinements in the draft based on internal and external discussions. The Town also received formal comments that have led to refinements. Below are the comments received and clarifications of changes if needed. Changes are in Bold.

Town Initiated refinements:

1. Added an appeal process for design exceptions. In the currently adopted standards, all design exceptions go to the planning commission for approval. The first draft had the Town Engineer approving design exceptions with no recourse. The final draft will utilize the planning commission as an appeal process.
2. Backed away from allowing wedge curb. The currently adopted street standards do not use wedge curb. The Town had been revisiting using wedge curb and the prior draft did include a reference to it. After further review with management and public works, wedge curb will not be reintroduced to the Town's street sections. Wedge curb is available through the design exception process for private streets.
3. Detail drawings removed from street standards and placed in standard details book. There are more Town details than just the ones contained in the current street standards manual. We are combining all Town details into one document.
4. Reduced local street section width. In working with Northwest Fire, we have agreed that the parking aisle for a local street section can be reduced from 8 feet to 6 feet. This leads to a 4 foot reduction in paved asphalt width and right of way. It should be noted that the use of the rolled curb is acceptable for inclusion in a parking aisle but not in a fire apparatus lane. Should alternative sections be pursued though a design exception that removes a parking aisle, the remaining fire apparatus dimensioning cannot include the rolled curb.
5. Cul de sac details brought into compliance with international fire code (IFC). The IFC requires that cul de sacs use a 96' diameter. As noted in item 2 above, rolled curb is not to

be utilized for fire apparatus. Therefore the back of curb dimension for a cul de sac is 50 foot. (48' radius plus two foot width of rolled curb).

Comments from Redpoint development received April 18, 2016

2.1.1. Reference to posted minimum speed of 25 mph. The comment is; many times it is not posted. Recommend it be changed to "the design speed is 25 mph and drop "posted" or enforce the posted provision.

Response: All subdivisions should have at a minimum a posted speed limit just after entry. No change

3.0.6 Reference to improvements if street operation is below LOS D due to development at segments and/or intersections. I always like to set expectations and thought a few examples would be worthwhile such as right turn lane, bus pull-outs, no left turns, etc.

Response: Level of service is a broad characterization of a road and not meant to deal with individual elements. Although intersections can be rated by level of service, it is not the only consideration. No change

4.1.3. Here I thought since we are always not aware of interim issues with the General Plans Major Routes prior to an update a note about review with the Town Engineer for planning purposes would be appropriate prior to submitting application or plans.

Response: The general plan is typically updated on a ten year cycle. When it is updated there is significant public outreach. Even minor amendments, should they affect the major routes plan, would be discussed with affected landowners. No change

4.1.8. Reference to private streets and use of vehicle design of WB-40 or larger. No comment on/or about design exception and/or review with Town Engineer if alley's, shared motor courts, or other special private road conditions.

Response: Even alleys may need to accommodate large vehicles. That being said, all parts of the street standards can be subject to a design exception. No change

5.0.7. Just setting expectations. I would add: i.e. minimum distance is 20' per Town Code xxxxx.

Response: Section 5.0.07 reworded to include the 20 foot minimum distance between garage and sidewalk.

6.3. Please reference what you expect for minimum thickness of sidewalks adjacent to curb, away from curb, and at driveways.

Response: The standard details show sidewalk thickness. No change

6.3.7. No reference about access and parking requirements, signage, etc. for Post Office or residents if NBU's are adjacent to public road.

Response: Marana will let postal guidelines control design. No change

6.10.1f) No reference as to who maintains if installed in the public Right-of-Way.

Response: The preceding section 6.10.1.d clearly shows that a license agreement is required. No change

9.4. Curb openings. Just a question to answer because I did not see anything on it; Does the Town care if public roadway run off drains into a private basin or property? Not sure if maintenance, safety or other legal requirement to protect the design and safety of the roadway if water backs up on to a public road. Just seems if the integrity of the public road requires offsite improvements that are not part of the R.O.W. dedication that an agreement, licensing or other legal agreement be in place to protect the Town and public.

Response: In many cases, road drainage may make its way to a private basin or common area drainageway. The Town requires drainage easements to deal with the point discharge or entry of drainage at its facilities (erosion protection at the culvert entry/exit). If a blockage occurs outside of this area, the Town would use the floodplain code to enforce maintenance. No change

10.0 Pavement Design. Just trying to avoid a situation as it occurred in Pines I with the roadway. I think there should be a statement regarding below subgrade being properly compacted and no exception that would rule out someone writing a geotechnical report that gives them an out and leaves the Town with a problem a few years after the construction. Also I did not see a specific paragraph on the warranty period, when it takes effect, and how it is acknowledged. I know it is one year but felt it should be clearly stated as to when it starts and the notification. Also just a comment on the warranty State of Arizona Contractor warranty is two years. If it was built right and they care about their work two years should not be a problem.

Response: Subgrade compaction will be per the standard specifications. A geotech report would be relied upon to determine if special provisions are needed. As to the warranty period, the Town is looking into the 2 year timeframe – already being used for right of way permitting. Warranty begins at Town acceptance by council (Town code 17-5-5-C). No change

10.5. Paragraph and Table 7 reference to pavement design report refers to standard practice and materials. Would you considered Rolled Compacted Concrete (RCC) for a public road in lieu of ABC/AC? It is starting to be cost effective and most likely help reduce maintenance costs. It is not really part of the standards but something to consider.

Response: The Town can consider Roller Compacted concrete. My personal knowledge of the product is that it is for heavy duty pavements where ride quality is not a consideration. As a dry concrete mix that is not floated, it is subject to spalling and a generally rough surface. It would likely be more appropriate a part of a multi-layered pavement system with an asphalt surface course for ride quality. We will not prepare a standard drawing or list RCC in table 7 of section 10.5. No change

Comments from Baker Engineering received May 5, 2016

General comment – when/where can we find the Town's Standard Details as referred to throughout the new SSS?

Response: Standard details book to be adopted concurrently

Section 4.2.2 – why are driveways no longer going to be allowed off of T/Y turnarounds?

Response: Typical behavior of guests and commercial visitors is to not park in driveways. The T/Y turnarounds do not support on street parking. Prohibiting driveways reduces on street parking conflicts. No change

4.2.5 – will maximum dead end street lengths be available for modification via Design Exception on a case by case basis?

Response: All sections of the street standards can be subject to a design exception request. Note that section 4.2.5 does not place a maximum dead end street length. No change

4.3 – are the minimum design speeds applicable to public and private streets or are there allowances for lower speed limits (if desired) on private, non-mountainous streets?

Response: The Town could consider a lower speed limit than 25 as part of a design exception. The Town would restrict this ability to private streets. No change

4.6.1 – why was the 1% minimum cross slope removed?

Response: The Town has had drainage issues with 1% crowned roads, especially when combined with shallow longitudinal slopes. Note that this section applies to "normal" cross slope. Warpage areas would not be subject to this requirement. Also, though not a standard section, the Town would consider uniform cross slope as shallow as 1%. Statement clarifying use of 2% and 1% added.

4.9.2 – is this for residential driveways only? If not, why can't commercial drives (with large trucks with large turn movements) utilize radiused driveways which would offer significant advantages for such large traffic? Or is this what 4.9.3 is referencing?

Response: Section 4.9.2 would generally apply to residential driveways based on our typical sections for residential streets that use mountable curbs. Section 4.9.3 applies to commercial drives as those sections have barrier curb. Note that section 4.9.3 does not stipulate curb type, so even if a mountable curb existed at a commercial driveway a full driveway opening/apron would be required. No change

6.2.2 – Have the PAG details been adopted? Is the 4" the limiting height for only the roll curb? I was not able to find the PAG details so I don't know what height is shown for the wedge curb. 4" curb will significantly limit street capacity, especially on flatter roadways, so I wanted to clarify/be sure that with at least the wedge curb we have an ability to use at least a 5" reveal (if not 6") on the wedge. I have not heard any complaints about our use of the 5" wedge curbs we've been using on the private streets recently in DM.

Response: PAG has adopted and published their details. Note that rolled curb is a MAG detail that we will continue to use, though we will be limiting it to the original 4" height due to the clearance issues we have experienced. Wedge curb allows up to 6" in height, though I would be more comfortable with 5 inches maximum. No change

6.2.3 – would it be better to perform this turn radius review as part of the preliminary plat process instead to make any required adjustments earlier in the design processs?

Response: The turn template can be shown early during the preliminary plat, but is required on improvement plans. No change

6.3.7 – are the NBU's allowed in the public ROW or are they required to be in common area?

Response: If an NBU needs to be placed in the ROW, it would require a license agreement. Our preference would be for them to be in a common area. No change

9.1 – thanks for changing my "should" to "shall" J

Response: No change

9.1 – why can we not be allowed to bring in historical offsite drainage onto a street? Is this for public streets only? Are we allowed to do so on private streets?

Response: Offsite flow brings a sediment load that becomes a maintenance issue. The Town does not desire to burden ourselves or an HOA with this maintenance issue. No change

9.2 – still no allowance for metal piping in public ROW?

Response: The Town for years has prohibited metal pipe in the ROW. This change brings the wording of the code into alignment with practice. No change

10.5, Table 7 – is this for public streets only or do the new pavement sections apply to private streets as well?

Response: The street standards apply equally to public and private streets. No change

10.9 – I presume a bond is an acceptable form of assurance here?

Response: Yes, a bond is an acceptable form of assurance. No change

Comments from Barbara Rose received April 15, 2016

that street standard updates take into consideration conserving small and historic roadways within important habitat corridors as development patterns change (example, Fort Lowell Road between Swan and Craycroft)

Response: The street standards are for new construction. Reconstruction would first try to see if the new standards are feasible. If they are not, customized street sections would be arrived at through the design exception process. No change

that as the Town grows, current and future road and development design (residential, commercial, industrial) helps to support and regenerate areas of historic and biological significance for future generations

Response: Where the standards do not accommodate specialized situations such as historic or biologically significant areas, design exceptions would be warranted. No change

that best management practices save money, infiltrate stormwater where it falls, reduce heat island effect, and celebrate the value of our Sonoran Desert's native vegetation

Response: Although not a requirement, the water harvesting aspects of the new Pima County detention retention manual may be used by developments. No change

Comments from SAHBA received May 23, 2016

We continue to hear from developers and builders about the ongoing price sensitivities in our local housing market. As such, we would request your consideration and effort to identify corresponding cost offsets to the proposed changes in asphalt thickness. For instance, it seems a corresponding reduction in AB requirements would sufficiently meet the goals of the street standard update while also obtaining appropriate cost balance. Additional opportunities that could be identified would be supported as well. The root barrier requirement also deserves further consideration for the added expense but if it also truly accomplishes the intended goal.

Response: Based upon new information by Pima County regarding correlated R values for soils used in geotechnical pavement design, the proposed 3" asphalt over 4" of aggregate base is a minimum section that should be used. No reduction in aggregate base is warranted. However, the Town has been working with Northwest Fire regarding street width requirements. We have been able to agree to reduce the width of parking aisles and resulting street widths by 4 feet, providing a sizeable offset for the increased pavement thickness requirements. No change beyond the street width reduction cited.

Comments from Planning Center received May 27, 2016

We commend the Town on its efforts toward updating the Street Standards document and find it to be very helpful on the whole. However, we offer the following comments in relation to the Town's proposed requirement for root barriers on all shrubs and trees within 6' of edge of pavement (within public rights-of-way):

We have significant concerns about the new requirement for 3' deep root barriers on all shrubs and trees. While we appreciate the concern for preserving pavement and its substructure, we do not feel this is the most efficient, cost effective or safest approach; nor is it conducive to the health safety, and welfare of the public.

There is a substantial amount of information that is missing in this proposed requirement such as: type of barrier material, distance of barrier from edge of pavement, distance of barrier from plant, length of barrier, maintenance of barriers, and the like.

Foremost though, it is our professional opinion that root barriers are unproven (lacking verifiable data or study) within our region as to their efficacy on preventing root growth and water under roadways while maintaining tree health. It is our experience that:

- *Root barriers can have negative impacts on healthy plant growth, form and survivability through limitations to the root structure and root form. Unhealthy root structure caused by root barriers can also lead to overturned trees during high wind. Some root barriers run parallel to roadsides (along the back of curb) while other root barriers entirely circle root systems. Both limit a plants ability to establish a healthy root system. While many root barriers are made of plastic, some fabric barriers are impregnated with herbicide. The introduction of a permanent herbicide along streetscapes will have long lasting negative effects for soil health and vegetation growth.*
- *Shrub root growth does not warrant root barriers due to the limiting width of their root structure generally. Regarding tree root growth, recent studies seem to indicate that some roots which are deflected vertically downward grow back up to the soil surface on the other side of the barrier.*
- *If the concern is potential for excessive irrigation water (leaks or over watering) underneath the roadway then we suggest the following alternatives when trees are within 6' of edge of pavement of back of curb:*
    - *Alt Solution – 1 Require deep root watering system on all trees within 6' of edge of pavement.*
        - *Result – Trees exhibit healthier growth and form. Trees grow a deeper root structure (roots are encouraged to grown downward and away from pavement) Trees with a deep root structure arestronger and safer in high-wind conditions and monsoon storms. Additionally, the requirement for deep root watering systems on all trees within 6' of edge of pavement will actually increase plant viability. For example, a significant number of Oak and Ash Trees along Tangerine Farms Road and Marana Main Street (less than 10 years old) currently appear stunted and in decline. Deep root watering systems at the time of installation would likely have encouraged healthy growth.*
    - *Alt Solution 2- Require flow sensors and smart controllers for trees within 6' of edge of pavement.*
        - *Result - This combination detects leaks and shuts down irrigation to affected areas and notifies contractors of need for on-site visit.*
    - *Alt Solution 3 - Require soil moisture sensors and smart controller located adjacent to areas with trees within 6' of edge of asphalt.*
        - *Result – Soil moisture sensors sends when soil is oversaturated and smart controller adjusts irrigation accordingly and/or send warning to contractor.*

In short, the best way to prevent root or irrigation water from harming roadways or their substructure is proper installation techniques and proper maintenance techniques (namely irrigation).

We look forward to working with the Town in developing alternatives that meet concerns for preservation of the roadway while maintaining a beautiful streetscape and roadway experience that aligns with the Town's strategic plan.

Response: Town staff reviewed the Planning Center's concerns and suggestions and will make the following clarifications and changes:

1. The root barrier will only apply to trees, not shrubs.
2. Deep watering of trees as suggested in alternate 1 will be implemented
3. The Town will create a detail showing main irrigation water line placement to insure that the main lines are as far as practicable from the curb line

1.0 INTRODUCTION & PURPOSE

1.1 Introduction

The majority of these standards were originally prepared by the Pima County Department of Transportation and Flood Control District (PCDOT & FCD). They ~~have been~~were modified to address the specific conditions and needs of the Town of Marana, and ~~are~~were first adopted by Mayor and Council under Marana Ordinance 2004.08 in May of 2004. These standards, as presented in this manual ~~with those modifications to guide land use planners and design engineers in~~, represent requirements for the preparation of subdivision plats, development plans, improvement plans and master planning documents. ~~The Town discourages the use of private streets, however, these~~ These standards apply equally to both public and private local roadways within all subdivisions and land development roadway construction or reconstruction within the Town of Marana, and are intended to be consistent with national standards and local policies and procedures. These standards are guidelines, which will be enforced as written~~,~~; however, it is recognized that there are situations for which these standards may not be applicable. In these cases, and in cases of conflict or contradiction, sound engineering judgment consistent with accepted practice and approved in writing by the Town Engineer shall be used.

Those portions of these standards prepared by PCDOT & FCD ("Subdivision Street Standards", Oct. 1989) have been reproduced herein under permission by Pima County.

1.2 Purpose

These standards are intended to provide for the public health, safety and welfare of the ~~motorist and pedestrian~~ traveling public. They are minimum standards for local streets which, if not met or exceeded, ~~would~~could create deficiencies resulting in a threat to public health, safety and welfare, as well as higher user costs and public losses. They have been adopted to reduce maintenance and liability costs borne by the residents of Marana.

In order to be responsive to the needs of roadway users within proposed and existing residential neighborhoods, these street development standards have been established to:

- Provide for streets of suitable location, width, and improvement to safely accommodate vehicular, cyclist, and pedestrian, ~~and disabled pedestrian~~ traffic;
- Afford satisfactory access to emergency services, sanitation, school bus, street maintenance, and utility equipment;
- Coordinate street improvements, both public and private, so as to ~~compose~~create a convenient system and avoid undue hardships to adjoining properties;
- Establish safe, effective, efficient, sustainable and attractive ~~pedestrian friendly~~multi-modal transportation systems, which provide linkages and interconnectivity of developments;
- Provide adequate continuity, length, and width for walkways;
- Provide for visual and functional enhancement of streets and walkways through the use of natural and introduced landscapes;

- Encourage traffic management plans by private developers;
- Design streets to balance traffic between ~~automobiles~~vehicular, cyclist, and ~~pedestrians~~pedestrian traffic; and
- ~~Encourage~~Provide a street network design that includes enhanced safety and aesthetic characteristics and encourages curvilinear streets, ~~streetscape~~streetscaping, and route continuity between ~~subdivisions~~neighborhoods.

1.3 Applicability

These standards are intended to apply to all residential subdivisions in the Town ~~districts R6 through RD180. Standards for developments which are residential and have greater or lesser densities will be evaluated on a case by case basis~~.

2.0 FUNCTIONAL CLASSIFICATION AND INCORPORATED REGULATIONS

2.1 Functional Classification

There are four ~~(4)~~ broad functional classifications of streets as defined by the American Association of State Highway and Transportation Officials (AASHTO): local, collector, arterial, and freeway (limited access). This document is limited in concern to the design characteristics of local streets associated with subdivisions and developments, with particular attention to residential land development.

1. Local Streets: Local streets serve as access to residences, businesses or other abutting properties. Local streets are generally two ~~(2)~~ -lane undivided roads with at-grade intersections and may have frequent driveway access. Local streets are intended and designed to provide access to abutting residential areas and ~~supply~~carry this traffic to collector roadway systems. The design volume of these streets should be less than ~~one thousand (~~1000~~)~~ average trips per day (Average Daily Traffic (ADT)). Local streets must be designed for and posted with a minimum speed of ~~twenty-five (~~25~~)~~ miles-per-hour (mph). Lower design speeds may be used for mountainous private roadways (see Chapter 4.12).

2. Commercial and Industrial Subdivision Streets: Commercial and industrial subdivision streets are to be designed in accordance with the above criteria, with special consideration of expected wheel loads, vehicle dimensions, and proposed use. Please refer to AASHTO's "*A Policy on the Geometric Design of Highways and Streets*" as well as the project's Traffic Impact Analysis for further design guidelines and data pertinent to these facilities ~~(see Appendix)~~.

3. Local Collectors: Local ~~(residential)~~ collectors ~~(also referred to as primary residential streets)~~ are generally limited-access two-lane roadways that are striped with centerline and multi-use lanes. These streets are intended to serve as the main access point for a subdivision ~~(see Appendix)~~. The design speed for this type of street should be 35 MPH (to be posted at 30 MPH) ~~and the design volume should be no more than 2500 vehicles per day~~. The parking of vehicles and residential driveway access should be prohibited on these streets at all times.

It is recognized that there are specialized types of developments such as retail, office, industrial, mobile home parks, recreational, and cluster housing which vary widely in operational requirements. Design of these projects has been provided for as much as possible within this document.

2.2 ~~2.2~~ Incorporated Regulations Adopted by Reference

This manual establishes engineering design practices for local roadway construction associated with land development within the Town of Marana. For items not covered herein, such as collector ~~street~~ and arterial roadway designs, the engineer shall design in accordance with the latest ~~editions of References listed in Chapter 14.0.~~ Town of Marana Typical Roadway sections.

The following adopted standards, ordinances, or policies are also applicable and should be referred to by the design engineer as appropriate:

1. Marana Land Development Code;
2. Town of Marana Master Transportation Plan;
3. Town of Marana General Plan;
~~3.~~ 4. Adopted Area, Community, Neighborhood and Specific plans;
~~4. Northwest Marana Area Plan Amendment;~~
5. Conditions of zoning and rezoning;
6. ~~Town of Marana Master Transportation Plan;~~ Conditions of adopted Development Agreements;
7. ~~"Floodplain and Erosion Hazard Management Ordinance", Town of~~ Marana Standard Details; and ~~PCDOT &FCD.~~
8. All reference materials as listed in Section 15-references

3.0 TRAFFIC STUDIES

Functional classification, roadway ADT, determination of number of lanes, design speed, required ~~offsite~~off-site improvements and design level of service shall be determined at the time of preliminary plat or development plan review, or master development plan preparation, as applicable (or rezoning if feasible) by the design engineer subject to approval by the Town of Marana. All projects that generate peak -hour trips ~~exceeding one hundred (100)~~of at least 100 vehicles are required to perform a Traffic Impact ~~Analysis~~Study as a condition of ~~Development Plan or Preliminary Plat.~~development plan, preliminary plat, or rezoning. For developments producing less ~~that one hundred (1 00)~~than 100 vehicular trips during the peak hour, the Traffic Engineering Manager will determine whether a Traffic Impact Study or Statement ~~shall~~will be ~~submitted~~required. This study or statement must be signed and sealed by ~~a civil~~an engineer licensed to practice in the State of Arizona, and must include, at a minimum, peak -hour traffic generation figures. For the preparation of traffic impact ~~analysis~~study or statement, the guidelines contained within ~~ADOT's "Traffic Impact Analysis for Proposed Developments" manual shall be followed, at a minimum, or as superceded by the Town of Marana's Traffic Impact Analysis Process Manual. In some cases, developments with less than one hundred (100) vehicles may be~~

~~required to do a Traffic Impact Analysis if deemed necessary by the Town.~~the Town of Marana's Procedures for Preparation of Transportation Impact Studies shall be followed.

1. For local streets, in the absence of more detailed information, ADT may be estimated from the number of units and the land use according to ITE's ~~"~~*Trip Generation*~~" report~~ *Manual*.

2. The potential for cut-through traffic using neighborhood streets shall be addressed. Cut-through traffic is defined as traffic that uses a residential street (or a route consisting of more than one street) solely for the purpose of connecting between two major (arterial or collector) streets. If it is expected that the volume of cut-through traffic may be significant, consideration shall be given to the use of traffic calming measures on the potentially impacted street(s). See the section in Chapter ~~12.0~~12.0, herein, on traffic calming devices.

   The ~~addition~~increase of proposed traffic through existing neighborhoods shall be addressed. In such cases, the new traffic forecasts are to be considered as "cut-through" traffic and the impacts on existing roadways examined. Appropriate traffic calming devices and techniques shall be identified and implemented upon approval of the Town Engineer.

3. Non-residential ADT ~~can~~may be ~~examined~~estimated using ~~the "~~ITE's *Trip Generation Handbook*~~", ITE~~.

4. Traffic demand forecasts must be made, including a summary of ~~background~~existing traffic plus approved, not-yet built development traffic, ~~plus~~and proposed project traffic.

5. Any project proposal, which would degrade an existing roadway below a ~~level~~Level of ~~service~~Service (LOS) ~~C~~D, must mitigate to maintain a minimum LOS ~~C~~D.

6. ~~An~~ A LOS of ~~C~~D or better shall be maintained on all off-site roadways and intersections that fall within the development's area of significant traffic impact (as designated by the ~~town~~Town and as depicted in the Traffic Impact ~~Analysis~~Study prepared for the development). Improvements are required if the roadway segment or the intersection will operate below LOS ~~C~~D due to traffic generated by the development. Such improvements shall upgrade the LOS to ~~C~~D or better.

4.0 STREET LAYOUT & GEOMETRIC DESIGN

All subdivision and development related street ~~design~~designs shall conform to this document. Where not provided for herein, design engineers shall refer to those supplementary standards listed in Chapter 2.2.

4.1 ~~4.1~~ Street Layout

1. All rights-of-way and street sections shall be designed and constructed to the full dimensions as shown in the ~~Appendix~~Town of Marana Standard Details.

2. Where partial streets exist adjacent to the tract being developed, the remaining right-of-way must be dedicated and improvements must be made to the street as required by the Town Engineer.

3. Proposed developments shall provide for the continuation of Town of Marana Major Routes (as depicted in the circulation element of the Town's General Plan), existing arterials and collector street right(s)-of-way where appropriate.

4. The local street system shall be arranged to encourage traffic connectivity within the development and region. ~~Traffic calming devices such as traffic circles and circuitous~~ Circuitous through routings are to be encouraged. ~~See Chapter 12.0, Neighborhood Traffic Management.~~

5. ~~Lots fronting on major streets are to be discouraged. However, when lots must front on a major street, proposed developments will be required to provide sufficient right-of-way for local service or access streets (frontage roads) along major streets and routes. Other treatments to protect residential properties by separation of through and local traffic will be considered.~~ Residential lots are not allowed to have direct access to collector and arterial streets.

   a. If frontage roads are used to provide access, they shall be designed such that improper intersections with streets do not occur. Frontage ~~streets~~roads, by their nature, intersect with entrance drives at close distances. However, they shall not intersect with new or existing streets at points less than that specified by Town Code (see off street parking requirements in ~~Title 22 of~~ the Marana Land Development Code).

   b. Frontage roads shall have adequate turn-around areas for the design vehicle at roadway termini ~~(see Appendix)~~.

6. The proposed development shall provide streets in conformance with the Town of Marana Major Routes Plan (as depicted in the circulation element of the Town's General Plan), all existing specific plans, residential design guidelines, and ~~area~~other plans that are approved and adopted by the Town Council.

7. ~~As determined by area plans, stub~~ Stub streets required for future extension shall provide temporary turnaround areas at the stub end ~~(see Appendix).~~

8. ~~8. Private~~If private streets are ~~discouraged. If allowed~~used as part of a development, entrances to gated, private streets shall include a ~~tum~~turn-around area entirely contained between the ultimate public right-of-way and the proposed gate. The ~~tum~~turn-around area shall be designed ~~in accordance with the requirements of Chapter 4.2 herein~~to accommodate a design vehicle of WB-40 or larger.

9. ~~9.~~ In order to maintain an 85th percentile speed of 25-30 MPH, it is recommended that local street tangents be no longer than 500 feet between speed control points. A speed control

point is defined as a break in continuity (such as a stop-controlled intersection), a properly designed horizontal curve, or a traffic calming device approved by the Town.

4.2 ~~4.2~~ Cul-de-sacs

Permanent dead-end streets shall be designed with an adequate turnaround area at the ~~dead-end~~roadway terminus. In accordance with Town standards, the turnaround area may not be required on dead-end streets less than ~~one hundred fifty (~~150~~)~~ feet in length if ~~Municipal~~ services, such as fire, sanitation, school buses, maintenance equipment, delivery and repair vehicles, and postal service, can be provided without the use of the street. Cul-de-sac/dead-end length is measured from the curbline of the last street intersection to center point of turnaround. Turnarounds may be designed as ~~cui~~cul-de-sacs ~~or~~, "T" or "Y" shaped configurations ~~as shown in the Appendix~~.

1. ~~1.~~ The cul-de-sac is preferred at all times for local street turnarounds because of its overall efficiency and maintainability, as well as for operational considerations pertaining to certain types of vehicles (e.g., fire trucks & school buses).

~~a) The paved turnaround radius shall be a minimum of forty-two (42) feet measured to the edge of pavement, back of rolled curb or gutter, whichever is provided~~The paved turnaround's geometry and right(s)-of-way shall conform to the standards set by the Town's Standard Details.

~~b) The turnaround right-of-way radius shall be a minimum of fifty (50) feet.~~

2. ~~2.~~ "T" and "Y" shaped turnarounds may be used for dead-end streets which have a projected ~~A.D.T.~~ADT of ~~eighty (~~80~~)~~ or less. Vertical curb is required in ~~the turn-around area, unless it is desirable to provide access to individual units. In such cases, rolled curb may be used.~~this type of turn-around area and driveways are not permitted.

3. ~~3.~~ Improvements to existing dead-end streets on abutting properties may be required during rezoning or subdivision platting. The purpose of these improvements ~~shall be~~is to allow proper through connection of future streets. Through ~~connection~~connections may require ~~that~~ the developer to remove abandoned cul-de-sac pavement on the abutting property ~~(see Appendix)~~, and that the full pavement section be carried to property line.

4. ~~4.~~ Where temporary turnarounds or ~~cui~~cul-de-sacs are designed for a future extension to abutting properties, a note shall appear on the final plat listing the street name and indicating the temporary nature of the cul-de-sac condition.

5. Permanent dead-end streets longer than 1200 feet in length shall have turnarounds throughout the total length so the distance between turnarounds is no greater than 600 feet.

6. ~~5.~~ Cul-de-sacs may contain landscaping within a center area island ~~(refer to Appendix)~~if:

a. ~~a)~~ Vertical curb is used around the entire center landscaped area;

b. ~~b) The radius to the face of the curb is a maximum of eighteen (18) feet~~The radius of the landscaped center shall conform to the geometric layout as provided in the standard drawings;

c. ~~c)~~ The cul-de-sac is large enough to allow passage of the design vehicle without wheel paths encountering the curb;

d. ~~d)~~ The cul-de-~~sacs are~~sac is not proposed to be a future through ~~streets~~street;

e. ~~e)~~ The landscaping does not ~~impinge on~~obstruct sight visibility;

f. ~~f)~~ The Town of Marana shall not be responsible for maintaining cul-de-sac landscaping and a note to this effect shall be on the final plat. If landscaping is provided, the developer~~,~~ or homeowners association shall obtain a license agreement from the Town prior to the installation of landscaping. Landscaping irrigation runoff shall not be permitted to drain onto the roadway surface.

~~g) No dead-end street longer than six hundred feet shall be designed to permanently remain a dead-end street. See Town of Marana Land Development Code 06.03.03K for design guidelines.~~

g. The entire inside perimeter of the landscaped cul-de-sac shall be protected by a 36" deep root barrier.

4.3 Design Speed

The minimum design speed for local streets is ~~twenty-five (~~25~~)~~ MPH. The minimum design speed for ~~residential collectors~~collector streets is 35 MPH. Higher design speeds may be warranted for certain roadways, and lower design speeds may be used for mountainous roadways per Chapter 4.12.

4.4 Design Vehicle

All local streets shall be designed for a WB-40 vehicle as defined by AASHTO~~.~~ or other design vehicle as approved by the Town Engineer.

Non-residential subdivision streets and parking area access lanes (PAAL) shall be designed for the largest vehicles (including service and delivery vehicles) anticipated to use the facilities, all in consultation with the Town Engineer. Delivery and service routes are to be clearly shown on the development plan and/or preliminary plat, as applicable. A note shall be provided designating the design vehicle.

4.5 Horizontal Alignment

Minimum horizontal curve design criteria are shown in Table 1.

TABLE 1

Criteria	Local	Residential Collector
Design Speed (mph)	25	35
Minimum Center Line Radius (ft) (assumes 2% normal crown)	181	480
Minimum Horizontal Stopping Sight Distance (ft)	150	250

Consideration of driver expectancy and coordinated horizontal and vertical geometry shall occur in subdivision roadway design.

When two local road tangents are connected by a curve of less than the minimum radius, a "knuckle" or "eyebrow" ~~must~~intersection shall be constructed ~~(see Appendix).~~ as shown in the Town of Marana Standard Details.

Compound and reverse curves are discouraged for local roads. Where this type of configuration is absolutely needed, it is recommended that tangents be placed between the curves. Tangents increase driver comfort, expectancy and safety. Where tangents are used, a minimum tangent length of ~~one hundred (~~100~~)~~ feet is required.

4.6 Vertical Alignment

Vertical alignment shall generally conform to the natural topography within the following limits:

TABLE 2

Criteria	Slope
Max. Gradient – Local Driveway	14 % (in R/W)
Max. Gradient – Local Streets	7 % Level, 11% Rolling Terrain
Max. Gradient – Collector Streets except Mountainous	8 %
Minimum Gradient	0.5%

In mountainous terrain (see Chapter 4.12), local street gradients may be up to ~~fifteen (~~15~~)~~ percent, upon approval by the Town Engineer.

1. Normal roadway cross slope shall be minimum two ~~(2)~~ percent~~. (one (1) percent~~ for crowned roadways and minimum~~, three (3)~~ one percent ~~maximum).~~ for non-crowned roadways.

2. Cross slope for drainage design may be up to four ~~(4)~~ percent, at drainage crossings only.

3. ~~Maximum cul~~Cul-de-sac cross-~~slope~~slopes shall ~~be~~not exceed eight ~~(8)~~ percent.

4. Inverted crown streets are not acceptable for local streets. Inverted crowns may be used for Parking Area Access Lanes (~~PAAL's).~~PAALs) and alleys. Any inverted crown section with a longitudinal slope less than one percent requires a four foot wide concrete valley gutter, per Pima Association of Government standard details.

5. Minimum vertical (stopping) sight distance shall be ~~per~~in accordance with AASHTO's "*A Policy on Geometric Design of Highways and Streets*" guidelines, or ~~one hundred fifty (~~150~~)~~ feet, whichever is more restrictive. For other design speeds and grade ~~condition~~conditions, refer to AASHTO's "*A Policy on the Geometric Design of Highways and Streets*".

6. Landing areas are required for all stopped conditions. The maximum allowable grade for this landing area (on approaches to unsignalized intersections) is ~~three (3) percent (six~~3% (6~~) percent~~% in mountainous terrain, see Chapter 4.12), and this grade must extend at least ~~twenty (~~20~~)~~ feet in each direction from the outside edge of curb line of the intersecting street.

7. Vertical curves shall be required on local streets where the algebraic difference in grade exceeds one ~~(1.0)~~ percent. When the algebraic difference is ~~1.0~~one percent or less, a grade break ~~shall~~may be used. Use of the AASHTO vertical curve equation is preferred; however, a simplified method as shown below may be used. Using ~~that~~this method, the minimum lengths of vertical curves shall be determined by multiplying the algebraic difference in grades by the appropriate 'K' factor ~~from the table below, or as specified~~ in Table 3~~ (whichever is greater):~~ :

Vertical Curve Criteria (for grades less than ~~ten (~~10~~)~~ percent)

TABLE 3

Design Speed	K Factor Crest Vert. Curve	K Factor Sag Vert. Curve	Minimum Length Curve
25	12	26	75
30	19	37	90
35	29	49	105

All vertical curves shall be symmetrical parabolic curves. The minimum length of a vertical curve in feet shall be three ~~(3)~~ times the design speed in miles per hour.

When grades are greater than ~~ten (~~10~~)~~ percent, vertical curves shall be lengthened in accordance with AASHTO's "A Policy on Geometric Design of Highways and Streets" design guidelines, to account for the increased ~~needed~~ stopping distance requirements.

4.7 Intersection Alignments

1. The centerlines of intersecting streets shall have an angle of intersection of as close to ~~ninety (~~90~~) degrees~~ °as is practical. In no case will the angle of intersection be less than ~~seventy-five (75) degrees~~75° for local street-collector/arterial intersections and ~~sixty (60) degrees~~70° for local street-local street intersections ~~(see Appendix)~~.

2. Right-of-way lines at the ~~comers~~corners of street intersections will be rounded with a curve radius of ~~twenty-five (~~25~~)~~ feet, or greater, as conditions may warrant. The radii must be adjusted at skew intersections to provide sufficient curvature. In all cases, adequate sight distance shall be maintained.

3. ~~Uncurbed intersections shall only occur where a new street intersects an existing uncurbed roadway in an interim state of development. Said interim intersections~~Intersections of arterial and major collectors shall have a minimum curve radius of ~~forty (~~40~~)~~ feet, except when acceleration/deceleration lanes are required. ~~Uncurbed intersections shall have concrete headers installed to prevent pavement raveling. A transition to full height curb~~

~~shall occur at the point of tangency of the radius.~~4. ~~-~~ Where acceleration/deceleration lanes are used, the curve radius may be reduced to ~~twenty-five (~~25~~) feet. Larger radii shall not be used, however, as the travelway width will increase to unsafe dimensions. In all cases the radius shall be designed to be adequate for the design vehicle.~~ feet on the acceleration/deceleration lane or as dictated by the turning radius of the design vehicle not encroaching on the opposing lane. -

4. Uncurbed intersections shall only occur where a new street intersects an existing uncurbed roadway. Uncurbed intersections shall have concrete headers installed to protect the pavement edge. A transition to full height curb (if applicable) shall occur beyond the right of way or clear zone, whichever is greater.

5. Street jogs with centerline offsets of less than ~~one hundred thirty-five (~~135~~)~~ feet shall not be allowed ~~(see Appendix)~~.

4.8 Intersection Sight Distance

Clear lines of sight shall be maintained along all streets and driveways (including ~~PAAL's~~PAALs) to provide for the safety of ~~motorists,~~motorized and non-motorized vehicles and pedestrians~~, and bicyclists~~. Sight visibility triangles shall be ~~constructed~~depicted in accordance with AASHTO criteria or as shown in the ~~Appendix~~Town of Marana's Standard Details based on the design ~~speeds~~speed of the through street and the near side and far side distance requirements from the following table:

TABLE 4

Design Speed of Through Street (mph)	Near Side Requirement (ft)	Far Side Requirement (ft)
20	180	140
25	240	190
30	300	240
35	380	300
40	480	370
45	600	470
50	740	580
55	890	690

On streets with one-way traffic and on streets with two-way traffic separated by raised median islands (i.e. no opening) only the near side sight visibility triangle is required; however, a pedestrian visibility triangle shall be maintained in place of the far side triangle as shown in the ~~Appendix.~~ Town of Marana's Standard Details.

Where streets intersect in a cross configuration, each street is considered the intersecting street with the other street and shall be considered the through street for purposes of determining sight lines ~~(see the Appendix).~~ .

The near side and far side distance requirements of sight triangles along a horizontal curve ~~are to~~shall be measured along ~~a~~the chord ~~as opposed to~~of the curve (not along the arc ~~(see Appendix).~~)-Refer to the Town of Marana's Standard Details. The sight line of the sight triangles shall ~~supercede~~supersede standard building setback lines where the sight line requires a greater setback distance. Sight visibility triangles shall be depicted to scale and in a surveyable manner on all final plats, development plans, plot plans and landscape plans. The area within the sight visibility triangle must be entirely enclosed by the right-of-way, easement, or common area. ~~Restrictive notes~~

The following restrictive note pertinent to sight visibility triangles shall be required on plats, development plans, plot plans and landscape plans.

"No improvements and/or landscape materials measuring vertically between ~~thirty (~~30~~)~~ and ~~seventy-two (~~72~~)~~ inches in height relative to the adjacent roadways that might interfere with sight visibility shall be placed and/or maintained within the sight visibility triangle."

4.9 ~~Residential and Commercial Drive Entrances~~Driveway Access Requirements

Driveway entrances ~~present a potential hazard~~are to be designed for the ~~motorist and pedestrian. As such, the engineer should configure them to allow rapid and definite recognition by~~ rapid ingress and egress of vehicles from the traveling ~~public~~roadway.

1. ~~On~~All streets with vertical curbs~~, depressed curb (curb cuts) and aprons shall be used for driveways.~~ shall use driveway aprons. Driveway aprons shall be of ~~Portland~~portland cement concrete constructed to Town standards with a minimum length running from curb location to back of sidewalk location. ~~Standard curb returns may be used for service entrances, provided these entrances are clearly depicted as a "service entrance" on plats and development plans.~~

2. On streets designed with ~~roll~~mountable curb, driveways shall ~~butt to~~abut the back of curb or sidewalk, and shall not have curve radii, and ~~may~~shall be constructed of Portland cement concrete or asphalt.

3. ~~On existing uncurbed streets, driveways shall have returns with a radius of forty (40) feet. A six (6) inch by twelve (12) inch concrete header shall be placed adjacent to the pavement on all returns. If curb is used for drive entrances in other applications, radii shall not be less than twenty-five (25) feet, and curbing shall not extend into the public right-of-way if the public street is uncurbed.~~Commercial and Industrial driveways will be treated the same as street intersections with connections to arterials and major collectors with regards to driveway radii in accordance with section 4.7.3 unless the driveway is located within an auxiliary lane. Depressed curb driveways without radii may be used for driveways within auxiliary lanes.

4. ~~Dimensions and configurations of driveways may need to be adjusted to account for higher approach speeds (greater than forty (40) mph), traffic, roadway classification, design vehicle, and pedestrians. Measures may include widening, turn lanes, etc. Curb returns may be used in place of standard curb cuts only when one (1) or more of the following~~

~~conditions occur:~~ Depressed curb driveways without radii may be used for service entrances, provided these entrances are clearly depicted as a "service entrance" on plats and development plans.

~~a) The ADT of the driveway exceeds one hundred (100);~~

~~b) The points of access to a property should be limited for traffic control and other reasons; or~~

~~c) Local conditions occur which involve speed, the amount of truck traffic, or the type of development and which, in the Town Engineer's opinion, require curb returns.~~

5. Driveways shall not be located where conflicts will be created with drainage facilities, intersections, deceleration/right-turn lanes, roadway tapers and/or other improvements.

6. No residential driveways shall encroach into an intersection curb radius where residential streets intersect.

~~7. Commercial driveways shall conform to the Town of Marana Access Management Manual.~~

4.10 Roadway Superelevation

Superelevation is generally not necessary on streets designed for travel speeds of ~~thirty-five (~~35~~)~~ mph or less. Maximum superelevation shall be four ~~(4)~~ percent and runoff lengths shall be computed in accordance with AASHTO's "A Policy on Geometric Design of Highways and Streets".

4.11 Roadway Drainage Crossings

The cross-slope of roadways for drainage purposes shall not exceed four ~~(4)~~ percent, and comfortable speed as well as design speed must be maintained throughout the cross-slope.

Minimum cross-slopes shall maintain a two ~~(2)~~ foot per second velocity for the 2-year peak flow, to reduce potential deposition of material in the roadway.

4.12 Mountainous Terrain

Mountainous terrain is that condition where longitudinal and transverse differentials in ground elevation with respect to the roadway are such that:

1. ~~Excessive benching, side~~Benching, hill-side excavation, or other cuts and fills are needed; or

2. Excessive rights-of-way for either cut and fill slopes (multiple cuts and/or fills exceeding ~~fifteen (~~15~~)~~ feet of vertical change) or for roadway alignment are required~~,~~; or~~;~~

3. Significantly lengthened roadway sections and increases in right-of-way are necessary in order to obtain acceptable horizontal and vertical alignment~~. In any case, roadways to be constructed across terrain~~; or

4. Terrain with an average cross slope of ~~fifteen (~~15~~)~~ percent (as defined within the Town of Marana's Land Development Code) or greater ~~shall qualify for~~are present.

Roadways above the alluvial fan break of the Tortolita Fan are an example of the mountainous terrain classification.

For private local streets subject to this section, a ~~twenty (20) mph~~ design speed lower than 25 mph may be used, provided emergency services and school vehicles can safely traverse the roadway(s).

With prior written approval by the Town Engineer, the design engineer may utilize four ~~(4)~~ foot shoulder widths and steeper longitudinal slopes (private streets only). Roadside drainage provisions shall be incorporated to minimize cross-flows and material deposition within the travel way. Particular attention shall be given to stopping sight distance and sight visibility ~~is to be incorporated into~~during the roadway and grading design. Positive gradient slopes (those rising above the roadway) shall not be permitted within sight visibility triangles~~,~~ unless they conform to Chapter 4.8.

4.13 Environmentally Sensitive Roadways [RESERVED]

~~Section~~ 4.14 ~~Subdivision~~Alternative Access

~~Subdivision access is important in design as it allows for efficient routes of ingress/egress for emergency response vehicles as well as providing for less congested access and shorter trip lengths.~~

1. ~~1.~~ Alternative Access requirements
   a. ~~a.~~ Subdivisions of more than ~~thirty (~~30~~)~~ and not more than ~~eighty (~~80~~)~~ lots shall in addition to the primary access have either an emergency access drive with a stabilized surface capable of supporting fire apparatus or another permanent roadway.
      i. ~~i.~~ Portions of a subdivision (such as cul -de -sacs and other no-outlet areas) must also meet this requirement.
      ii. ~~ii.~~ In areas where it is determined by the Town Engineer that the provision of a secondary access is not practicable based on topography or other access constraints, the Town Engineer, in conjunction with the Fire Marshall may allow a single point of access ~~which may include~~provided that other mitigating requirements such as intermittent turn-around areas, fire sprinkler protection systems and/or other similar measures.
   b. ~~b.~~ Subdivisions of more than ~~eighty (~~80~~)~~ lots shall have a minimum of two ~~(2)~~ permanent roadway accesses.
      i. ~~i.~~ In areas where it is determined by the Town Engineer that the provision of a secondary permanent roadway access is not practicable, the Town Engineer may allow a single permanent roadway access ~~which may include~~provided

that other mitigating requirements such as secondary emergency access, intermittent turn-around areas, fire sprinkler protection systems, and/or other similar measures.

c. ~~c.~~ Phased subdivisions that will ultimately have a secondary compliant access must comply with one of the following requirements:

i. ~~i.~~ At ~~closeout~~close-out of subdivision permitting and final release of assurances, a subsequent phase must already be under permit; or

ii. ~~ii.~~ At ~~closeout~~close-out of subdivision permitting and release of final assurances, a temporary roadway capable of supporting fire apparatus must be in place.

2. Entry roadway width requirements:

a. ~~a.~~ Entry roadways with medians are required to have a minimum inside curb-to-curb entry width of ~~twenty~~ 20 feet.

b. ~~b.~~ Gated entry roadways are required to have a minimum inside curb-to-curb and/or open gate width of ~~twenty~~ 20 feet . Gates must be accessible to the satisfaction of the Fire Marshall.

3. ~~3.~~ Any deviations from these requirements will require a design exception in accordance with Chapter ~~13~~ 13.

5.0 RIGHT-OF-WAY

1. Local street rights-of-way shall be in conformance with the cross sections provided within the ~~Appendix.~~ Town of Marana's Standard Details. Rights-of-way must be wide enough to encompass all publicly maintained facilities ~~including pavement, curb, signage, sidewalks, bicycle paths, shoulders, clear~~ , clear zones, road~~-~~ side ditches, cut and fill slopes, ~~street lights~~ and access to maintain such facilities.

2. Where not otherwise required by the Land Development Code, easements may be granted in lieu of right-of-way for certain cross section elements that are not to be maintained by the Town of Marana such as utilities, sidewalk/pedestrian/equestrian ways and slopes. Such easements must specifically grant right of entry to the Town of Marana~~.~~ and the public. Such right of entry shall include auxiliary areas as necessary to allow maintenance of facilities ~~within the right-of-way~~ and to enable remedy ~~from~~of hazards to the public ~~so as to assure the public safety~~.

3. Additional rights-of-way may be required by the Town at intersections identified on the Major Routes Plan (as depicted in the Town's General Plan circulation element) or at intersections with ~~other~~ collectors or arterials where it is deemed necessary to provide

sufficient width for turning lanes, traffic interchanges, clear zones, sight visibility, and other design and safety considerations.

4. Should alternative sidewalk locations be approved, or if no sidewalk construction is required, the street(s) shall require a minimum of six ~~(6)~~ feet of right-of-way adjacent to the back of curb on each side of the street for purposes of pedestrian refuge, meters, street furniture, public infrastructure, or other such uses (see Chapter 6.3).

5. When it is determined by the Town that, in the public interest or for the health, welfare or safety of same, ~~vehicular~~ access to or from a development or subdivision at a particular location should be prohibited, a one ~~(1)~~ foot wide no-~~vehicular~~ access easement shall be dedicated to the public. Physical barriers may also be required.

6. Supplemental right-of-way, common area and/or easements may be required at all intersections where standard right-of-way widths are unable to completely enclose sight distance triangles.

7. ~~If~~Where parking is designed to be between the sidewalk/pedestrian way and the garage, it must be designed ~~so as to not block or encroach~~to avoid encroachment onto the sidewalk by providing a minimum distance of 20 feet between sidewalk and garage.

6.0 ELEMENTS IN THE CROSS SECTION

Typical cross sections are shown in the ~~Appendix.~~Town of Marana's Standard Details. Selection of the appropriate cross section is dependent upon the functional classification of the roadway, the ADT ~~of~~on the street, and the adjacent land use density. Additional pavement width may be provided, upon approval or requirement of the Town Engineer.

6.1 Travel Lanes

Specific applications of various lane width requirements are shown in the ~~Appendix.~~Town of Marana's Standard Details. The design engineer shall use these figures as the basis for design considerations.

6.2 Curbing

1. Curbing shall be required on all public streets as shown in the ~~typical cross sections supplied herein.~~Town of Marana's Standard Details. The purpose of curbing shall be to adequately control drainage within the street, prevent moisture from entering the subgrade, control access to abutting property, separate the roadway from pedestrian areas, delineate the traveled roadway (in lieu of edge striping), control dust, and provide adequate lateral support for the pavement structure.

2. Curbing shall be six ~~(6)~~ inch vertical curb and gutter (~~PC/COT~~PAG standard detail 209 Type ~~1 (G)) or~~1(G)) on collector and arterial roadway sections. Local streets shall use four inch roll type curb and gutter (MAG Detail 220 Type C). ~~Preference shall be given to roll type curb and gutter at all times.~~

3. At local street to local street intersections, the minimum curb radius shall be ~~twenty-five (25)~~ feet to face of curb~~, or the minimum radius which will accommodate the turning movements of the design vehicle without encroachment into opposing lanes, whichever is greater~~. At local street to collector/arterial intersections, the minimum curb radius shall be ~~forty (40)~~ feet. The curb radius of each intersection shall accommodate the design vehicle, and shall provide a turning diagram with the improvement plans showing that the design vehicle will not encroach into opposing lanes (included as part of the review documents or as separate exhibit)

4. ~~Wheelchair~~Americans with Disabilities Act (ADA) compliant ramps shall be provided at all curb returns and shall be in accordance with ~~MAG or PC/COT Standard Details for Public Improvements and in compliance with the latest Federal ADA guidelines, as applicable. ADA detectable~~Town of Marana standard details. Detectable warning surfaces (truncated domes per the Town of Marana standard ~~detail~~details) shall be ~~applied to~~constructed at all ~~wheelchair~~ ramps and at all pedestrian refuge areas ~~on~~at raised islands and medians.

6.3 Sidewalks

Sidewalks are required within all public and private roadways as shown on the Town of Marana's Standard Details

Sidewalks shall be constructed of Portland cement concrete ~~constructed to PC/COT "Standard Specifications and Details for Public Improvements",~~ with a minimum width of five ~~(5)~~ feet~~, ordinarily placed abutting the curb~~. if abutting a curb on local streets and a minimum width of four feet when a curbway is used. Additional sidewalk width ~~shall~~may be required for special pedestrian generators, such as schools, recreation sites, and certain businesses.

1. Sidewalks ~~will~~shall be required along both sides of ~~paved streets with curbs, or along~~local streets where ~~future curb grades and locations are established, in accordance with the crosssections in the Appendix~~the minimum lot size is less than 16,000 square feet in accordance with the cross-sections in the Town of Marana's Standard Details. For subdivisions with a minimum lot size of 16,000 square feet or greater, sidewalk shall be required on at least one side of the roadway.

2. ~~Stabilized granite walking paths may be substituted for sidewalks in subdivisions with lots having a gross density of one residence per acre or less, and lots of a minimum of 12,000 square feet.3.~~ Sidewalks shall run the entire length of the street unless authorized by the Town Engineer.

~~4.~~3. Streets may have sidewalks in an alternative location provided it is designed in a manner and location acceptable to the Town Engineer and the Planning Director.

~~5. The area between the back of curb and the roadside edge of the pedestrian walkway is the curbway.~~ 4. In the event a curbway is used, the minimum width for the curbway is six ~~(6)~~ feet, in accordance with the cross-sections in the Town of Marana's Standard Details.

6.5. A 10' public utility, roadway maintenance, and signage easement shall be granted behind all sidewalks where no curbway is present. At locations where public utility easements are not required (such as side yards), a 5'five foot roadway maintenance and signage easement shall be usedrequired.

7. In very low density developments that do not require sidewalks, a four (4) foot wide walk area must be kept free from vegetation. The walk area shall be graded to provide a cross slope of two (2) percent, and shall be surfaced with stabilized granite.

8.6. In pedestrian areas having curbways, the developer, owner, or private association having a Recorded License Agreement may allow abutting property owners to place peadecorative rock gravel, decomposed granite, orground cover, brick in sand, and/or other similar items in the curbway, medians, and ground slope areas without a permit from the Town of Marana. The property owner shall be responsible for the maintenance and replacement of said items placed within the curbway. Street trees are encouraged and must adhere to AASHTO 's "*Roadside* Development guidelines.*Design Guidelines*". Installation of street trees will require an approved Landscape Plan, and License Agreement, and Design Exception pursuant to Section 13.0. All trees within a curbway must comply with section 6.10.f herein.

9.7. Neighborhood postal box units (NBU's) shall be designed and located in such a manner as to not present a hazard to the motoring public, cyclists, or pedestrians.

10. In cases where the subdivision street system is designed in such a way that access to schools is indirect, pedestrian easements shall be required which will provide direct routes to nearby schools.

6.4 Shoulders

Uncurbed roadways in subdivisions are only permittedallowed for temporary access roads. On Where uncurbed roadways a minimum eight (8) foot graded shoulder shall be provided in accordance with the cross sections in the Appendix. Shoulder width may be reduced to four (4) feet in width in accordance with Chapter 4.12, and as shown in the Appendix. Theare used, the cross-slope of the shoulder shall match that of the travel lane.the roadway cross-section. Where infeasible due to topography and roadside drainage considerations, adjustments to the cross-slope may be made in accordance with AASHTO guidelines upon approval by the Town Engineer. Refer to AASHTO design guidelines for foreslope and backslope in cut areasand fill conditions.

6.5 Roadside Clear Zone

Clear zones shall be provided foron all streets and are toshall be provided in accordance with the requirements stipulated within AASHTO's, "Roadside Design Guide". Sufficient right-of-way or easements shall be granted to the Town for all clear zones.

If it is infeasible to provide this clear- zone, a suitable traffic barrier as defined in Chapter 6.6 and the AASHTO publication "Roadside Design Guide", shall be provided.

6.6 Roadside Vehicle Barriers

Determination of warrants for the installation of roadside vehicle barriers (barriers) shall be in accordance with AASHTO's "Roadside Design Guide. Barriers shall be installed in accordance with current ADOT Standard Specifications and Drawings.

Obstructions may also require barriers to provide for motorist safety. Refer to AASHTO's "A Policy on Geometric Design of Highways and Streets" and "Roadside Design Guide", for definitions of obstructions and applications of barriers.

6.7 Pedestrian Barricade Railing

Barricade railing shall be installed for protection of pedestrians whenever slopes are steeper than three-to-one (3: 1) within three ~~(3)~~ feet of the sidewalk and~~/or~~ the embankment height is three ~~(3)~~ feet or greater. The Town Engineer may determine whether the elevation differences between the sidewalk and nearby terrain warrant pedestrian barricade railing or if other special circumstances may also warrant the installation of barricade railing. Barricade railing shall be required on the sheer/vertical side of all scuppers abutting pedestrian walkway areas where the vertical step is greater than six inches in vertical distance

6.8 Roadside Ditches

Roadside ditches shall not be constructed within the shoulder area. Ditches constructed within the clear~~-~~ zone (outside the shoulder) shall be in accordance with AASHTO's "Roadside Design Guide", and~~"~~ "A Policy on Geometric Design ~~ofHighways~~of Highways and Streets", in addition to applicable Chapters ~~of these standards~~herein.

6.9 Cut and Fill Slopes

All cut and fill slopes shall be constructed in accordance with the Marana Land Development Code Grading Standards and AASHTO, and shall be either revegetated or stabilized as follows:

1. Cut or fill slopes three-to-one (3: 1) (horizontal: vertical) or ~~less~~flatter, shall at a minimum, be revegetated or use other suitable ground cover as determined by the Town Engineer.

2. Cut or fill slopes two-to-one (2:1) or ~~less~~flatter, but steeper than three-to-one (3:1) shall be rock rip-rapped with filter fabric installed beneath the rock per PAG Standard Specifications.

3. Cut or fill slopes steeper than two-to-one (2:1) shall have grouted rip-rap, mechanically stabilized earth retaining measures, concrete, shot-crete, or retaining walls as appropriate.

4. Alternative methods of stabilization may be allowed if certified ~~as stable~~ by a registered geotechnical engineer, subject to approval by the Town Engineer.

5. Terracing may be ~~done~~constructed in accordance with the Marana Land Development Code Grading Standards.

6.10 Landscaping in the Public Right-of-Way

1. Bufferyards where required by the Marana Land Development Code may be allowed in public right(s)-of-way. ~~Contact the Town Engineer prior to project design if this option is desired.~~ The Town Engineer and Planning Director will consider project safety, future expansion of the roadway, drainage concerns, adjoining land uses, and other criteria on a case-by-case basis during the review process. ~~To the extent~~ If a landscape bufferyard is requested within the Town ~~permits this use, in the right-of-way the use will~~right(s)-of-way, the developer and/or design engineer shall obtain approval from the Town Engineer prior to design approval and acceptance. If approved, a landscape bufferyard shall be subject to the following ~~requirements~~conditions:

   a~~)~~. Not more than ~~fifty (~~50~~)~~ percent of the required bufferyard ~~depth~~width may be allowed ~~in~~ the public right(s)-of-way, except along major routes having a designated buffer;

   b~~)~~. The location and size of landscape elements shall be in conformance with standards available from the Town Engineer and ~~and~~ Planning Director and are subject to the Town Engineer's and Planning Director's approval;

   c~~)~~. The installation and maintenance of landscaping in the public right(s)-of-way shall be accomplished by the developer, owner or private association~~,~~ as agreed to in the approved, recorded covenants, conditions and restrictions. Assurances ~~shall be required,~~ and insurance policies, in a form acceptable to the Town, shall be required for all landscaping constructed ~~in~~within the public right(s)-of-way;

   d~~)~~. A perpetual License Agreement shall be required for ~~new~~ landscaping~~, irrigation, raised planters, fencing, walls, signs, art, and monuments~~ items within the public right(s)-of-way ~~shall be required. This Agreement shall be recorded with the Pima County Recorder's Office; and~~

   e~~)~~. Turf landscaping shall not be permitted within the right-of-way, nor shall it be permitted to drain onto pedestrian ways or pavement~~.~~; and

   f. All trees installed within six feet of the edge of a street shoulder or curb shall be planted with a root barrier/well extending a minimum of three feet below the top of grade as shown in the Town of Marana standard details.

   g. Irrigation lines larger than ¾" diameter shall be placed as far as practicable from the street shoulder or curb. When placed within a curbway, irrigation lines are to be placed close to the sidewalk. When placed within a median, irrigation lines are to be placed in the center of the median.

7.0 SUPPLEMENTAL ELEMENTS

7.1 Turning Lanes

Pavement widening for turning movements onto arterial and collector streets may be required by the Town Engineer. Turning lanes shall be a minimum of twelve feet in width~~.~~, but may be wider as required by the Town Engineer. Pavement tapers required for any ~~of the above~~roadway improvements, herein, shall be designed in conformance with Pima County's "*Roadway Design Manual*", and as determined ~~within the approved Traffic Impact Analysis~~by the Town Engineer.

8.0 UTILITIES

The main lines of electric, gas, water, telephone and communications, sanitary sewer, and drainage facilities shall be located as shown in the ~~Appendix.~~Town of Marana Standard Details. Alternate locations may be used with the written permission of the affected utility and the Town Engineer. Utility companies franchised to operate in Town of Marana right(s)-of-way for electric, telephone, and communications may be permitted under the terms of adopted franchise agreements. Utility easements are required~~,~~ where applicable~~,~~ and shall allow for public access.

With the exception of minor service extensions to individual parcels, all longitudinal utility facilities between service points to individual parcels shall be located within street right-of-way. Strip easements may be ~~used~~provided along streets in lieu of right-of-way ~~if~~ for utility purposes, and for other uses compatible with utility needs (subject to utility company approval). Access between the street and the private property shall not be denied, unless unsafe conditions will occur.

All sanitary sewer facilities shall be provided in accordance with the current Pima County ~~Department of Wastewater Management "Manual of Engineering Standards and Procedures".~~ Regional Wastewater Reclamation Department's (RWRD) or Marana design standards, specifications, and details.

All services shall be provided or stubbed out into existing or planned parcels with all new street construction to avoid the need to remove and replace new pavement within the five ~~(5)~~ year pavement cut moratorium~~.~~ (Per Town Code 12-7-9). Sewer connection stub-outs are to extend a minimum ~~often (10)~~of ten feet beyond the right(s)-of-way, while other service connection stub-outs are to extend a minimum of ~~two (2)~~five feet beyond the right-of-way.

Service extensions (sewer and water) shall be backfilled and compacted (within the curbway and sidewalk area) to ~~at least ninety-five (95)~~a minimum of 95 percent of the maximum density at optimum moisture~~.~~ (per Arizona Modified Test Method 225a). All utilities are to be installed in accordance with applicable utility company standards, or the ~~PC/COT~~Pima Association of Governments's "Standard Specifications and details for Public Improvements", whichever is more restrictive. All utilities installed beneath the pavement~~,~~ or curb and gutter shall be backfilled and compacted to ~~ninety-five (95)~~a minimum of 95 percent of the maximum density at optimum

moisture in accordance with the approved Grading and Paving Plans and Arizona Modified Test Method 225a.

9.0 DRAINAGE

9.1 Street Drainage

Street drainage ~~should~~shall not exceed ~~fifty (~~50~~)~~ cubic feet per second (cfs) from the base flood without authorization by the Town Engineer and in no case shall street flows exceed ~~one hundred (~~100~~)~~ cfs at the confluence point exiting the roadway. The runoff from a ~~ten (~~10~~)~~ -year storm must be contained between the street curbs. The ~~one hundred~~based flood (100~~)~~ -year storm) discharge must be contained within the right(s)-of-way.

Outlet structures for private retention/detention facilities, or other private drainage systems, shall not be permitted to discharge into the public right(s)-of-way~~.~~ without authorization by the Town Engineer. Should the outlet be allowed, outlet protection and energy dissipation will be required as directed.

Offsite drainage flows are not allowed to be accepted into and carried by the street drainage system.

9.2 Storm Drain Design

All catch basins with curb inlets shall have formed concrete gutters. The minimum diameter of a storm drain is 24" for mains and 18" for laterals connecting a single catch basin. ~~Slotted~~

All storm drain pipes and culverts installed in public right(s)-of-way shall be made of reinforced concrete (pipes and/or boxes).

Longitudinal slotted drain is permitted in conjunction with curb and gutter. Transverse installation of slotted drain is ~~forbidden.~~ prohibited.

The energy grade -line of a storm drain shall be below finished grade of the associated roadway gutterline.

9.3 Erosion Control Cut-off Walls

Required erosion control cut-off wall depths shall be designed one ~~(1)~~ foot deeper than the scour depth as determined by the use of the approved local scour equations~~.~~ and as required in the approved Drainage Report. However, in no case shall cut-off walls be less than ~~one (1) foot~~three feet in depth. Sliding and overturning moments ~~may need to~~shall be analyzed for cut-off wall protected dip sections on all-weather access streets. Cut-off walls shall be placed a minimum of four ~~(4)~~ feet out from the upstream roadway edge of pavement line, and to the edge of the shoulder downstream. Cut-off walls shall extend a minimum of five feet beyond each side of the calculated drainage opening and scour limits parallel to the roadway as determined by the approved local

scour equations and the approved drainage report. The pavement shall be widened to the upstream and downstream ~~cutoff~~cut-off walls.

9.4 Curb Openings

Drainage conveyed within the street while being delivered to channels or outlets may be disposed of through depressed curb openings no greater than ten ~~(10)~~ feet in length unless ~~in environmentally sensitive areas, and with the approval of the Development Services Administrator.~~approved by the Town Engineer. These openings shall be fitted with outlet aprons. When ~~storm water~~stormwater runoff is crossing a pedestrian ~~ways~~ way, scuppers shall be used. Should the hydraulic design require greater conveyance than can be provided by such an opening, some other structure must be used~~.~~ as approved by the Town Engineer. Roadway curb openings and drainage inlets shall be fitted with appropriate barricades as necessary, and the pavement-to-inlet grade shall not be less than two ~~(2)~~ percent.

At locations where runoff leaves the roadway, physical means of earth stabilization or pavement protection must not interfere with clear zone requirements, and must be traversable by errant vehicles without risk of damage to those vehicles.

~~10.0 PAVEMENT DESIGN~~10.0 Pavement Design

1. These pavement design standards apply to all local street improvement projects designed as a part of development. Each development that involves street construction shall submit for approval a Pavement Design Report containing the following information for each street: a tabulation of results of soil subgrade tests; projected ~~ADT's, including~~ ADTs (construction traffic; equivalent single axle loads (ESAL) used, ~~including~~and construction traffic); structural numbers (SN); and pavement thickness for each street. ~~A Pavement Design Report may be waived by the Town Engineer for parking lots in private developments.~~ A minimum ~~twenty (~~20~~)~~ -year pavement design life is required. ~~The twenty (20)~~ The 20-year design life is to be computed beginning in the build-out year. The ~~buildout~~build-out year is defined as that year when all homes/buildings are projected to be completed within the proposed development. Estimated construction traffic through build-out must be considered.

2. The following ~~ESAL's~~ESALs, based on the ~~twenty (~~20~~)~~ -year projected ADT, will be accepted for pavement design:

TABLE 5

20-Year ADT	ESAL
<500	40,000
500-1,000	70,000
1,000-1,500	100,000
1,500-2,500	150,000

When the projected ~~twenty (~~20~~)~~ -year ADT exceeds ~~twenty-five hundred (2500),~~2500, or when the engineer desires to calculate his/her own ~~ESAL's~~ESALs, complete calculations,

including a breakdown of the traffic by vehicle type, shall be included in the Pavement Design Report. The ESAL calculations shall be based on the ~~twenty (~~20~~)~~ -year design period and the following ESAL factors (originally from City of Tucson pavement active practice guidelines):

TABLE 6

Vehicle Type	Symbol	ESAL Factor
Passenger Car	P	~~.0008~~0.0008
Bus	BUS	~~.6806~~3.8580
Single Truck	LT	~~0.012~~0.0120
Single Truck (Dual rear or 3 axle)	MT	~~.1890~~0.4000
Tractor-Trailer	TS	~~.6560~~1.8690
Truck-Tandem Trailer	TT	~~.8646~~2.1250
Tractor-Tandem Trailer	TST	~~1.2604~~2.9880

~~Please refer~~

Refer to~~:~~ "Materials - Preliminary Engineering and Design Manual", ADOT and, "*Guide for Design of Pavement Structures*", AASHTO for information pertaining to the requirements herein.

3. Subgrade sampling and testing for roadways shall be accomplished in accordance with standard ADOT procedures and the results tabulated in the Pavement Design Report. Soil support values shall be calculated in accordance with ADOT's "*Materials – Preliminary Engineering and Design Manual*" and the selection of a design soil support value shall be fully documented in the Pavement Design Report.

4. Weighted structural numbers shall be calculated using the design soil support value, the appropriate ESAL, and a regional factor of 1.7. The minimum weighted structural number is to be ~~1.30.~~ 1.75. A minimum terminal serviceability index of 2.0 (ADOT) is acceptable for design of local streets.

5. Pavement thicknesses shall be calculated in accordance with the design equations in the ADOT manual. The layer coefficient for asphaltic concrete shall be ~~obtained from the ADOT manual.~~ 0.44. The layer coefficient for aggregate base course ~~is 0.12.~~ shall be 0.11. Minimum thicknesses are to be as follows (or greater as determined by ~~Soils Engineer~~pavement design report):

TABLE 7

~~Traffic~~Roadway ~~ESAL's~~Type	AC	ABC
~~<150,000~~Local	~~2~~3.0"PAG2	~~4~~4.0"
~~≥150,000 and <500,000~~Local Collector	~~2.5~~3.0"PAG2	~~4~~6.0"
~~≥500,000~~Commercial/Industrial Collector	~~3.0~~2.0"PAG2over 4"PAG1	~~6~~6.0"

6. ~~Subbase material~~Sub-base material shall be engineered to the specifications required by Pima County/City of Tucson "*Standard Specifications for Public Improvements"* and/or

the Pima Association of Governments Standard Specifications, and should be of significantly ~~better~~higher quality than native soil. ~~Subbase~~ Sub-base may not be used as part of the pavement section when the subgrade soil has an R-value of ~~thirty (~~30~~)~~ or greater. In addition, when ~~subbase~~sub-base material is used, the thickness of the ~~subbase~~sub-base may not be more than one-and-a half (1.5) times the combined thickness of the asphalt and aggregate base courses. The layer coefficient for material, which meets minimum Town of Marana standards for subbase, is 0.05. ~~If~~better~~ If better~~ quality material is used, a larger layer coefficient may be used in accordance with the ADOT manual.

7. When existing streets are widened, the new pavement section shall either match the existing pavement section or meet minimum thicknesses as required in paragraph 5 above, whichever is greater. Upon completion of a pavement widening, the complete roadway cross section may be required to receive a rubberized stress absorbing membrane chip seal ~~coat or~~, asphaltic -concrete overlay, or a combination of treatments thereof, at the discretion of the Town Engineer, for the entire length of the pavement widening. Appropriate pavement markings and traffic control signage will be required with the seal coat/overlay application.

8. When ~~through~~ streets are designed which may ultimately connect to future developments, pavement design shall accommodate future wheel loads, including construction traffic, to account for use of the roadway as a haul-road.

9. Subsequent to subdivision buildout (but no later than 2 years after paving), the developer shall perform a pavement surface seal of the subdivision streets and any offsite roads improved as a part of the subdivision development. Local streets are to be sealed with a high density mineral bond or approved equal. Roadways that are classified as collectors and above are to be sealed with Tire Rubber Modified Surface Seal or approved equal. At the time of subdivision closeout and acceptance of streets, the developer shall either post an assurance in a form acceptable to the Town or pay an in lieu fee to secure such work.

11.0 TRAFFIC CONTROL SIGNAGE AND PAVEMENT MARKINGS

1. All traffic control signage and pavement markings within new subdivisions shall be posted and installed in accordance with the Manual on Uniform Traffic Control Devices (~~Millennium~~Latest Edition)~~ and~~, Town of Marana standard details and notes, and the latest edition of the Pima County/City of Tucson's "*Pavement Marking Design Manual*" and "*Signing Manual*" (latest editions)~~. A separate~~ as appropriate and as approved by the Town Engineer. A signage and/or striping plan shall be submitted ~~for the Town's review and approval. The plan is to be integral to the project construction documents (1st submittal of the improvement plans)~~as part of any roadway improvement plan.

2. All temporary ends of road shall be posted with post barricades or end of road markers~~, five (5) feet on center, across the pavement projection~~ as approved by the Town Engineer. If grading has occurred in the alignment beyond the end of road, at least two~~ (2)~~ permanent Type 3 barricades as described within ~~the~~FHWA's "*Manual on Uniform Traffic Control Devices*" shall be added to the ~~road end. An advisory~~roadway end, with a minimum of two Type 4 End of Roadway object markers (OM4-1). The object markers shall be mounted on

each Type 3 barricade. A warning sign (W14-1) and a specialty warning sign stating, "Future Roadway Extension" with a minimum size of 24" x 24" shall be installed at the temporary end of roadway.

3. Upon review of traffic operational ~~characteristics~~conditions and within the one ~~(1)~~ year warranty period, the Town Engineer may ~~request~~require additional signage or pavement markings by the developer. Said additions shall be provided at no cost to the Town.

4. All private streets shall be posted "NOT A TOWN MAINTAINED STREET - PRIVATE" where they intersect public streets unless the private streets are part of a gated community.

5. Pavement markings ~~are to be~~shall be extruded or ribbon dispensed thermoplastic ~~and meet~~paint (pressure sensitive tape shall be used for legends and arrows) and meet the Pima Association of Government's "Standard Specifications and details for Public Improvements"~~, PC/COT~~. Seal coated streets with pavement markings are to ~~comply with ADOT standards and~~ have two ~~(2)~~ applications, one of temporary paint, the other of thermoplastic paint.

6. Street name signs shall be diamond grade reflective, shall state the direction of the street, and shall ~~have the primary name at least four (4) inches high. Prefixes, suffixes, and directions may be no less than two (2) inches high. The directional prefix shall be in the upper left comer of the sign~~comply with FHWA's "*Manual on Uniform Traffic Control Devices*" and Town standard details.

12.0 NEIGHBORHOOD TRAFFIC MANAGEMENT

Traffic calming measures consist of traffic control devices and physical elements constructed in the roadway that control access to neighborhoods, change travel patterns or regulate the flow of traffic through a neighborhood. ~~Such measures include speed humps, traffic circles/roundabouts, chokers, diverters and others.~~

The need for traffic calming measures should be considered when addressing the potential for cut-through traffic in a new subdivision. If it appears that the volume of cut-through traffic may be significant, ~~consideration~~The Town should be ~~given~~consulted with prior to ~~using~~designing traffic calming measures on the impacted streets.

The traffic calming measures ~~to be used in the Town are currently under development and will be included in this document at a later date.~~can include speed humps, traffic circles, chicanes, oval medians and other measures as approved by the Town Engineer.

13.0 DESIGN EXCEPTIONS

It is recognized that land is unique, and there may be alternative design solutions to those mandated by these standards that will satisfy AASHTO, Fire Code, and other standards.

In the event an engineer wishes to employ alternative standards, a design exception report may be submitted to the Town to substantiate the proposal. As required, the design exception report must, at a minimum, provide:

- ~~1.~~ The section of these standards from which relief is desired;
- ~~2.~~ The supporting standards for the proposed alternative;
- ~~3.~~ An approval letter from the ~~Northwest Fire District~~local fire district;
- ~~4.~~ Approvals from any affected utilities; and
- ~~5.~~ Other justification, as deemed appropriate by the ~~applicant~~Town.

~~Five (5) copies of the design exception report will be submitted to the Town of Marana Development Coordinator, together with an application and fees (if applicable).~~ The design exception report must be sealed by an engineer registered in the state of Arizona and will be reviewed by the ~~Subdivision~~Town Engineer~~, Planning Director, and others as deemed necessary. A recommendation~~ in consultation with the Planning Director.

The Town Engineer may grant or deny the design exception. If the applicant wishes to appeal the decision of the Town Engineer, the decision will be forwarded to the ~~Planning Commission at its~~ next reasonably available ~~meeting, but no later than two (2) weeks from the date of application~~planning commission meeting. The planning commission will decide whether to uphold or overturn the Town Engineer's denial of the design exception.

14.0 DEFINITIONS AND ACRONYMS

AASHTO: The American Association of State Highway and Transportation Officials.

ADOT: Arizona Department of Transportation

AVERAGE DAILY TRAFFIC (ADT): The ~~total~~volume of traffic ~~for the year divided by 365.~~on a street on a typical weekday.

ALL-WEATHER ~~CROSSING: Any intersection of a street with a drainage pattern where the runoff from a one hundred (100) year flood does not exceed one (1) foot in depth over the roadway.~~ACCESS: Access considered traversable by normal passenger vehicles, defined as a permanent, durable material with adequate protection against scour and erosion and having a depth of water no more than 12 inches above the roadway surface during a Base Flood. Asphalt, Concrete, and traffic rated pavers are considered durable surfaces. All other surfaces must be approved by the Town Engineer. See also the Floodplain and Erosion Hazard Management Code, Chapter 17-15 of the Town Code.

BUILDING SETBACK: The ~~right-angle~~minimum distance from a point on ~~or within street right-of-way~~a property line to the closest point of any building ~~structure~~.

CC & ~~R's~~Rs: An acronym for Covenants, Conditions and Restrictions.

COLLECTOR STREET: A street designed to distribute traffic between local streets and arterial streets. See PCDOT's "Roadway Design Manual" for further discussion.

CROWN: A cross-slope of difference in elevation between the high point of a street and the gutter line, adjacent to the pavement edge, for any given cross section. Crown is normally expressed as a percentage.

CURB CUT: A depressed segment of a vertical roadway curb.

CURB RETURN: A curved segment of a curb used at each end of an opening in the roadway curb.

CURBWAY: The area between the back of curb and the roadway edge of the sidewalk.

DESIGN YEAR: The year during which the roadway improvements shall reach life expectancy with normal maintenance, generally ~~twenty (~~20~~)~~ years.

DEVELOPER: The private party in whose interest engineering documents, plats and plans are submitted for the purposes of review and regulation of private land development in the Town of Marana.

DRIVEWAY: A point of vehicular access between a street and an abutting property.

ENGINEER: The design engineer or engineer of record.

FHWA: U.S. Department of Transportation, Federal Highway Administration

FIRE APPARATUS ACCESS ROAD: Per the International Fire Code (IFC), *a road that provides fire apparatus access from a fire station to a facility, building or portion thereof. This is a general term inclusive of all other terms such as fire lane, public street, private street, parking lot lane and access roadway* Per Appendix D of the IFC, the fire apparatus access road must have *an asphalt, concrete or other approved driving surface capable of supporting the imposed load of fire apparatus weighing at least 75,000 pounds.*. For the purposes of these street standards, all roadways defined by these standards are considered fire apparatus access roads.

FRONTAGE ROAD: A local street or road auxiliary, located on the side of a collector or arterial street, which provides service to abutting property and adjacent areas while controlling access.

FUNCTIONAL CLASSIFICATION: A way of distinguishing between street types by the ~~purpose~~function each serves, such as freeway (limited access), arterial, collector, and local streets.

HOMEOWNERS' ASSOCIATION (HOA): A legal entity established for the purpose of owning and maintaining commonly held private real property.

INTERIM PAVING: Paving placed to designed grades that can be expanded to a permanent improvement at a future time.

INVERT: The difference in elevation between the low point of a street and a chord line connecting the outer edges of pavement or gutter lines.

ITE: Institute of Transportation Engineers

LEVEL OF SERVICE (LOS): A general term describing the operating conditions a driver will experience while traveling on a particular roadway facility. Where roadway conditions are fixed, level of service varies primarily with volume.

LOCAL STREET: A street that primarily serves as access to residences or other abutting properties.

MAJOR ROUTES PLAN: The most recent version of the Plan, as adopted by the Mayor and Council. As of this printing the major routes plan is contained in the Town's General Plan as its circulation element.

MINIMUM: The least quantity or amount allowable for a singular design condition, and may not be an acceptable state in consideration of other aspects of project design.

MUTCD: Federal Highway Administration's "Manual on Uniform Traffic Control Devices"

NO-ACCESS EASEMENT: A strip of land across which vehicular traffic is prohibited, except emergency and utility vehicles. No-access easements, unless specifically overridden by plat conditions, also prohibit access such as driveways, sidewalks, paths, and gates.

OFF-STREET PARKING: Any space provided for vehicular parking not within the street right-of-way.

ON-STREET PARKING: The parking lane adjacent to travel lanes in a traveled roadway.

ONE-WAY STREET: A street that has only one legal direction of travel.

PAG: Pima Association of Governments

PC/COT: Pima County/City of Tucson

PCDOT: Pima County Department of Transportation

TOWN: Town of Marana, a political subdivision of the State of Arizona.

TOWN ENGINEER: ~~The Director, Public Works Department, or his designated subordinate, in accordance with Arizona Revised Statutes.~~ An officer of Town created by the Marana Town Code. The Town Engineer has the powers and duties set forth by state law as well as town ordinance,

resolution, order or directive. Notwithstanding the above, the Town Engineer has charge of the Town streets and public works and performs those duties as may be required by law and any other duties as the Town manager may deem necessary. The Town Engineer may delegate duties to other responsible staff.

15.0 REFERENCES

1. "*A Policy on Geometric Design of Highways and Streets*", American Association of State Highway and Transportation Officials (AASHTO).
2. "*Roadside Design Guide*", AASHTO.
3. "*Manual on Uniform Traffic Control Devices*", United States Department of Transportation, Federal Highways Administration, (FHWA).
4. "*Guide for Design of Pavement Structures*", AASHTO.
5. "*Guidelines for Geometric Design ofVeryof Very Low-Volume Local Roads (ADT::S≤400)*", AASHTO.
6. "*Highway Capacity Manual*", Transportation Research Board, (TRB).
7. "*Trip Generation*", ITEInstitute of Transportation Engineers (ITE).
8. "*Trip Generation Handbook*", ITE.
9. "*Traffic Engineering Manual of Approved Signs*", Arizona Department of Transportation (ADOT).
10. "*Materials-Preliminary Engineering and Design Manual*", ADOT.
11. "*Traffic Impact Analysis for Proposed Developments*", ADOT; or as supercededsuperseded by the Town of Marana.
12. "*Bridge Design and Detailing Manual*", ADOT.
13. "*Construction Standards- = Construction, Bridge, Signing and Marking*", ADOT.
14. "*Construction Standard Drawings*", ADOT.
15. "*Signing and Marking Standard Drawings*", ADOT.
16. "*Pima County Roadway Design Manual*", and applicable references therein, Pima County Department of Transportation & Flood Control District, (PCDOT & FCD).
17. "*Standard Specifications for Public Improvements*", Pima County/City of Tucson, (PC/COT).
18. "*Standard Details for Public Improvements*", PC/COT.
19. "*Pavement Marking Design Manual*", PC/COT.
20. "*Traffic Signing Manual*", PC/DOT.
21. "*Drainage and Channel Design Standards for Local Drainage for Floodplain Management within Pima County, Arizona*", PCDOT & FCD.
22. "*Stormdrain Design Guidelines and Standard Plans*", Pima County Department of Transportation (PCDOT & FCD) & Pima County Flood Control District (FCD).
23. "*Manual of Engineering Standards and Procedures*", Pima County Wastewater Management Department (PCWMD).
24. "*Standard Specifications and Details*", City of Tucson Water Department, (COTWD).
25. The "*Procedures for Preparation of: Transportation Impact Studies",* Town of Marana Traffic Impact Analysis Process Manual.
26. The Town of Marana Neighborhood Traffic Management Program Manual (proposed).

27. Marana Standard Details
28. Pima Association of Government's "Standard Specifications and Details for Public Improvements"

All references refer to the latest edition unless otherwise noted

Document comparison by Workshare Compare on Thursday, June 16, 2016 10:55:07 AM

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Description	NO TOC Subdivision Street Standards June 2016 version (00047128xA96C7)
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Moved to	7
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Format changed	0
Total changes	1023

Council-Special Meeting **A2**

Meeting Date: 06/28/2016

To: Mayor and Council

From: Erik Montague, Finance Director

Date: June 28, 2016

Strategic Plan Focus Area:
Commerce, Community, Heritage, Recreation, Progress & Innovation

Strategic Plan Focus Area Additional Info:
The ability to set the Town's expenditure limitation at the local level under the Home Rule Option is critical in providing essential services described in all sections of the Town's Strategic Plan.

Subject: PUBLIC HEARING: Relating to Alternative Expenditure Limitation (Home Rule Option); public hearing pursuant to A.R.S. section 41-563.01 regarding the proposed extension of the alternative expenditure limitation for the Town of Marana

Resolution No. 2016-074: Relating to Alternative Expenditure Limitation; proposing an extension of the alternative expenditure limitation for the Town of Marana (Erik Montague)

Discussion:

The Arizona Constitution and Arizona Revised Statutes impose an annual expenditure limitation on Arizona cities and towns. Article IX of the Arizona Constitution also allows for a city or town to adopt a local alternative expenditure limitation, or Home Rule Option, with the approval of the majority of the qualified voters of the city or town. The Home Rule Option allows the community to determine what its spending limits will be at the local level rather than the formula-based limit imposed by the State of Arizona. Under the Home Rule Option, if approved, total expenditures for the city or town are determined at the time of budget adoption and may exceed those imposed by the State of Arizona. The Home Rule Option is in effect for four consecutive years once it is approved.

In 1985, and every four years thereafter, the residents of the Town of Marana voted to adopt the Home Rule Option. The current Home Rule Option was passed on May 21, 2013 and is in effect through fiscal year 2016-2017. Traditionally, this item has been sent to the voters in a spring

candidate election cycle. However, consolidated elections law now requires that this item be considered at the same time as candidate elections which will occur this calendar year.

Without the Home Rule Option, Town expenditures may not exceed those set forth in the State Constitution. The State's limitation is determined by an expenditure base that was established in 1979-80, adjusted for inflation and population growth over the years.

For example, the estimated State-imposed limitation, including estimated constitutionally excludable expenditures, for fiscal year 2017-2018 is $54,083,555, while the Town's estimated expenditure limitation under the Home Rule Option, based upon estimated revenues, is $118,118,409. That represents an estimated $64,034,854 reduction in estimated expenditures.

The example above clearly illustrates the importance of the Home Rule Option. This is especially true for faster growing communities like Marana. Without the Home Rule Option, the Town would be mandated to cut expenditures and services like street maintenance, public safety, community development, and parks and recreation programs to comply with the State imposed limitation despite receiving revenues well in excess of the limitation. The worksheets attached to this item provide a more detailed analysis of the aforementioned calculations.

With approval of the attached resolution by at least two-thirds of the Council, residents of the Town will be asked to vote on the Home Rule Option on the November 8, 2016 General Election ballot. If the ballot measure passes, the Home Rule Option will take effect for fiscal years 2017-18 through 2020-2021.

Prior to scheduling an election for the Home Rule Option, the Council must conduct at least two public hearings. All required notices of public hearings were properly posted in accordance with state statute. This is the second of two public hearings on the Alternative Expenditure Limitation, after which the Council may consider the adoption of a resolution authorizing the Home Rule Option to be submitted to the voters of the Town of Marana.

Financial Impact:

The Home Rule Option allows the community to set the expenditure limit at the local level based upon existing resources. Without the Home Rule Option, the Town would be mandated to cut expenditures and services like street maintenance, public safety, community development, and parks and recreation programs to comply with the State imposed limitation. Revenues received in excess of the State imposed limit could not be spent on essential services.

Staff Recommendation:

Staff recommends the approval of Resolution 2016-074.

Suggested Motion:

I move to adopt Resolution No. 2016-074, proposing an extension of the alternative expenditure limitation for the Town of Marana.

Attachments

MARANA RESOLUTION NO. 2016-074

RELATING TO ALTERNATIVE EXPENDITURE LIMITATION; PROPOSING AN EXTENSION OF THE ALTERNATIVE EXPENDITURE LIMITATION FOR THE TOWN OF MARANA

WHEREAS the Arizona State Constitution imposes a limitation on the expenditures of a town, but permits a town to refer to its voters an Alternative Expenditure Limitation; and

WHEREAS the voters of the Town of Marana in 1985 adopted an Alternative Expenditure Limitation and have voted to extend such Alternative Expenditure Limitation from time to time, most recently in 2013; and

WHEREAS the Town Council of Marana, after two public hearings, has determined that an extension of the Alternative Expenditure Limitation is necessary for the Town of Marana.

NOW, THEREFORE, BE IT RESOLVED BY THE MAYOR AND COUNCIL OF TOWN OF MARANA, ARIZONA, as follows:

SECTION 1. The following Alternative Expenditure Limitation shall be submitted to the voters of the Town of Marana at the General Election to be held on November 8, 2016:

> Shall the following be adopted by the Town of Marana as an Alternative Expenditure Limitation:
>
> "The Mayor and Council of the Town of Marana shall annually, as part of the annual budget adoption process, adopt an alternative expenditure limitation equal to the total amount of budgeted expenditures/expenses as it appears on the annual budget as adopted by the Council to apply to the Town of Marana for each of the four fiscal years immediately following adoption of the alternative expenditure limitation. The alternative expenditure limitation shall be adopted each year after a public hearing at which the citizens of the Town of Marana may comment on the proposed alternative limitation. No expenditures may be made in violation of such alternative expenditure limitation, nor may any proposed expenditures be in excess of estimated available revenues, except that the Mayor and Council may, by three-fourths vote, declare an emergency and suspend the alternative expenditure limitation. The suspension of the alternative expenditure limitation shall be in effect for only one fiscal year at a time."

SECTION 2. The Town Manager, Town Attorney, and Town Clerk are hereby directed and authorized to take such actions as are necessary or desirable to comply with all applicable laws and regulations relating to or necessary for the November 8, 2016 general election, including without limitation any and all activities related to the preparation, printing and distribution of a publicity pamphlet as required by law, and to the execution of contracts necessary for the same.

SECTION 3. The Town Clerk is hereby authorized and directed to place a public notice in the *Daily Territorial*, notifying the public that arguments for and against the alternative expenditure limitation measure will be accepted by the Town Clerk no later than 5 P.M. on Wednesday, August 10, 2016.

SECTION 4. The Town Clerk is hereby authorized and directed to charge an amount of money to offset a portion of the proportionate cost of the paper and printing of the arguments received for and against the measure, as provided in A.R.S. § 19-124(D), and in the Town's comprehensive fee schedule.

PASSED AND ADOPTED by the Mayor and Council of the Town of Marana, Arizona, this 28th day of June, 2016.

_____
Mayor Ed Honea

ATTEST:

_____
Jocelyn C. Bronson, Town Clerk

APPROVED AS TO FORM:

_____
Frank Cassidy, Town Attorney

ALTERNATIVE EXPENDITURE LIMITATION

(Home Rule Option)

SUMMARY ANALYSIS

The voters of the Town of Marana on May 21, 2013 adopted an alternative expenditure limitation (Home Rule Option). The purpose of this election is for the continued use of the Home Rule Option.

Pursuant to the Arizona State Constitution, the Town of Marana seeks voter approval to adopt a Home Rule Option to apply to the town for the next four years beginning in 2017-2018. Under a Home Rule Option if approved by the voters, the town estimates it will be allowed to expend approximately $118,118,409 in 2017-2018, $81,101,846 in 2018-2019, $78,234,286 in 2019-2020 and $95,496,118 in 2020-2021.

With approval of the Home Rule Option, the town will utilize the expenditure authority for all local budgetary purposes including general government, public safety, highways and streets, economic and community development, culture and recreation, water utility, wastewater utility, airport, debt service and capital improvement projects.

Under the state-imposed limitation the town estimates it will be allowed to expend approximately $54,083,555 in 2017-2018, $48,300,282 in 2018-2019, $48,707,896 in 2019-2020 and $52,756,729 in 2020-2021 for the operation of your local government. These expenditure estimates include expenditures of constitutionally excludable revenues.

The amount of revenue estimated to be available to fund the operation of your town government is $118,118,409 in 2017-2018, $81,101,846 in 2018-2019, $78,234,286 in 2019-2020 and $95,496,118 in 2020-2021. These revenue estimates are the same under the Home Rule Option or the state-imposed expenditure limitation. (The town property tax shall be limited to the amount prescribed in the Arizona State Constitution.)

Any and all dollar figures presented in this summary are estimates only and are based upon information available at the time of preparation of this analysis. The budget and actual expenditures in any of the four years may be more or less than the expenditures noted above depending on available revenue.

If no alternative expenditure limitation is approved, the state-imposed expenditure limitation will apply to the town.

ALTERNATIVE EXPENDITURE LIMITATION
(Home Rule Option)
SUMMARY ANALYSIS WORKSHEET

POPULATION FACTOR COMPUTATION

Fiscal Year	Prior Fiscal Year Population	/	1978 Population	=	Population Factor
2017-2018	44,600	/	1,425	=	31.2982
2018-2019	46,300	/	1,425	=	32.4912
2019-2020	47,900	/	1,425	=	33.6140
2020-2021	49,600	/	1,425	=	34.8070

STATE-IMPOSED EXPENDITURE LIMITATION

Fiscal Year	1979-80 Base Limit	x	Population Factor	x	Inflation Factor	=	Projected State-Imposed Expenditure Limitation	+	Estimated Exclusions	=	Total Expenditures Under State-Imposed Limit
2017-2018	$ 202,239	x	31.2982	x	2.9160	=	$ 18,457,454	+	$ 35,626,101	=	$ 54,083,555
2018-2019	202,239	x	32.4912	x	2.9743	=	19,544,089	+	28,756,193	=	48,300,282
2019-2020	202,239	x	33.6140	x	3.0442	=	20,694,660	+	28,013,236	=	48,707,896
2020-2021	$ 202,239	x	34.8070	x	3.1046	=	$ 21,854,313	+	$ 30,902,416	=	$ 52,756,729

ALTERNATIVE EXPENDITURE LIMITATION
(Home Rule Option)
DETAILED ANALYSIS

Pursuant to the Arizona State Constitution, the Town of Marana as authorized by Resolution No. 2016-___ passed on _____, 20___ will seek voter approval to adopt an alternative expenditure limitation (Home Rule Option) to apply to the Town for the next four years beginning in 2017-2018.

Under a Home Rule Option if approved by the voters, the town estimates it will be allowed to expend approximately $118,118,409 in 2017-2018, $81,101,846 in 2018-2019, $78,234,286 in 2019-2020 and $95,496,118 in 2020-2021.

With approval of the Home Rule Option, the town will utilize the expenditure authority for all local budgetary purposes including general government, public safety, highways and streets, economic and community development, culture and recreation, water utility, wastewater utility, airport, debt service and capital improvement projects. We estimate that the expenditures for the next four years under the Home Rule Option will be as follows:

ESTIMATED AMOUNTS TO BE EXPENDED IN SPECIFIC AREAS

Purpose	2017-2018	2018-2019	2019-2020	2020-2021
General Government	$ 22,542,021	$ 23,076,280	$ 23,650,492	$ 24,203,334
Public Safety	13,616,507	13,939,226	14,286,079	14,620,023
Highways and Streets	6,005,146	6,147,471	6,300,440	6,447,716
Economic and Community Development	6,044,690	6,187,953	6,341,929	6,490,175
Culture and Recreation	3,789,906	3,879,729	3,976,269	4,069,216
Water Utility	4,899,791	5,015,919	5,140,731	5,260,898
Wastewater Utility	1,198,979	1,227,396	1,257,938	1,287,343
Airport	481,341	492,749	505,010	516,815
Debt Service	8,681,833	8,443,083	8,210,898	7,985,098
Capital Improvement Projects	50,858,195	12,692,040	8,564,500	24,615,500
Total Expenditures	$118,118,409	$ 81,101,846	$ 78,234,286	$ 95,496,118

If approved, the expenditures authorized will be funded from revenues obtained from federal, state and local sources. It is estimated that the amount of revenue from each source for the next four years will be as follows:

ESTIMATED AMOUNTS OF REVENUE FROM EACH AND ANY SOURCE

Source	2017-2018	2018-2019	2019-2020	2020-2021
Federal	$ 5,307,203	$ 5,432,987	$ 5,439,263	$ 5,559,986
State	19,454,583	42,285,813	34,585,484	51,625,964
Local	93,356,623	33,383,046	38,209,539	38,310,168
Total Expenditures	$118,118,409	$ 81,101,846	$ 78,234,286	$ 95,496,118

(The town property tax shall be limited to the amount prescribed in the Arizona State Constitution).

In determining the revenue sources to fund the authorized additional expenditures under the alternative expenditure limitation, it is assumed that the federal, state and local revenues received by the town will continue to be available in 2017-2018 as they have for the past four years. Their continued availability is also assumed for the next three consecutive years following 2017-2018.

Any and all dollar figures shown in this analysis are estimated figures only and are based upon information available at the time of preparation of this report. The budgets and actual expenditures in any given year may be more or less than the figures noted above depending on available revenues. The actual expenditure limitation for each fiscal year shall be adopted as an integral part of the budget for that fiscal year.