WSP USA
Contract No. 2022-108
City of Flagstaff Downtown Mile Project
Planning and Design Services
Project No. XX

Scope of Work
For
Planning and Design Services

August 2022

GENERAL DESCRIPTION OF WORK:

WSP USA (WSP) will provide Design Services for the Downtown Mile Planning and Design Services Project for the City of Flagstaff, AZ. The project includes:

- Roadway, Drainage, and Traffic design for the reconstruction of Milton Road between Phoenix Avenue to the South and the newly reconstructed Rio de Flag bridge to the north
- Roadway, Drainage, and Traffic design for the reconstruction of the Sante Fe Avenue and Sitgreaves Street Intersection with Route 66 / Milton Road
- Structural design and geotechnical investigation for the reconstruction of the Burlington Northern Santa Fe (BNSF) bridge supporting the BNSF railway and the associated retaining walls along Milton Road, the Florence-Walnut multi-use path under BNSF, the Flagstaff Urban Trail System (FUTS) trail and United States Army Corps of Engineers (USACE) box structures under BNSF, and the widening, replacement, or removal (to be determined) of the existing BNSF Rio de Flag crossing
- Temporary Shoring required to construct the realigned railway and associated structures
- Drainage, systems, and structural design for the reconstruction of the pump house along Milton Avenue
- Rail design for the realignment of BNSF railway through the project area starting west of the Florence-Walnut and tying into the Lone Tree Overpass rail limits near San Francisco Street.
- Preliminary site location of the Amtrak station platform (general location only)
- Survey of the project area
- Landscape, aesthetics, and stormwater protection plans for the project
- Utility and right-of-way coordination for the project
- Stakeholder and permit coordination for the project
- Project Schedule coordination for multiple projects along BNSF ROW
- A Rail Safety Plan

This scope of work covers the development of construction plans, specifications, and an engineer's estimate of probable cost for the work described above, as well as the additional tasks described. Construction plans will be developed following a Concept Level, 60%, 90%, and PS&E Submittal Process. Key stakeholders include Arizona Department of Transportation (ADOT), BNSF, and the USACE, Amtrak, and Mountain Line. The Submittals are described more generally as follows (submissions of Reports may be adjusted outside these general submittals):

1. Concept Level – This submittal will further develop concepts shown in the Feasibility Study and incorporate comments received from ADOT, BNSF, and the City. Structural concepts for the crossing structures at Florence-Walnut, the USACE Rio de Flag (RDF) crossing, and the BNSF crossing at the existing Rio de Flag will be developed to evaluate structural alternatives to be reviewed by the City. Roadway, Drainage, Traffic, and Utilities will be developed and submitted as either a Roll Plot or Construction Drawings and are not intended to be a formal review. Railway and Structural Concepts will be developed and submitted to BNSF (BNSF Design A Submittal) and ADOT for comments as part of the stakeholder review submittal processes. Concepts for the intersection with Santa Fe Avenue and Sitgreaves Street are anticipated to be submitted and presented to the City Commissions and Mayor and Council for selection of a preferred intersection after this submittal.
2. 60% Submittal – This submittal will provide an official 60% level submittal for the City to review for all design elements as described in this scope of work and will include 60% Design Plans, Specifications, and Engineer's Estimate of Probable Cost and will include review packages for ADOT and the USACE. A 30% Design Package (BNSF Design B Submittal) will be prepared for BNSF. The Draft of the Traffic Impact Analysis will be submitted to the City and ADOT. The Geotechnical Report may be preliminary at this stage based on availability to obtain clearances for field explorations to be completed due to access and weather restrictions in Quarter 4. If access for drilling is not allowed, a preliminary report will be prepared based on available information and later confirmed with field explorations.
3. 90% Submittal – This submittal will further refine the 60% submittal based on review comments received by the City and Stakeholders. This will be considered the final submittal for review for all work elements as described in this scope of work and will include 90% Design Plans, Specifications, and Engineer's Estimate of Probable Cost and will include review packages for ADOT and USACE. A Final Design Package (BNSF Design C Submittal) will be prepared for BNSF. Final Traffic Impact Analysis will be submitted to the City and ADOT. A Final Geotechnical Report will be submitted to the City after all field explorations and data analysis is complete.
4. PS&E Submittal – This submittal will be the Sealed Plans and Specifications submittal to the City and will be developed in coordination with a Construction Manager at Risk (CMAR) Contractor. This submittal will include Sealed Engineering Plans and Specifications and an Engineer's Estimate of Probable Cost.

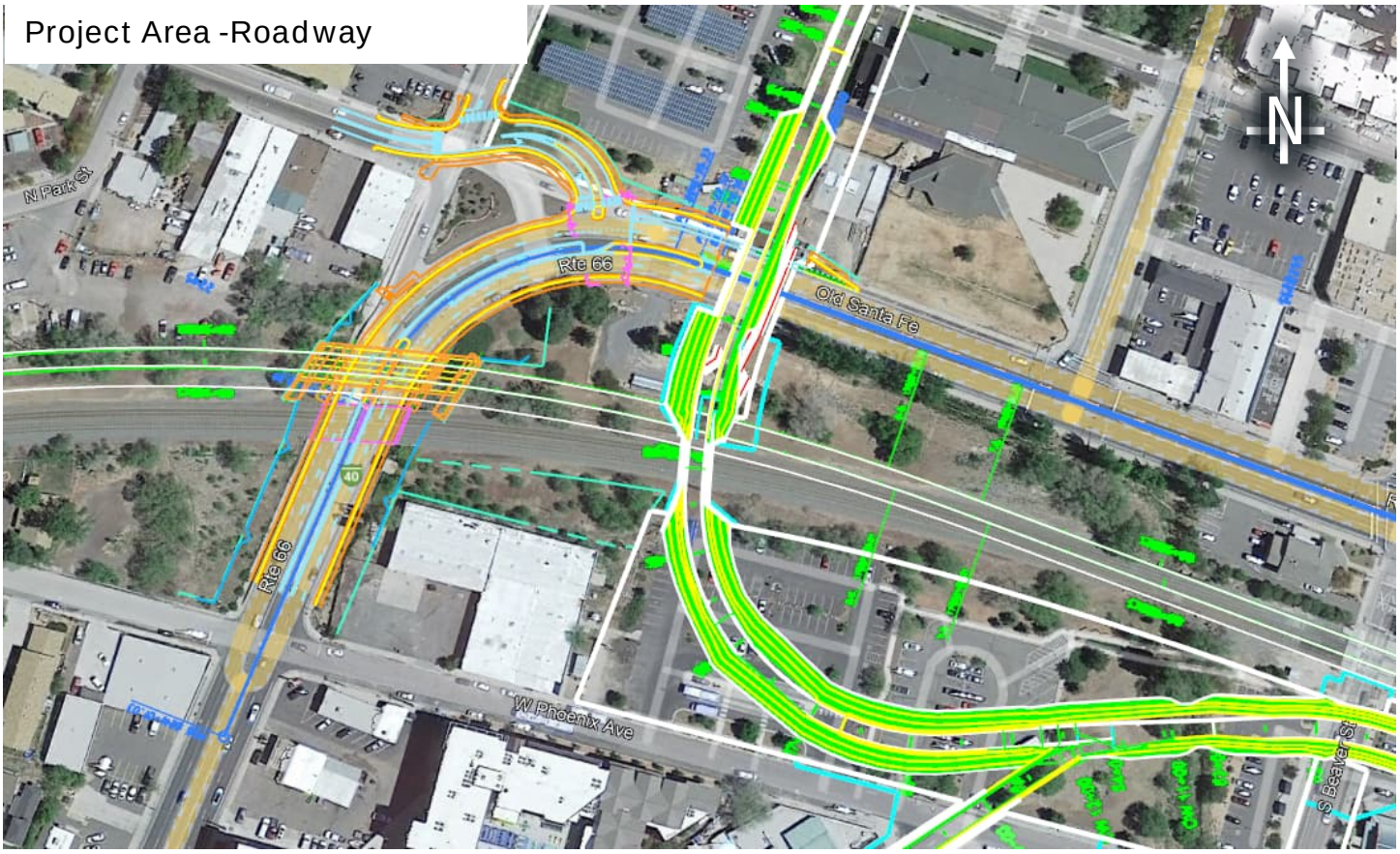
Project Plans and Specifications will be developed based on the Owner of the facility impacted. A general summary of this is as follows:

1. Milton Road – Milton Road is an ADOT facility and will be designed and detailed using ADOT CADD Standards using MicroStation and Open Roads. Specifications will be based on the current version of the ADOT Standard Specifications for Road and Bridge Construction and the current Stored Specifications.

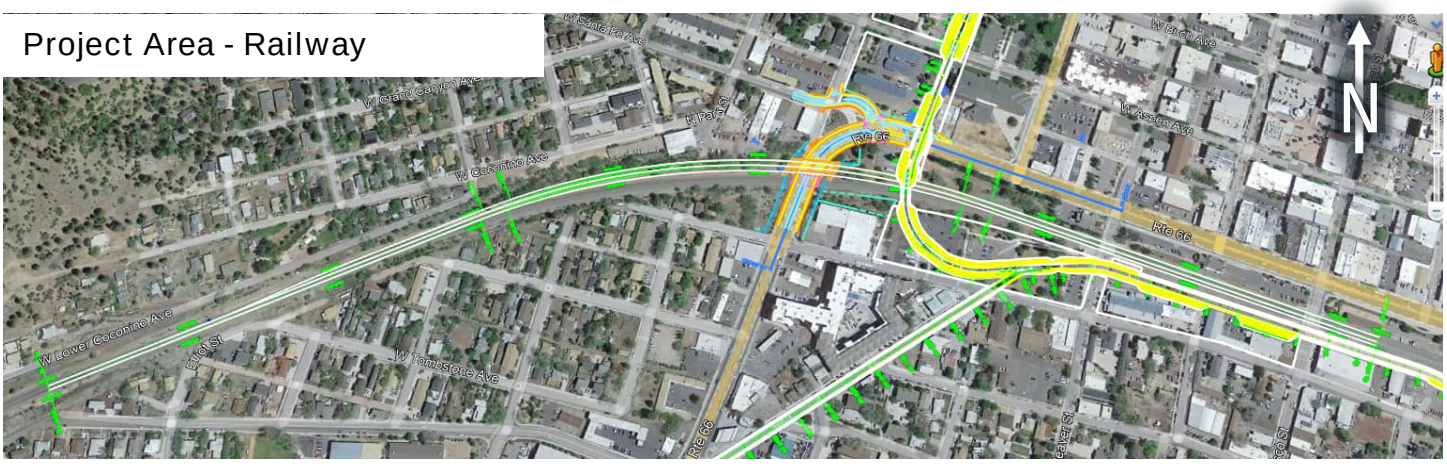
2. Santa Fe Avenue and Sitgreaves Street – These facilities are City of Flagstaff facilities and will be designed and detailed using City of Flagstaff standards using AutoCAD. Specifications will be based on the current City specifications supplemented by the Maricopa Association of Governments standard specifications.
3. BNSF and Amtrak – These facilities are Owned by BNSF and will be designed and detailed to BNSF and AREMA guidelines and CADD standards using MicroStation. Specifications will be based on AREMA Specifications supplemented by BNSF and Amtrak requirements.

The anticipated duration of this project is 12 months from Notice to Proceed (NTP) to submission of the construction documents to provide sufficient time for reviews of each submittal stage and coordination with the impacted stakeholders. It is assumed that there will be a 4-week review for the Concept Submittal to obtain stakeholder buy-in, no review hold point at the 60% Submittal, and another 4-week review for the 90% Submittal for final Stakeholder clearances. Extensions in this duration resulting from delays in obtaining necessary data, input, or feedback may result in additional project costs. It is anticipated that some permits may take longer than this schedule based on stakeholder requirements. The work will be performed using a Lump Sum fee based on the scope outlined herein. If additional scope is required, a subsequent contract modification will be submitted to the City for approval prior to any additional work being completed. WSP will invoice the City monthly based on percent complete as design progresses.

Project Area -Roadway



Project Area - Railway



WSP's work will be supported by the following subconsultants:

1. Peak Engineering: Design of the Sitgreaves Street and Santa Fe Intersection, including roadway, signing, striping, exhibit development, and presentations to Commissions and Mayor and Council. Peak will design the Beaver and San Francisco roadway crossings in coordination with the railway engineers (WSP). Peak Engineering will also assist with Utility support and coordination for the entire project limits.
2. TranSystems Corporation: Design of the Florence-Walnut Pedestrian Underpass. Work will include a re-evaluation of the crossing to evaluate the cost of a box structure for Concept Level and design or redesign of the box/existing structural plans based on the results of that Concept Level Investigation. TranSystems will also be responsible for the design of shoring elements for the project.
3. Northland Exploration Surveys: Field and Design Survey for the project areas and right-of-way plan development as part of the project.
4. Wheat Design Group: Landscape and Aesthetics for the project and Stormwater Pollution Prevention Plans (SWPPP).
5. GSI: Geotechnical drilling in support of field explorations for geotechnical investigations.
6. Quail: Traffic control for geotechnical exploration within ADOT right-of-way.
7. Wood: Lab testing of soil and rock data retrieved during geotechnical explorations.

Subconsultants scope of work and fee are attached as appendices at the end of this document.

It is anticipated that this project will become a Construction Manager at Risk (CMAR) project between Concept Design and 90% Design. It is assumed under this scope that redesign and value engineering efforts will not require significant changes to design established at the Concept Design phase. Significant changes in design may require a subsequent contract modification to complete the work.

TASK 1.0 – PROJECT MANAGEMENT AND COORDINATION

The work under this task will include general project management and coordination activities during the project. This task includes project management, meetings, project documentation, and development of meeting agendas and minutes.

SUBTASKS:

TASK 1.1: Project Management work will include project set up, monthly invoicing, and project tracking.

TASK 1.2: Project Meetings will include meetings throughout this scope of work to coordinate with the City of Flagstaff and obtain feedback. A meeting agenda and minutes will be prepared for each meeting and include documentation of decisions.

TASK 1.2A: A project kickoff meeting following NTP will be scheduled and held with the City and is anticipated to include a site walkthrough with key task leads (In Person: PM, DPM, Roadway, Drainage, Structures, Traffic, Geotechnical Virtual: Public Involvement, Rail, Environmental, Planning). This meeting will be held in person with a portion of the meeting to be held virtually to allow attendance by stakeholders and remote task leads.

TASK 1.2B: Monthly progress meetings will be scheduled with City staff and invited stakeholders to discuss project elements and design decisions (Virtual: PM, DPM, Roadway, Drainage, Structures, Traffic, Geotechnical, Public Involvement, Rail, Environmental, Planning). These meetings will include all key task leaders and will be held virtually to allow attendance by stakeholders and remote task leads.

TASK 1.2C: Bi-monthly stakeholder meetings are anticipated to discuss project elements and coordinate project requirements with other local projects and permit requirements. Anticipated stakeholders requiring additional coordination include ADOT, BNSF, and USACE. These meetings will include selected key task leads (Virtual: PM, DPM, Roadway, Structures, Rail, and Traffic) whose work is impacted by the stakeholder and will be held virtually to allow attendance by stakeholders and remote task leads.

TASK 1.3: Project Coordination is provided to coordinate work performed by subconsultants for survey and utilities. This coordination includes survey review and verification, attendance at utility meetings, and conflict identification and mitigation.

TASK 1.4: The Quality Program is WSP's program to verify that quality control procedures on the project are implemented and executed per the project Quality Plan. Time under this task includes Quality Assurance reviews and coordination of submittals prior to submission to the City. Quality Control is handled at a task level by the Task Leads under the work described elsewhere. Four submissions are identified for this task: Concept, 60%, 90%, and PS&E.

ASSUMPTIONS:

1. It is assumed that meetings, except for the Kick-off meeting, will be virtual and do not require travel.

DELIVERABLES:

Meeting Agendas (Electronic PDF), Meeting Minutes (Electronic PDF)

TASK 2.0 – ROADWAY

The work under this task will include the design of Milton Road from Phoenix Avenue to the south to the newly reconstructed Route 66 Rio de Flag crossing to the north. Milton Road / Route 66 is an ADOT facility so this section of roadway will be designed per ADOT design criteria. Plans will be developed for an Interim Condition generally matching the existing typical section of the roadway, but design will consider an Ultimate Condition for the future widening of Milton Road as identified in the ADOT *Milton Road Corridor Master Plan*. It is understood that this plan is not formally adopted. Ultimate Condition will be confirmed during the project.

SUBTASKS:

TASK 2.1: City Meetings that involve presentations to City Commissions and the Mayor and Council are anticipated for the intersection of Sitgreaves Street and Santa Fe Avenue and the connection into Milton Road / Route 66. Attendance at these meetings will be required to describe the alternatives as well as introduce the overall project and to allow the Mayor and Council to select the preferred alternative. Each meeting is assumed to be two-hour duration plus time for presentation preparation. It is assumed that the Mayor and Council meeting will be in person and the Commission meeting will be Virtual.

ASSUMPTIONS:

1. It is assumed that 1 Commission meeting will be virtual, and 1 Mayor and Council meeting will be in person.

DELIVERABLES:

Intersection Concept PowerPoint (Electronic PDF)

TASK 2.2: Concept Submittal. The submittal is anticipated to include:

- One Roll Plot at a scale of 1" = 20' to include an aerial image of the roadway footprint, roadway geometry and layout, vertical profile, and typical sections, as well as ROW impacts and existing utilities (as available at the time of submittal). The roadway Roll Plot will also depict conceptual pavement striping and drainage improvements.

DELIVERABLES:

Concept Submittal and Engineer's Estimate (Electronic PDF)

TASK 2.3: 60% Submittal. The submittal is anticipated to include:

1. Plans at a scale of 1" = 40' to include:
    a. Cover, General Notes, Index (2 Sheets)
    b. Typical Sections (2 Sheets)
    c. Roadway Detail Sheets (Up to 3 Sheets)
        a. Includes Barrier Summary, Curb Access Ramps, and Barrier/Retaining Walls
    d. Roadway Geometry Sheets (1 Sheet)
    e. Demolition Plans (1 Sheet)

f. Roadway Plan and Profile Sheets (2 Sheets, 1 Plan sheet and 1 Three-Line (profile data for centerline control and outside curbs) Profile sheet)

g. Side Road Plan and Profile Sheets (2 Sheets)

h. Cross Sections (5 Sheets) – Sections will be produced using Open Roads at 50-foot intervals

DELIVERABLES:

60% Submittal, Specifications, and Engineer's Estimate (Electronic PDF)

TASK 2.4: 90% Submittal. The submittal is anticipated to include:

1. Plans at a scale of 1" = 40' to include:
    a. Cover, General Notes, Index (2 Sheets)
    b. Typical Sections (2 Sheets)
    c. Roadway Detail Sheets (Up to 6 Sheets Total)
        i. Includes Barrier Summary, Curb Access Ramps, Barrier/Retaining Walls, other general detail sheets
    d. Roadway Geometry Sheets (1 Sheet)
    e. Demolition Plans (1 Sheet)
    f. Roadway Plan and Profile Sheets (2 Sheets, 1 Plan sheet and 1 Three-Line Profile sheet)
    g. Side Road Plan and Profile Sheets (2 Sheets)
    h. Intersection Staking Plans (2 Sheets) - For construction of Milton Road at Phoenix Ave and the connections to Santa Fe Avenue and Sitgreaves Street
    i. Cross Sections (5 Sheets) – Sections will be produced using Open Roads at 50-foot intervals

DELIVERABLES:

90% Submittal, Specifications, Engineer's Estimate, and Earthwork Report (Electronic PDF)

TASK 2.5: PS&E Submittal. The submittal is anticipated to include:

a. Plans at a scale of 1" = 40' to include:

1. Cover, General Notes, Index (2 Sheets)
2. Typical Sections (2 Sheets)
3. Roadway Detail Sheets (Up to 9 Sheets Total)
    a. Includes Barrier Summary, Curb Access Ramps, Barrier/Retaining Walls, other general detail sheets
4. Roadway Geometry Sheets (1 Sheet)
5. Demolition Plans (1 Sheet)
6. Roadway Plan and Profile Sheets (2 Sheets, 1 Plan sheet and 1 Three-Line Profile sheet)

7. Side Road Plan and Profile Sheets (2 Sheets)
8. Intersection Staking Plans (2 Sheets) - For construction of Milton Road at Phoenix Ave and the connections to Santa Fe Avenue and Sitgreaves Street
9. Cross Sections (5 Sheets) – Sections will be produced using Open Roads at 50-foot intervals

DELIVERABLES:

PS&E Submittal, Special Provisions, Engineer's Estimate, and Earthwork Report (Electronic PDF and associated base files)

ASSUMPTIONS:

1. The above scope and fee is based upon the acceptance of the proposed vertical profile from the Feasibility Study and proposed Stopping Sight Distance based upon a 30 MPH design speed and 3D analysis using ½-K value criteria, as discussed with the City of Flagstaff and ADOT on April 27, 2021.
2. It is assumed that all meetings, except for 1 Mayor and Council meeting, will be virtual and do not require travel.
3. Plans and design work will be performed using MicroStation and Open Roads.
4. Earthwork Report as described above will be for the Roadway improvements only. Earthwork required for rail construction and other offsite (outside of the roadway construction footprint) improvements is excluded from the proposed fee.
5. Earthwork will be calculated to the proposed pavement subgrade.

TASK 3.0 – DRAINAGE

The work under this task includes the development of a drainage system for the project limits, which includes Milton Road, the Santa Fe Avenue and Sitgreaves Street intersection and tie-in, BNSF right-of-way within the project limits, and the ADOT Stormwater Pump Station relocation. The following criteria is anticipated to be used to design the drainage systems and is associated with ownership of facility under consideration: City of Flagstaff for Santa Fe Avenue and Sitgreaves Street, ADOT for Milton Road & the Stormwater Pump System, and BNSF/AREMA for the railroad facility. Key items include:

1. Review change in conditions
2. Upgrade the Milton Road storm drain system
3. Upgrade the Santa Fe Avenue / Sitgreaves Street storm drain system and coordinate current redesign being performed by others
4. 404 coordination with the existing BNSF Rio de Flag crossing
5. 408 coordination for pipe connections into the proposed RDF box culvert
6. Stormwater Pump Station Siting & Design

SUBTASKS:

TASK 3.1: Drainage Coordination under this task will include drainage specific breakout meetings with the City of Flagstaff Stormwater, ADOT TSMO (Pump Station), and USACE. WSP anticipates attending 5 break out meetings for each entity (15 in total). These meetings are anticipated to be 1 hour long and virtual and will require four staff (PM, 2

Drainage, 1 Pump Engineer). Staff will prepare meeting agenda and summary notes to be distributed to attendees after the meeting.

ASSUMPTIONS:

1. It is assumed that meetings will be virtual and do not require travel.

DELIVERABLES:

Meeting Agendas (Electronic PDF), Meeting Minutes (Electronic PDF)

TASK 3.2: Concept Design - Drainage

Work under this task will include concept level design for the drainage systems within the preferred alternatives for Milton Road, Santa Fe Avenue and BNSF railroad.

Drainage:

- Data Collection – Request and research available mapping, soils data, as-built plans
- Preliminary Hydrology for Initial layout catch-basin locations
- Initial Spread Computation for locating catch-basin in accordance with appropriate criteria.
- Preliminary Hydrology for BNSF Onsite and Offsite
- Preliminary Hydraulics for Facilities within BNSF R/W
    - Track Side Channel Design & Analysis to match pre-project conditions
    - RDF Crossing Alternative Analyses – Two alternatives (Bridge Widening & Culvert) to be sized to match pre-project conditions or approved interim flow rate. Size Recommendations will be provided to Structures team who will develop plans for the approved concept.
- Preliminary storm drain sizing is based on design storm and full flow, no detailed hydraulic analyses are included at this stage.

DRAINAGE DELIVERABLES:

- Concept Drainage Plan Sheets (Est 10 shts, No Profiles included at this stage)
- Recommended sizes for existing BNSF Rio de Flag Crossing to Structures Team
- Engineer's Estimate of Probable cost (Electronic PDF)
- Drainage Reports are <u>not</u> included at this stage.

TASK 3.3: Concept Design – Pump System

Work under this task will include concept level design for the pump station as well as exhibit preparation to identify the preferred location for the relocation of the pump station. Exhibits will be prepared early in the task to be presented to the City to identify the preferred location to allow for development of the preliminary concept design along with identified advantages and disadvantages of each location. Up to three locations will be identified and exhibits will identify access, turnarounds, and conflicts for each location.

- Pump Station Design
  WSP will summarize the impact of the pump station on the storm drain system to be included in the Drainage Report. The pump station will be evaluated as a stand-alone element that accommodates the gravity flows

into a wet well chamber and discharges against a total dynamic head at the proposed outfall. Pump selection criteria will be based on submersible centrifugal pumps operated through a standard transducer or bubbler system with float control emergency backup. Typical pump performance product cut sheets will be provided in an appendix.

- Basis of Design Memorandum -
  WSP will prepare a Basis of Design memorandum detailing the pump type selection, wet well requirements, general structural elements, and mechanical parameters of the pump station based on a typical duplexing pump station. The memorandum will also set the required storage volume of the upstream storm drain system in conjunction with the wet well dimensions and pump maintenance accessibility. Electrical design comments for both the motor control center and the water level operating set points will be discussed in relation to the operation of the mechanical elements. Provisions for ADOT to supplement the pump station switchgear with ancillary devices or SCADA equipment will be included in the design.
  The Basis of Design Memorandum will also describe the design parameters of the pump station elements as they pertain to the site constraints. The memorandum will be submitted for review with the Concept Submittal for comment and approval prior to proceeding with any subsequent design efforts.

PUMP STATION DELIVERABLES:

- Pump Station Basis of Design (Electronic PDF)
- Engineer's Estimate of probable cost (Electronic PDF)

TASK 3.4-3.9: Final Design (60%, 90% PS&E Submittal).
WSP will progress the concept level design through final design including the 60%, 90% and PS&E design levels. WSP will review the staged submittal comments and prepare comment responses. Final resolution of all comments will be made through comment resolution meetings (CRM) which will be documented through meeting summary notes. Each staged submittal will incorporate agreed upon revisions in accordance with the Comment Resolution process. Each staged submittal will document the analyses and final design in a project-wide drainage report, which is anticipated to include a draft at 60% and a Final (Signed Sealed) at 90%. Prior to each submittal WSP will review the deliverables using our internal QAQC process. At each submittal, special provisions and/or specifications will be developed along with quantity take-off and an Engineers Estimate of Probable Cost and included with the overall project estimate and specifications.

DRAINAGE DELIVERABLES:

- Drainage Plan Sheets (10)
- Storm Drain Profile Sheets (Est 5 profile sheets, No Culvert P&Ps are included)
- Special Details (Est 5 sheets)
- Engineer's Estimate of probable cost (Electronic PDF)
- Draft & Final (signed Sealed) Drainage Report for entire project.

Pump Station Final Design
WSP will finalize the layout of the wet well, pump configurations, maintenance access, and operational controls. Mechanical design for the pump station will include all penetrations, seals, and coatings in the wet well, submersible centrifugal pumps with a rail-type installation mounts, ductile iron force main piping, along with braces, valves, fittings,

and the plumbed discharge to an outfall. Electrical design for the pump station will begin on the load side of the motor control center cabinet and include the conduit, conductor, and control elements. Cabinet enclosure space will be provided for any site-specific ancillary or SCADA elements that ADOT may want to install. Trash capture devices will be sized and situated to provide capture of first flush water quality flows. Additional storm flows events may require a bypass installation for flows in excess of the nominal trash device capacity.

Pump station design is anticipated to include 10 mechanical sheets including:

- Pump station proximity plan layout
- Pump station wet well plan and profile
- Pump curve and performance requirements
- Mechanical details
- Pump house details
- Trash capture details

Pump station design is anticipated to include 8 electrical sheets including:

- One-line diagram
- Plan layout of electrical components and schematic conduit runs
- Conduit and conductor schedule
- Electrical details
- Generator set details

WSP will incorporate precast structural elements for the pump station wet well design where possible. Should other than precast elements be required for the pump station design, those elements and any associated calculations or reports may be provided as additional work through a scope modification. Pump station specifications will be product specification or approved equivalent. WSP will provide an Engineer's Estimate of Probable Cost with each submittal package based on typical component and material cost data.

PUMP STATION DELIVERABLES:

- Concept Pump Station Mechanical Plan Sheets
- Concept Pump Station Electrical Plan Sheets
- Engineer's Estimate of Probable Cost (Electronic PDF)
- Draft & Final Pump Station Design Report included with project-wide drainage report.

ASSUMPTIONS:

1. *Drainage Design:*
    a. Design Level aerial topographic data within the project area will be provided by WSP's subconsultant at a design level scale of at least 1-ft contour interval.

b. City of Flagstaff will provide topographic data (2019 2-ft LiDAR) in GIS format for areas draining onto the project site.
c. City of Flagstaff will provide Watershed data, hydrologic data and associated reports for Mars Hill and Lower Clay Wash watersheds.
d. As-Built drawings and associated Drainage/H&H Reports will be provided for the project by City of Flagstaff, BNSF and ADOT.
e. Design level supplemental survey will be provided as needed to the drainage team.
f. A CLOMR/LOMR will not be required. Work will be completed under the USACE RDF CLOMR or will not be required due to the changing mapping that is being undertaken by the City. This will be confirmed with the Floodplain Administrator during the project.

2. *Stormwater Pump Station Design:*
    a. All permitting applications, ROW acquisition, easements temporary or otherwise, fees, and negotiations with any agencies outside of ADOT to be paid for by Others outside of this contract.
    b. Simulation (System) modeling of the pump station is not included under this scope.
    c. Pump station performance beyond the Project design storms (50-year assumed based on current ADOT manual) is beyond the scope of this work.
    d. Utility requirements will be coordinated during design. Pump station to be on a dedicated power circuit.
    e. "SCADA Ready" requirements will be specified by ADOT. Pump design is limited to accommodation of this system, but SCADA design is not included within this scope.
    f. Pump station emergency power will be provided by an on-site generator set or an ATS as requested by ADOT.

TASK 4.0 – TRAFFIC DESIGN

The Work under this task includes the development of a Traffic Impact Analysis (TIA) report and Final Design Plans for traffic design elements for Route 66 from Phoenix Avenue to the Rio de Flag bridge and immediate adjacent major intersections. A Concept Design (15% plans) will be developed and include the recommended intersection alternative at the Route 66 and Santa Fe Ave intersection. Final Design will include 60%, 90%, and PS&E plans, quantities, and Special Provisions for the traffic design elements for Pavement Marking, Signing, Roadway Lighting, Traffic Signals, Construction Sequencing, and Traffic Control.

SUBTASKS:

TASK 4.1: City Meetings that involve presentations to City Commissions and the Mayor and Council are anticipated for the intersection of Sitgreaves Street and Santa Fe Avenue and the connection into Milton Road / Route 66. Attendance at these meetings will be required to describe the alternatives and to allow the Mayor and Council to select the preferred alternative. Each meeting is assumed to be two-hour duration plus time for presentation preparation. It is assumed that the Mayor and Council meeting will be in person and the Commission meeting will be Virtual.

ASSUMPTIONS:

1. It is assumed that 1 Commission meeting will be virtual, and 1 Mayor and Council meeting will be in person.

DELIVERABLES:

Intersection Concept PowerPoint (Electronic PDF), See Task 2.1

TASK 4.2: Traffic Impact Analysis. This task involves the development of a project Traffic Impact Analysis (TIA) to provide input into the design and for approval by ADOT. The TIA will follow ADOT guidelines due to the impact to Route 66 and will include major intersections from Butler Avenue to San Francisco Street. The following subtasks are anticipated:

- Traffic Modeling
- Safety Analysis
- Alternative Analysis
- Traffic Signal Warrant Analysis
- Traffic Impact Analysis

TASK 4.2A: Traffic Modeling. WSP will coordinate with MetroPlan, the regional metropolitan planning organization, to obtain the latest traffic count data and travel demand model traffic projections. The MetroPlan regional travel demand output will be reviewed against similar ADOT data/projections for Route 66. WSP will work with the stakeholders to establish foundational existing traffic count data and future traffic projections for each study area roadway.

WSP will develop Synchro/SimTraffic models to analyze vehicle operations within the study area under existing and future configurations. The following intersections will be included for analysis:

- Historic Route 66 corridor including the intersections of Butler Ave, Phoenix Ave, Santa Fe Ave, Humphrey St, Beaver St, and San Francisco St.
- The intersection of Santa Fe Ave and Sitgreaves St.

The Synchro models will be utilized to evaluate AM and PM peak hour traffic operations under Existing, Opening Year, and a projected 2040 Design Year. WSP will utilize the Synchro/Sim Traffic model developed from the Lone Tree Overpass project as appropriate. WSP will coordinate with ADOT and the City to obtain existing traffic signal timing.

Synchro measures-of-effectiveness (MOEs) will be HCM level-of-service, average user delay, and queue lengths.

TASK 4.2B: Safety Evaluation. WSP will obtain five-year historic crash data from the City, MetroPlan, and/or ADOT. WSP will summarize the crash data within the project limits for crash type, severity, reported conditions, and location. For the intersection of Route 66 and Santa Fe Ave, WSP will collect and analyze crash modification factors (CMF's) from the Crash Modification Factors Clearinghouse to be used for the alternative's evaluation. The results of this effort will provide an independent opinion of the safety performance for each intersection alternative being evaluated. Safety results will be included in the Traffic Impact Analysis (TIA) report.

TASK 4.2C: Alternatives Analysis. WSP will complete an alternatives analysis for the configuration of the Route 66 and Santa Fe Ave intersection. Up to three intersection configurations, plus a No-Build alternative, will be analyzed for the projected 2040 Design Year. The alternatives presented in the City of Flagstaff Milton Road Feasibility-Ph2 Feasibility Report (Milton Feasibility Report) will provide the basis for the intersection configurations. This analysis will compare findings of the operations analysis, safety analysis, stakeholder feedback, and planning level impacts to the project. One schematic of each alternative will be provided to show a planning level concept. Concepts will be coordinated with other disciplines to evaluate alternative impacts to other disciplines and the project cost overall. The Evaluation Matrix developed in the Milton Feasibility Report will be refined and used to tabulate analysis results for each alternative. A recommended intersection configuration will be identified for the Route 66 and Santa Fe Ave intersection and presented to the city.

A design memorandum will be prepared describing the alternatives, refinements to the Evaluation Matrix, and discussion of the recommended intersection configuration. Included with the memorandum will be the schematic of each alternative suitable for presentation to stakeholders. WSP will request that the city provide a preferred alternative from the design memorandum prior to finalization of the Traffic Impact Analysis.

TASK 4.2D: Traffic Signal Warrant Analysis. A Traffic Signal Warrant analysis will be completed for the Route 66 and Santa Fe Ave intersection. Results will become part of the alternatives analysis for the intersection configuration. Included in the Traffic Signal Warrant analysis task will be an evaluation of the traffic signal coordination from the Route 66 (Milton Rd) and Butler Ave intersection through to the Route 66 and San Francisco intersection. The Route 66 (Milton Rd) and Phoenix Ave intersection will be assumed unsignalized. Results of the signal coordination evaluation will be presented in the form of a Time-Space Diagram with signal timing offsets and anticipate green bandwidth for both eastbound and westbound Route 66. A Traffic Signal Warrant Analysis Memorandum (Draft and Final) will be prepared documenting the warrant and coordination analysis.

TASK 4.2E: Traffic Impact Analysis (TIA). WSP will develop a Traffic Impact Analysis report for submittal to ADOT and the City that follows ADOT guidelines. The TIA report will summarize the findings of the traffic analysis, intersection alternatives, Traffic Signal Warrant analysis, and traffic signal coordination evaluation. WSP will submit the draft TIA to ADOT and the City with a comment resolution form. Once comments are received, WSP will provide responses and will update the TIA for a final submittal.

ASSUMPTIONS:

- No traffic count data collection will be performed as part of this scope. Data will be provided by the City, ADOT, or MetroPlan.
- No travel demand modeling will be performed by WSP and MetroPlan will provide a single version of regional traffic projections.
- A detailed safety analysis utilizing software such as IHSDM is not included under the scope of this contract.
- Intersection alternatives are limited to those identified in the Feasibility Study. Requests for other alternatives or alternatives analysis at other intersections will be additional work.
- One round of comments is assumed for the TIA report.

DELIVERABLES:
Intersection Alternatives Analysis Design Memorandum with Evaluation Matrix (Electronic PDF) (Draft and Final), Traffic Signal Warrant Analysis Memorandum (Draft and Final), Traffic Impact Analysis (Electronic PDF, Project Model upon request) (Draft and Final)

TASK 4.3: Concept Submittal. WSP will prepare a roll plot and concept exhibits for the intersection alternatives to support the meetings with the City Commissions and Mayor and Council Meetings. Design Development will be to the extent necessary to convey the advantages and disadvantages of each alternative. A preliminary Engineer's Estimate of Probable Cost will be developed for each alternative to support the decision making on the preferred alternative.

DELIVERABLES:
Concept Submittal and Engineer's Estimate (Electronic PDF)

TASK 4.4: Traffic Plans. This task includes development of traffic design plans (60%, 90%, and PS&E). Design plans will identify traffic infrastructure and include necessary details to complete the work. Additional tasks are included for roadway lighting evaluation to determine additions/modifications to the existing Route 66 roadway lighting and voltage drop calculations for additional lights. Traffic control plans will include maintaining access through the project for pedestrians and bicyclists. Traffic plan sheets are estimated at 20 scale for traffic signals and 40 scale for pavement marking, signing, and roadway light modification plans and will match roadway plan set scale. For this work, it is anticipated that a total of 35 plan and detail sheets will be required. A draft sheet list has been prepared as follows:

- Signing Plans (8 Sheets)
    - General Notes, Sign Summary Sheets, Signing Plans, Sign Format Sheets
- Pavement Marking Plans (4 Sheets)
    - General Notes/Legend/Quantity Table, Pavement Marking Plans
- Roadway Lighting Plans – Route 66 (4 sheets roadway, 6 sheets underdeck lighting)
    - General Notes/Legend, Details, Electric Summary Sheet with Pole Schedule, Roadway Lighting Plans
    - Underdeck Lighting- three structures
- Traffic Signal Plans (4 Sheets) Route 66 / Santa Fe Avenue
    - General Notes, Legend, Plans, Phasing Diagram/Cabinet Schedule, Pole Schedule, Conductor Schedule
- Construction Sequencing Plans - (5 Sheets)
- Traffic Control Plans (10 Sheets)
    - General Notes, Summary Tables, Plans

Task 4.4A: Traffic Plan Submittal - 60%. This task includes development of the 60% Plan Submittal. This level of design will include all major features but not have complete details included with submission. Included with this task are 60% plans for Pavement Markings, Signing, Traffic Signals, Roadway/Underdeck Lighting, Construction Sequencing, and Traffic Control Plan. A Roadway Lighting Analysis Design Memorandum will be prepared documenting the roadway and underdeck lighting design. Traffic quantities will be estimated, and an Engineer's Estimate of Probable Cost will be developed using appropriate unit costs based on the latest available construction cost data. Special provisions will be developed for items not included as part of standard specifications and can include items for pavement markings, video vehicle detection, Maintenance and Protection of Traffic, ADA pedestrian push buttons, and other traffic specialty items.

DELIVERABLES:

60% Submittal, Specifications, and Engineer's Estimate (Electronic PDF)

Task 4.4B: Traffic Plan Submittal - 90%. This task involves further refinement of the 60% Design Submittal to develop the Final Design Submittal. Concepts and details will be further refined, and comments received from the 60% Design

Submittal will be evaluated and incorporated as necessary into the design. Included with this task are 90% plans for Pavement Markings, Signing, Traffic Signals, Roadway/Underdeck Lighting, Construction Sequencing and Traffic Control Plans. Quantities will be updated from the 60% submittal and unit costs adjusted, if needed. Special Provisions will be updated as needed.

DELIVERABLES:

90% Submittal, Specifications, and Engineer's Estimate (Electronic PDF)

Task 4.4C: PS&E Traffic Plan Submittal. This task involves further refinement of the 90% Design Submittal to develop the PS&E Design Submittal. Concepts and details will be finalized, and comments received from the Final Design Submittal will be evaluated and incorporated as necessary into the design. Quantities will be updated from the 90% submittal and unit costs adjusted, if needed. Special Provisions will be updated as needed.

DELIVERABLES:

PS&E Submittal, Specifications, and Engineer's Estimate (Electronic PDF)

TASK 5.0 – STRUCTURES

The work under this task will consist of developing structural tasks for the following elements:

1. Milton Road BNSF Underpass Bridge – This bridge was conceptually developed as part of the Feasibility Study. Design will adhere to BNSF and AREMA requirements. This bridge will consist of a four span structure and support Cooper E-80 rail loads.
2. RDF FUTS Crossing – This structure will be developed conceptually under this project and will adhere to BNSF and AREMA requirements. During Concept Design, two alternatives will be evaluated, a custom box structure designed for Cooper E-80 loading adjacent to the USACE RDF box structure to be used as a pedestrian crossing and a three span in-line track structure similar to the original Florence-Walnut bridge concept. Based on the cost evaluation of these concepts, the selected alternative will then be progressed to final design. For this cost proposal, it is assumed that a box structure will be the selected alternative. If an in-line bridge structure becomes the selected alternative, additional work will be required, and a scope modification will be submitted to the City.
3. Existing BNSF RDF Crossing – The existing BNSF RDF crossing will be evaluated by drainage to determine if a reduced temporary drainage crossing can be constructed or if a widened structure will be required to accommodate a third track to maintain drainage through the existing Rio de Flag channel prior to completion of the Rio de Flag Flood Control Project. Based on this evaluation, a structure concept consisting of either steel pipes, pipe arches, or a slab bridge will be developed to widen the crossing to support temporary drainage through completion of the Flood Control project. For this cost proposal, it is assumed that a temporary drainage structure similar to pipes and grout backfill will be the selected alternative. If an in-line bridge widening structure becomes the required alternative, additional work will be required, and a scope modification will be submitted to the City.
4. Walls – Walls will be required along all structures. A total of 12 walls are anticipated as part of this project. Walls will be designed for Cooper E-80 surcharge loads per AREMA and BNSF requirements.

5. Miscellaneous Structures – Miscellaneous structures will be required in support of this project. Known items such as the wet well and support slab for the pump house fall under this category. Other items to support roadway and drainage have not yet been identified but are included under this task. Up to 8 special structural details are anticipated as part of this project.

SUBTASKS:

TASK 5.1: Concept Submittal will include development for the three crossings described and the retaining walls anticipated for this project. Plan, Elevation, and Typical Sections for structure alternatives will be developed to show general geometry and structure elements. Structural design will be limited to superstructure elements to verify compliance with the required design codes. An Engineer's Estimate of Probable Cost for each alternative will be developed to allow for comparison of each alternative. For the RDF FUTS crossing, a brief alternative selection memorandum will be prepared for review by the City. All plans will also be submitted to Stakeholders as appropriate for review. The submittal is anticipated to include:

a. Plans at a scale of 1" = 20' to include:

1. Milton Road BNSF Underpass Sheet List
    a. Plan and Elevation
    b. Typical Section
    c. Framing Plan
    d. Girder Details
    e. Construction Phasing Plans
2. RDF FUTS Crossing
    a. Plan and Elevation Alternative 1 (Box Structure)
    b. Typical Section Alternative 1 (Box Structure)
    c. Plan and Elevation Alternative 2 (Bridge Structure)
    d. Typical Section Alternative 2 (Bridge Structure)
    e. Construction Phasing Plans
3. Existing BNSF RDF Crossing
    a. Plan and Elevation Alternative 1 (Drainage Structure)
    b. Typical Section Alternative 1 (Drainage Structure)
    c. Plan and Elevation Alternative 2 (Bridge Structure)
    d. Typical Section Alternative 2 (Bridge Structure)
    e. Construction Phasing Plans
4. Retaining Walls
    a. Plans and Elevations (6 Sheets)

DELIVERABLES:

Concept Submittal and Engineer's Estimate (Electronic PDF), RDF FUTS Crossing Alternative Memo (Electronic PDF), Existing BNSF RDF Crossing Alternative Memo (Electronic PDF)

TASK 5.3: 60% Submittal further develops the selected alternatives for each crossing. Additionally, the superstructure design for each bridge will be finalized and preliminary substructure design to develop general geometry will be started. Preliminary wall design will be completed. Preliminary design of special details will be started. The submittal is anticipated to include:

a. Plans at a scale of 1" = 20' to include:
b. Milton Road BNSF Underpass Sheet List
    a. Bridge Details (32 Sheets)
c. RDF FUTS Crossing
    a. Bridge Details (Box Alternative) (12 Sheets)
d. Existing BNSF RDF Crossing
    a. Crossing Details (Drainage Structure) (8 Sheets)
e. Retaining Walls
    a. Plans and Elevations (6 Sheets)
    b. Wall Details (6 sheets)
f. Special Details
    a. Special Details (8 Sheets)

DELIVERABLES:

60% Submittal, Specifications, and Engineer's Estimate (Electronic PDF)

TASK 5.4: 90% Submittal finalizes design for each crossing, retaining wall, and special detail. The submittal is anticipated to include:

a. Plans at a scale of 1" = 20' to include:
b. Milton Road BNSF Underpass Sheet List
    a. Bridge Details (32 Sheets)
c. RDF FUTS Crossing
    a. Bridge Details (Box Structure) (12 Sheets)
d. Existing BNSF RDF Crossing
    a. Crossing Details (Drainage Structure) (8 Sheets)
e. Retaining Walls

        a. Plans and Elevations (6 Sheets)
        b. Wall Details (6 sheets)
    f. Special Details
        a. Special Details (8 Sheets)

DELIVERABLES:

90% Submittal, Specifications, and Engineer's Estimate (Electronic PDF)

TASK 5.5: PS&E Submittal will address all final comments and prepare the bid ready package. The submittal is anticipated to include:

a. Plans at a scale of 1" = 20' to include:
b. Milton Road BNSF Underpass Sheet List
    a. Bridge Details (32 Sheets)
c. RDF FUTS Crossing
    a. Bridge Details (Box Structure) (12 Sheets)
d. Existing BNSF RDF Crossing
    a. Bridge Details (Drainage Structure) (8 Sheets)
e. Retaining Walls
    a. Plans and Elevations (6 Sheets)
    b. Wall Details (6 sheets)
f. Special Details
    a. Special Details (8 Sheets)

DELIVERABLES:

PS&E Submittal, Specifications, and Engineer's Estimate (Electronic PDF)

ASSUMPTIONS:

1. The selected structure for the FUTS crossing at BNSF will be a box structure.
2. The allowable structure for the existing BNSF RDF structure widening will be a temporary drainage structure to provide temporary drainage while the remaining Flood Control project is constructed.
3. The Milton Road BNSF Underpass structure will generally conform to the concepts shown in the Feasibility Report. Prior allowances for temporary construction clearances and structural comments will be accepted during final design by both ADOT and BNSF.

TASK 6.0 – GEOTECHNICAL

The scope of work for this task includes a general review of available geotechnical information for the project area, a geotechnical field exploration and laboratory testing, geotechnical and pavement analyses, and development of reports presenting recommendations for the project.

SUBTASKS:

TASK 6.1: This task includes a background review of available geotechnical and geologic information for the site vicinity. In addition, it includes necessary project coordination to develop a boring and access plan and preparation and submittal of appropriate permit applications. The development of the boring and access plan will require a site visit to layout planned borings and field verify access routes to the boring locations. The site visit will include a reconnaissance of surface features and exposures of the geologic/geotechnical units in the area. Permits required are anticipated to consist of an ADOT Encroachment permit, BNSF Temporary Occupancy permit, and Right-of-Way permit from the City of Flagstaff.

TASK 6.2: This task includes a field investigation using geotechnical borings and laboratory testing to develop an understanding of the subsurface conditions and development of a subsurface profile for design. WSP will subcontract with Geomechanics Southwest Inc. to complete the borings using truck-mounted and track-mounted drill rigs.

New borings will be needed for the BNSF Overpass structure and associated retaining walls, roadway improvements to Milton Road and surrounding streets, and the BNSF crossing of the existing RDF channel. Three additional borings are needed to supplement the existing subsurface information for the Florence-Walnut structure. Existing geotechnical information performed for the RDF improvements will be used for the potential RDF in-line structure and/or shoring elements needed. A summary of the planned borings is shown in the following table.

Feature	No. of borings	Approximate Depth of Borings (ft)	Planned Drill Method	Drill Equipment	Anticipated Traffic Control
BNSF Bridge	5	50-70	Auger/Core	Track/Truck	Lane closures
Retaining Walls	5	50	Auger/Core	Track	N/A
Roadway	3	10	Auger	Truck	Shoulder/Lane closures
Existing BNSF/RDF Crossing	0	Drainage Structure Assumed, See Assumption Below			
Flo-Nut	0	Box Structure Assumed, See Assumption Below			
USACE/FUTS Crossing	N/A	Use existing USACE Geotechnical Report and Data			

It is anticipated that some of the bridge and roadway borings will require traffic control consisting of temporary lane and/or shoulder closures to safely complete the drilling. WSP assumes that three borings will be located within Milton Road and will require a lane closure and will be performed at night. Due to access constraints, offloading of equipment within a limited daytime lane closure may also be needed. WSP will subcontract services from Quail Construction to provide traffic control devices and services, as required.

The auger borings listed in the above table will be advanced to the depths shown or terminated in bedrock or at auger refusal, whichever is reached first. Standard SPT and ring samplers will be driven to collect in-situ soil samples on 5-foot or less intervals in the augured portion of the borings. Borings at the bridges and retaining walls will be advanced past the soil horizon and into the bedrock as noted in the table using NQ or HQ rock coring equipment to reach the desired depth. All borings will be backfilled with drill cuttings, except those on BNSF property, at the completion of drilling and those completed in the roadway will be backfilled with quick set concrete in the upper foot. If groundwater is encountered, and for those on BNSF property, borings will be backfilled with grout in accordance with BNSF and ADWR requirements.

Arizona Blue Stake (AZ811) will be contacted to locate public utility lines near each boring location. BNSF will be contacted to locate utilities on BNSF property. This activity will be completed prior to subsurface drilling activities.

Prior to mobilizing to the field, a site health and safety plan will be developed for the field investigation program. The plan will identify and discuss methods of minimizing hazards associated with working along the existing roadway, working in rugged terrain; and working around drilling equipment.

Appropriate laboratory tests will be performed to evaluate soil properties and characteristics for engineering analysis and design as required for the various planned project features. The laboratory tests may include the following types of tests depending upon purpose of the borings, project features and encountered soils and rock.

- Sieve Analysis
- Atterberg Limits
- Moisture Content
- Unit Weight
- Consolidation
- Direct Shear
- R-Values
- Moisture-Density Relationships
- pH & Resistivity
- Chlorides & Sulfates
- Unconfined Compression – rock
- Point Load Test- rock

Laboratory testing will be completed by Wood.

Upon completion of the laboratory testing, final boring logs will be developed and included in our reports.

TASK 6.3: This task includes geotechnical analyses of the collected field data to develop geotechnical design profiles and geotechnical recommendations for the project features, including recommendations for foundations, retaining walls, subgrades, and general earthwork.

TASK 6.4: This task includes analysis to develop pavement structural section recommendations for the various pavements on the project, including Milton Road/US66 and other local roads. The analyses will be performed in accordance with AASHTO and/or ADOT pavement design procedures.

TASK 6.5: This task includes the preparation of Geotechnical Report(s) (draft and final) presenting recommendations for select project features. The reports will include the following:

- Descriptions of the field investigations completed.
- Laboratory test results.
- Regional and local geology.
- Descriptions of the engineering geology, geologic hazards, geotechnical profile, relevant geologic cross sections, and groundwater conditions encountered at the site.
- Logs of test borings with site plans showing their locations.
- Photographs of recovered rock core.
- Recommendations for the various project features:
    - Structures, including foundation capacities, lateral earth pressures, and related design parameters using LRFD design methods.
    - Roadway embankments, including material types and suitability for use in embankments, foundation conditions and subgrade treatments and improvements, settlement impacts and remediation and earthwork factors.
    - Temporary and permanent cut and fill slopes, including slope stability analyses for permanent embankment fill slopes,
    - Impacts of compressible, hydro-collapsible, and/or expansive soils, if present, and proposed mitigations.
    - Corrosion potential of soils on construction materials.
    - Pavement recommendations for non-ADOT roadways.
- Foundation data sheets will be prepared by WSP for inclusion in the bridge plan sets.

Given the time requirements expected to gain access to the boring locations, a preliminary geotechnical memo will be prepared to provide preliminary recommendations to the design team. These recommendations will be based on available geotechnical information.

TASK 6.6: This task includes the preparation of a Pavement Design Summary and Materials Design Report (PDS/MDR) for ADOT pavements. An initial and final report will be prepared generally following the procedures outlined in the ADOT Pavement Design Manual.

ASSUMPTIONS:

- The work will be performed during daytime hours, except as specifically noted. If additional nighttime work is required beyond the assumed 6 nights, additional labor and expenses will be needed due to slower production rates.
- A single mobilization of drilling equipment is planned. The borings are accessible with the planned equipment. Trimming of brush or small trees may be required to access some locations. Traffic control will not require off-duty officers. It is assumed that the general boring locations are accessible with minimal site preparation as noted above. Further site preparation and grading is not included in the costs.
- No additional exploration is planned for the USACE RDF project elements and existing geotechnical information for the RDF will be provided to us and used to develop recommendations. Field verification of conditions by the Geotechnical Engineer will be required during construction for this structure.
- A box structure is anticipated at the Florence-Walnut and a drainage structure is anticipated the existing BNSF Rio de Flag crossing. If an in-line pedestrian bridge is selected as the selected alternative for Florence-Walnut and/or the existing BNSF RDF crossing requires a bridge widening, additional borings will be required, and a scope modification and fee will be submitted to the City for approval prior to the additional work.
- Pavement design procedures will be in accordance with AASHTO/ADOT methods and meet or exceed City minimums, where appropriate.
- In-situ sampling of soils for environmental evaluations are not planned. No environmental constraints related to the field explorations are assumed.
- Right of entry for access from private property owners will be obtained by others.

DELIVERABLES: Geotechnical Reports (Electronic PDF) (Draft and Final), PDS/MDR (Electronic PDF) (Initial and Final)

TASK 7.0 – ENVIRONMENTAL

Federal permitting required by elements of this project, along with any project-related federal funding, invokes the National Environmental Policy Act (NEPA), which entails documentation and review of the project's effects on the natural, built, and social environment. Environmental reviews are part of the permit application process for a Section 404 Clean Water Act permit, and Section a 408 of the Rivers and Harbors Act permit. It is anticipated that this project will require both permits due to its involvement with the USACE Rio de Flag Flood Control project.

It is assumed that the Federal Railroad Administration will be the lead federal agency for the environmental documentation and clearance of the Downtown Mile. Cooperating agencies will likely include USACE and ADOT.

The NEPA class of action (i.e., type of environmental document) will be determined by the lead agency but for this project it is assumed to be an Environmental Assessment (EA). If it is later determined that a more in-depth class of action is required, a scope modification to this contract will be required.

a. NEPA Document (Environmental Assessment)

WSP will identify and invite cooperating and participating agencies in coordination with the federal lead agency and City of Flagstaff. WSP will work with the City and lead federal agency to consult with interested agencies and others to advise them of the scope of the project and to determine which aspects of the proposed action have potential for social,

economic, or environmental impact; identify alternatives and measures that might mitigate adverse environmental impacts; and identify other environmental review and consultation requirements that should be performed concurrently with the EA. As described in Task 8, Public Involvement, this will be the focus and objective of the first round of in-person and virtual meetings. WSP will include the results of agency coordination in the EA based on the meeting summaries and other deliverables from the Public Involvement task.

WSP will prepare a Draft EA including an approved Purpose and Need, review of Alternatives considered including explanation of those eliminated from consideration, and documentation of existing conditions and potential environmental impacts resulting from the proposed project as enumerated in Subtask 7.1 below. The Draft EA will also document the public participation and outreach activities undertaken and public and agency input received in association with the proposed project.

In accordance with 23 CFR 771.119 (e) and (f), WSP will advertise the availability of the Draft EA and publish a public notice with information on how to access and review the Draft EA and submit comments. Environmental staff will support the Public Involvement task in attending the second round of meetings, which will constitute the public hearing on the Draft EA. These meetings will be scheduled per the statutory notice, review, and hearing periods for an EA.

WSP will log all public and agency comments submitted on the Draft EA and group the collected comments to develop standard responses where applicable, and individual responses where appropriate. All comments and responses will be included in the final public participation report for the project.

WSP will prepare an Errata-type Final EA, only showing changes to the text of the Draft EA that resulted from public and agency comments. The Public and Agency Outreach section of the Final EA will be updated with information about the Draft EA review period, public hearing, and comments received.

b. 404/408 Documentation and support

The Rio de Flag, a natural and constructed drainage conveyance, is a feature crossed in numerous locations by various elements of the Downtown Mile project. Permits will be required for project-related work within and over waterways. Potential discharges to Waters of the U.S. require a Section 404 permit, and work within an existing or proposed USACE structure requires a Section 408 permit. WSP will work with the Corps to determine which Nationwide 404 Permit is needed and complete an application for that permit as well as the associated Section 401 Water Quality Certification application to the Arizona Department of Environmental Quality. The documentation and reporting in the Environmental Assessment will suffice to inform the EA portion of the Section 408 permit. Engineering staff will provide technical data including fill materials and amounts, typical cross-sections, design plans, and ESRI shapefiles for the project footprint and alternatives required for the Section 408 permit.

SUBTASK 7.1: NEPA: The scope of work for this subtask includes data collection, analysis, and reporting to document existing conditions and the proposed project's potential effects on the following environmental resource categories:

a. Land Ownership, Jurisdiction, and Land Use

b. Social and Economic Considerations

c. Cultural Resources – WSP will perform the above ground assessment, assessing potential for eligibility on the National Register of Historic Places. However, it is assumed that the consultation with the State Historic Preservation Office will be handled by the City.

d. Section 4(f) and Section 6(f) Resources

e. Traffic and Transportation

f. Air Quality

g. Noise and Vibration

h. Utilities

i. Visual Resources

j. Energy

k. Drainage and Floodplain Considerations

l. Clean Water Act Sections 404, 401, and 402; National Pollutant Discharge Elimination System

m. Biological Resources

n. Hazardous Materials

o. Secondary and Cumulative Impacts

DELIVERABLES:

NEPA Documentation (Electronic PDF, Draft and Final EA)

ASSUMPTIONS:

- No project effects on Sole Source Aquifers, Wild and Scenic Rivers, or Farmlands as these are absent from the project area.
- A Cultural Class I inventory of the area of potential effect and 1/2-mile buffer will be sufficient to make a recommendation of project effect.
- A Cultural Class III survey will not be required.
- Historic building inventories, HPIFs, or eligibility assessments will not be required.
- A Class I records search will include the following: the City of Flagstaff; the State Historic Preservation Office (SHPO) records, the Arizona State Museum (ASM) records and site files using AZSITE, the National Register of Historic Places database, the Phoenix Historic Property Register, historic General Land Office and United States Geological Survey maps, the Coconino County Assessor, and historic aerial photographs.
- Section 106 Consultation will be the responsibility of the City of Flagstaff.
- Previous delineations of Waters of the U.S. (WUS) and wetlands will be made available to WSP. The area evaluated for current extent of WUS and wetlands will be limited to the Rio de Flag and its immediate vicinity.

- A Section 404 Individual Permit will not be needed. Project requirements can be satisfied with a Section 404 Nationwide permit. Engineering staff will provide technical data including fill materials and amounts, typical cross-sections, design plans, and ESRI shapefiles for project footprint.
- A Section 401 Water Quality Certification will be required.
- A Section 408 permit will be required for work within existing and planned USACE right of way. Information from the EA prepared for the Downtown Mile project will be used for the Section 408 permit application.
- The Section 404 IP, Section 401 Certification, and associated documentation will be provided in electronic format only. One draft and one final submittal will be needed.
- It is assumed that the Corps will accept in-lieu fees for compensation of impacts to WUS including wetlands. This scope does not include a detailed quantitative or qualitative function assessment to determine the appropriate mitigation ratio and does not include preparation of a Habitat Mitigation and Monitoring Plan.
- A site visit is required for the Biological Evaluation (BE).
- ADOT's Biological Evaluation short form will satisfy project requirements. Species-specific protocol surveys will not be required.
- Endangered Species Act Section 7 consultation with the U.S. Fish and Wildlife Service will not be required.
- The BE will only provide a cursory/general analysis of the current native plants or noxious weeds occurring in the project limits, if necessary. No survey for native plants or noxious weeds will be conducted.

TASK 8.0 – PUBLIC INVOLVEMENT

The work under this task provides Public Involvement (PI) support for the project in coordination with the City's Public Information Officer.

SUBTASKS:

TASK 8.1: Public Involvement Coordination

Task 8.1A: The PI team will meet monthly with the City PIO to determine needs and coordinate tools/materials and activities.

ASSUMPTIONS:

1. It is assumed that meetings will be virtual and do not require travel.

DELIVERABLES:

Meeting Agendas (Electronic PDF), Meeting Minutes (Electronic PDF)

Task 8.1B: Public Involvement Plan

The public involvement (PI) team will work closely with the City to draft a Public Involvement Plan (PIP) in alignment with the FHWA-approved ADOT Statewide Public Involvement Plan to include all NEPA-required PI efforts. The PIP will include study goals, tools/materials and tactics, metrics, and a schedule of PI activities.

The PIP will include descriptions of all tools/materials and activities related to the overall PI program which are listed in the subtasks below.

DELIVERABLES:

Public Involvement Plan (Draft and Final, Electronic PDF)

TASK 8.2: Public Involvement Tools/Materials

Task 8.2A: Webpage Content

1. The PI team will work with City staff to develop website content at three intervals during the study. The initial content will include photos, a description of the study, contact information and a map. The content will be updated twice after the initial launch to include information about study progress, opportunities for engagement and input opportunities. The PI team will upload informational materials as they are available during the study.

Task 8.2B Frequently Asked Questions (FAQ)

1. The PI team will develop a set of FAQs that will include the main messages on public-facing materials. The FAQs will be updated once during the study.

Task 8.2C Electronic / Printed Materials

1. Fact Sheets - The PI team will develop two fact sheets during the study. Both fact sheets will be produced in English and Spanish. The fact sheets will contain a map, study timeline, contact information, a QR code for the study webpage, language assistance/accommodations language in addition to the body text describing the study.
2. Mailers – The PI team will draft, layout, print and deliver two mailers during the study. The mailers will be used to inform the public of public meetings. The mailers will be bilingual and will include a map, contact information, meeting details, a QR code for the study webpage and language assistance/accommodations language in addition to the body text describing the study. Mailers will be sent to all residents on USPS carrier routes within two miles of the study area.
3. Comment Forms – The PI team will develop simple, bilingual comment forms that can be uploaded to the study webpage and used at in-person events. Comment forms will include questions about study preferences and the outreach process.
4. MetroQuest – The PI team will develop, launch, monitor and analyze the results of one bilingual MetroQuest survey. The MetroQuest survey will be promoted by City staff using established methods of communication such as email and social media. The survey will also be promoted on public meeting materials and fact sheets, as appropriate. At the close of the survey period, the PI team will draft a comprehensive summary report containing a data analysis of the survey.

Task 8.3D Public Meetings

1. The PI team will plan and execute two sets of public meetings during the study. Each set will include one hybrid meeting consisting of an in-person and virtual meeting combined. The Consultant will provide the virtual meeting platform and Spanish interpretation. The Consultant will set up and strike each in person public

meeting. City of Flagstaff will provide/coordinate in-person meeting locations including A/V equipment, tables, chairs, and insurance certificates, as needed. Design team attendees will include PI Staff (2), the Project Manager, Deputy Project Manager, Roadway Lead, and Structural Lead.

2. The PI team will print and bring fact sheets, comment forms, sign-in sheets, and badges for the in-person public meetings.
3. The PI team will coordinate and conduct one practice session per set of public meetings. The PI team will develop a room map, run of show, and practice session agenda.
4. Following each set of public meetings, the PI team will draft a summary of the meeting including a description of related activities and materials and a summary of comments/questions from attendees.
5. PI Summary Report
    a. At the end of the study, the PI team will draft a comprehensive summary of the PI program and will include all materials and previous reports as appendices.

DELIVERABLES:

Public Involvement Plan (Electronic)
Webpage Content – 3 (Electronic)
Fact Sheets - 2 (Printed and Electronic)
Comment Forms - 2 (Printed and Electronic)
MetroQuest (Electronic)
Frequently Asked Questions - 1 (Electronic)
Public Meeting Summary Reports - 2 (Electronic)
Public Involvement Summary Report – 1 (Electronic)

ASSUMPTIONS:

1. Two City reviews on documents

TASK 9.0 – RAIL

This scope of work will utilize the final Phase 2 Feasibility Report developed by WSP dated March 2022 as the basis of design and starting point for final design development under this task. The selected horizontal and vertical track alignment illustrated in the final Phase 2 Feasibility Report is understood to be the concept accepted by BNSF for the proposed mainline relocation required for replacement of the Milton Rd bridge and reconstruction of Milton Rd and Route 66 to accommodate the proposed project.

The WSP rail team will work with the structures and roadway teams to address design comments received on the Phase 2 report that may influence the final track alignment design. The proposed rail design associated with this task include the following scope of work:

- Track Design - Track design project limits for the BNSF Seligman Subdivision mainline start at the east end limits at the match line of the Lone Tree Overpass Project at approximate mainline station 17673+67 and run west to approximate mainline station 17719+70 for a total length of approximately 4,600 track feet. The track

alignment design will accommodate development of a triple track mainline extending from the Lone Tree Overpass Project through and over the proposed RDF bridge crossing, the proposed reconstruction of Milton Road bridge, and the proposed Walnut/Florence pedestrian underpass. The mainline will transition from triple track to double track west of the Walnut/Florence pedestrian underpass.

- BNSF property survey and topographic survey – the final track alignment accepted by BNSF for the Phase 2 Feasibility Study will need to incorporate property and topographic survey. All applicable base files will be updated, and the proposed track alignment will be evaluated to verify conformance with BNSF design requirements.
- See 10.0 for Rail Safety Plan for Corridor Crossings
    - WSP will work collaboratively with FRA, ADOT, City of Flagstaff, BNSF, and Amtrak to develop a Rail Safety Plan that addresses the following critical elements:
        - The plan will be a multidisciplinary approach that incorporates all three components of the FRA Grade Crossing Safety Model – Engineering, Education, and Enforcement.
        - The plan will address driver safety and protection at grade crossings.
        - The plan will address pedestrian safety and protection at grade crossings.
        - The plan will address pedestrian trespassing along the corridor.
- Amtrak Platforms
    - COF to provide the WSP team previously completed design for the existing northern Amtrak platform.
    - WSP will coordinate with BNSF and Amtrak a new station location and will layout a proposed location for a new Amtrak platform.

SUBTASKS:

TASK 9.1: Meetings with BNSF and Amtrak in addition to what is already shown are anticipated as part of the rail design for this project. It is anticipated that rail design and Amtrak platform design will require up to 10 additional meeting for coordination of rail and platform requirements. It is assumed that these meetings will be 1 hour in length and will be virtual.

ASSUMPTIONS:

1. It is assumed that meetings will be virtual and do not require travel.

DELIVERABLES:

Meeting Agendas (Electronic PDF), Meeting Minutes (Electronic PDF)

TASK 9.2: Concept Submittal

a. This task includes the effort required to develop Concept design plans of the selected alternative identified in the Phase 2 Feasibility Study Report for submission to BNSF for review and approval of proposed track improvements. The Concept design will be developed based on topographic and right-of-way survey, utility, and geotechnical data collected. The plans will be developed in general accordance with the latest edition

of the BNSF Railway Company Design Guidelines for Mainline Track and Grade Separation Projects, and/or AREMA Standards as applicable.

b. Plans will be developed at a scale of 1" = 100' with details at varying scales as required for clarity to include:
c. Cover Sheet
d. Index of Sheets
e. General Notes, Abbreviations, and Symbols
f. Overall Site Plan to include:
    a. Aerial imagery from available mapping sources
    b. Existing surface contours based on topographic survey
    c. Existing mainline track and roads based on topographic survey
    d. Proposed mainline improvements
g. Survey Control
h. Horizontal geometry of proposed track alignment to include special trackwork elements such as turnouts, derails, grade crossings, and end of track devices.
i. Typical Section(s) for both existing and proposed track
j. Plan and Profile Sheets to illustrate top of rail profile and top of existing ground at centerline of track.
k. Grade crossing plan and profiles sheets to illustrate crossing geometry and roadway profile modifications.
l. Amtrak station platform layout.
m. Construction phasing plan.
n. Cross sections.
o. Quantities summary of primary line-item components for estimating and bidding
p. Basis of Design Report
q. Engineers estimate of probable construction costs

DELIVERABLES:

Concept Submittal, Basis of Design Report, and Engineer's Estimate (Electronic PDF)

TASK 9.3: 60% Submittal.

The 60% submittal package will incorporate comments from BNSF, City of Flagstaff, and ADOT as applicable. The plan package is anticipated to progress detail to all sheets identified under the Concept submittal with additional sheets added as follows:

1. Grade crossing signage and striping plan
2. Amtrak platform details
3. Detail sheets to include fencing for ROW, crossing protection, drainage, and other elements required for clarity.

DELIVERABLES:

60% Submittal, Specifications, and Engineer's Estimate (Electronic PDF)

TASK 9.4: 90% Submittal.
The 90% submittal package will incorporate comments from BNSF, City of Flagstaff, and ADOT as applicable. The plan package is anticipated to progress detail to all sheets identified under the 60% submittal.

DELIVERABLES:

90% Submittal, Specifications, and Engineer's Estimate (Electronic PDF)

TASK 9.5: Final PS&E Plans Submittal. The PS&E submittal package will incorporate comments from BNSF, City of Flagstaff, and ADOT as applicable.

DELIVERABLES:

PS&E Submittal, Specifications, and Engineer's Estimate (Electronic PDF)

TASK 9.6: This task involves the coordination with BNSF, Amtrak, and the City to identify the location of a proposed relocation of the Amtrak platform. Potential locations include immediately south of the existing Amtrak platform and adjacent to the proposed Downtown Connection Center south of the tracks. WSP will coordinate proposed locations and after discussions, layout a proposed location based on this coordination. A conceptual civil layout will be developed to identify constraints of the proposed site and submitted to the BNSF, Amtrak, and the City for review. Once a site is selected, the City may elect to progress the design through a scope modification to this contract.

TASK 9.7: This task is currently removed from the scope.

ASSUMPTIONS:

1. BNSF accepts the current design approach as detailed in the Phase 2 Feasibility Study Report for Milton Road. Including:
    a. The third main track will need to be constructed following the initial double track shift
    b. Minimum shoring requirements may be necessary, track outages will be required for construction windows
    c. Existing conditions may constrain potential design options.
    d. Temporary alignments may be required depending on proposed construction phasing.
2. BNSF accepts mainline criteria variances identified in the Phase 2 Feasibility Study Report for Milton Road.
3. BNSF to conduct design reviews and provide comments within 20 working days of each submittal
4. Track alignment and structure design will be accepted and locked at completion of 60% design inclusive of design review comments. All changes required after 60% will be considered additional services.
5. BNSF will develop the design for all mainline wayside signals systems, PTC systems, and crossing protection systems at Beaver St and San Francisco St. BNSF systems design will be developed and completed in

coordination with WSP design and will not cause delay or conflict with the track, civil, or structural design review and approval.

6. Proposed Amtrak Northern platform design will identify the civil design for horizontal and vertical offsets required for modifications to the northern platform to match proposed mainline track modifications. Additional structural support may be required dependent on proposed changes.
7. The proposed Amtrak Southern platform design will address horizontal and vertical limits of platform design. Design will focus on civil elements for platform placement.
8. Mainline wayside signal and PTC systems modifications are assumed to be designed by the BNSF. WSP will work with BNSF to coordinate the design for systems components.
9. Proposed grade crossing protection system modifications are assumed to be designed by either BNSF or ADOT. WSP will work with BNSF and/or ADOT to coordinate the design and location of all crossing protection elements.
10. COF will establish a PEA with Amtrak for coordination and review of the proposed platform designs. The Amtrak PEA assumes to have one Amtrak Point of Contact the project team will use to submit all deliverables to for review and sign off.

TASK 10.0 – PLANNING AND CONSTRUCTION

1. Develop Master Construction Schedule of all projects which include:
    a. Downtown Connection Center
    b. Milton Road BNSF Underpass and Florence-Walnut Pedestrian Underpass
    c. USACE Rio de Flag Flood Control Project
    d. FUTS Trail along the USACE RDF project
    e. Lone Tree Overpass Project
2. Rail Safety Plan for Corridor/At-Grade Crossings

SUBTASKS:

TASK 10.1: Master Construction Schedule. WSP will develop a Downtown Mile master schedule that will serve as a "living document" throughout the project. The document will include an overview of all major projects/activities, the individual schedules, and relationship/precursors. The focus of the schedule document will be to coordinate the various projects, approval processes, construction timelines, and potential impacts. Early coordination with the design teams will occur prior to Concept design submittal to establish a preliminary sequencing. An initial draft document will be submitted to the City for review. Comments will be incorporated into the living document which will be updated quarterly. Coordination with the future CMAR contractor is included in this task and the document will be updated throughout the design/construction phases. It is assumed that up to three updates will occur during this project.

DELIVERABLES:

Draft Master Schedule document, Quarterly updates (up to three)

TASK 10.2: Project Website:

a. Plans at a scale of 1" = 20' to include:

1. Sheet List

TASK 10.3: Rail Safety Plan

This task involves the development of a community rail safety plan for the corridor crossings. WSP will work collaboratively with FRA, ADOT, City of Flagstaff, BNSF, Amtrak, and community stakeholders to develop a Rail Safety Plan that addresses the following critical elements:

- The plan will be a multidisciplinary approach that incorporates all three components of the FRA Grade Crossing Safety Model – Engineering, Education, and Enforcement.
- The plan will address driver safety and protection at grade crossings.
- The plan will address pedestrian safety and protection at grade crossings.
- The plan will address pedestrian trespassing along the corridor.

WSP will use the FRA Community Trespass Prevention Guidance document to work with stakeholders and community leaders to identify the root cause of pedestrian and vehicle incidents along the rail corridor, Identify the target audience for messaging and education, and develop a Rail Safety Plan that addresses the community specific issues identified. The primary elements of this effort will include the following tasks:

- Conduct a community planning and problem-solving meeting to discuss and identify causes of pedestrian trespass and incident locations.
- Conduct a survey using a virtual platform to target adjacent community.
- Work with stakeholders and community leaders to develop a plan to address issues identified during the problem-solving meeting and the survey.
- Work with the project team to incorporate appropriate safety measures.
- Work with stakeholders and community leaders to present the plan and identify an education program to be implemented by the community leaders.

DELIVERABLES:

Rail Safety Plan (Draft and Final, Electronic PDF)

ASSUMPTIONS:

- The CMAR contractor will be selected after the initial Master Construction Schedule has been submitted and reviewed and will be contracted to support with quarterly updates.

EXCLUSIONS

Services excluded from this Scope of Work include, but are not limited to:

1. Collection of traffic, pedestrian, and bicycle count data – existing data sources will be used

2. Cost of permitting other than those required by BNSF for Right of Entry into their Right-of-Way for Survey and Geotechnical Explorations.
3. Subsurface Utility Exploration (SUE) is not included in this scope of work.
4. Right-of-Way acquisition and support services other than Right-of-Way plans is excluded from this scope of work.
5. Amtrak platform design is currently limited to the site civil preliminary location and coordination for site selection. Other work may be added through a contract modification after site selection.
6. BNSF will perform the Signal design at San Francisco and Beaver Street outside this contract.
7. Significant redesign due to the addition of a CMAR contractor and Value Engineering is not included with this contract. If there is significant redesign requested and approved by the City, that work will be completed under a contract modification.

DIRECT EXPENSES

Direct Expenses are based upon the agreed upon rates as established by the Contract. See the attached cost proposal for additional information.

DESIGN SCHEDULE

The draft design schedule (DDS) is based on an NTP date of October 3, 2022. Potential changes to the DDS will be communicated between WSP and the City throughout the project. Identified delays will be communicated in writing by either party and an updated schedule will be agreed upon. This design schedule is based on the following assumptions:

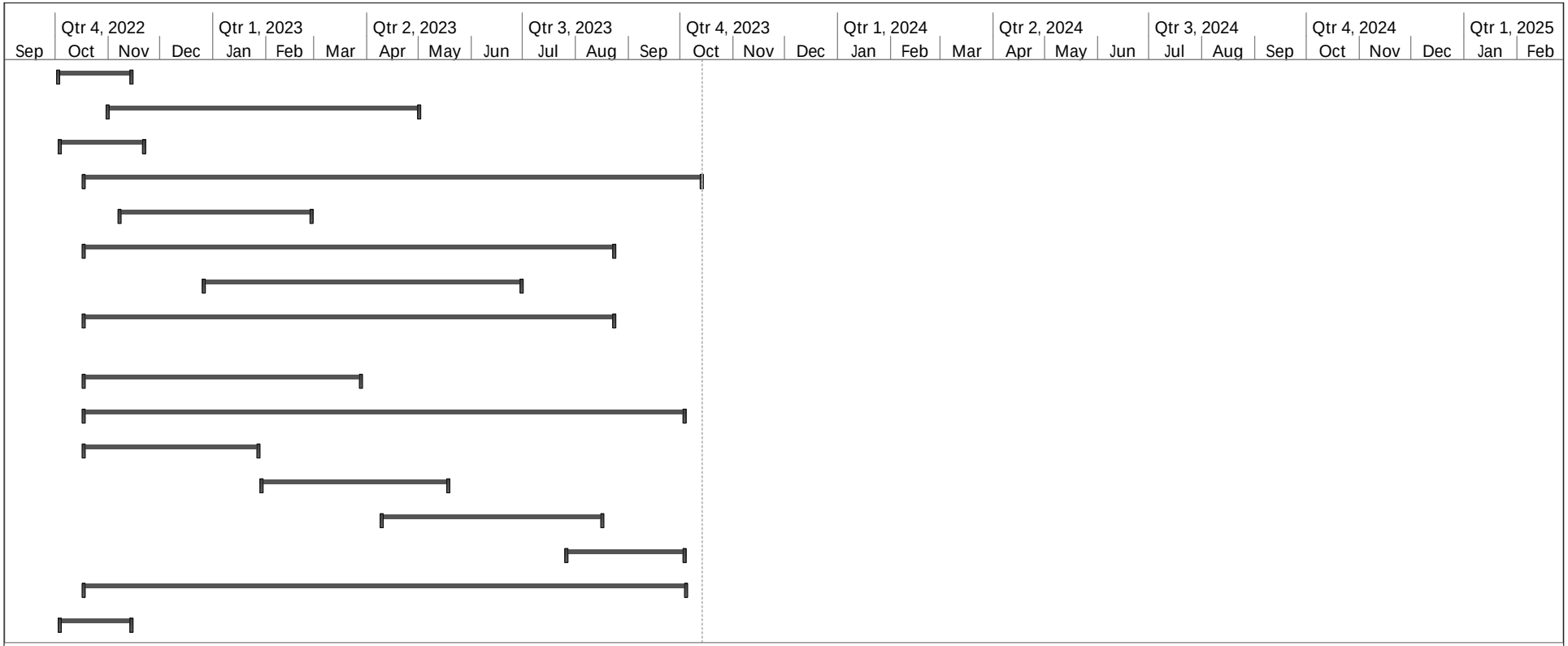
1. The general concepts and design decisions as laid out in the Feasibility Report will be generally accepted by stakeholders. Comments from BNSF have been received and considered in the development of this schedule.
2. Once the Concept Submittal is submitted, work will be paused to allow for stakeholders to review and comment. It is assumed that general concepts and details shown in the Concept Submittal will be accepted and no significant rework or additional alternatives will be required after this submittal.
3. It is assumed that upon procurement of the CMAR contractor, there will not be significant redesign work that will impact the design schedule. Significant redesign may impact the proposed schedule.
4. Schedule is dependent on obtaining right-of-entry, permits, and approval of traffic control plans. Delays in obtaining these items will result in schedule delays.

Please see the following sheets for the proposed DDS.

ID	Task Mode	Task Name	Duration	Start	Finish	Predecessors	Notes	2022 Aug
1		Project Start Up	31 days	Mon 10/3/22	Mon 11/14/2			
5		Survey and Geotech	130 days	Tue 11/1/22	Mon 5/1/23			
10		Traffic Impact Analysis	35 days	Tue 10/4/22	Mon 11/21/2			
14		NEPA Evaluation	259 days	Tue 10/18/22	Fri 10/13/23			
24		Public Involvement	80 days	Tue 11/8/22	Mon 2/27/23			
27		Reports	222 days	Tue 10/18/22	Wed 8/23/23			
28		Geotechnical Report	134 days	Tue 12/27/22	Fri 6/30/23			
43		Master Construction Schedule	222 days	Tue 10/18/22	Wed 8/23/23			
48		Rail Safety Plan	116 days	Tue 10/18/22	Tue 3/28/23			
62		Plans and Specifications	251 days	Tue 10/18/22	Tue 10/3/23			
63		Concept Submittal	74 days	Tue 10/18/22	Fri 1/27/23			
77		60% Submittal	79 days	Mon 1/30/23	Thu 5/18/23			
91		90% Submittal	93 days	Mon 4/10/23	Wed 8/16/23			
105		PS&E Submittal	49 days	Thu 7/27/23	Tue 10/3/23			
119		Permits	252 days	Tue 10/18/22	Wed 10/4/23			
127		Mayor and Council	30 days	Tue 10/4/22	Mon 11/14/2		Required to select preferred intersection	

Project: Proposed Schedule
Date: Wed 8/31/22

Task	Inactive Summary	External Tasks
Split	Manual Task	External Milestone
Milestone	Duration-only	Deadline
Summary	Manual Summary Rollup	Progress
Project Summary	Manual Summary	Manual Progress
Inactive Task	Start-only	
Inactive Milestone	Finish-only	



Project: Proposed Schedule
Date: Wed 8/31/22

Task		Inactive Summary		External Tasks	
Split		Manual Task		External Milestone	
Milestone		Duration-only		Deadline	
Summary		Manual Summary Rollup		Progress	
Project Summary		Manual Summary		Manual Progress	
Inactive Task		Start-only			
Inactive Milestone		Finish-only			

Contract No.: 2022-108

COF Downtown Mile Project

New Contract: X

Contract Mod:

DERIVATION OF COST PROPOSAL SUMMARY

ESTIMATED DIRECT LABOR

Classification	Manhours	% of Total Hours	Billable Hourly Rate	Estimated Labor Costs
Project Principal	9	0.1%	$285.00	$2,565.00
Project Manager	583	3.6%	$250.00	$145,750.00
Resident Engineer	80	0.5%	$230.00	$18,400.00
Project Engineer-Sr	1,427	8.9%	$255.00	$363,885.00
Project Engineer	3,750	23.4%	$180.00	$675,000.00
Engineer	4,752	29.7%	$125.00	$594,000.00
Designer - Sr.	105	0.7%	$145.00	$15,225.00
Designer	667	4.2%	$95.00	$63,365.00
Geologist-Sr.	216	1.4%	$280.00	$60,480.00
CADD Technician	2,544	15.9%	$105.00	$267,120.00
Environmental	1,048	6.6%	$180.00	$188,640.00
Administrative	20	0.1%	$95.00	$1,900.00
Project Administrator	40	0.3%	$145.00	$5,800.00
Transportation Planner	64	0.4%	$105.00	$6,720.00
Transportation Planner - Sr.	0	0.0%	$205.00	$0.00
GIS Analysis/Technician	28	0.2%	$175.00	$4,900.00
Graphic Designer - Sr.	112	0.7%	$130.00	$14,560.00
Graphic Designer	48	0.3%	$90.00	$4,320.00
PI Specialist	500	3.1%	$145.00	$72,500.00
TOTAL Hours	15,993			
			Sub-Total Labor Expense:	$2,505,130.00

ESTIMATED DIRECT EXPENSES

Outside Reproduction	$4,500.00
Courier/Postage	$647.50
Mileage	$4,233.60
Travel	$7,014.00
Miscellaneous Expenses	$21,556.00
Sub-Total Direct Expenses:	$37,951.10

ESTIMATED OUTSIDE SERVICES AND CONSULTANTS

Subconsultant	Method of Compensation	DBE	Fee
GSI	Unit Rate	No	$101,771.00
Quail	Unit Rate	No	$4,722.28
Wood	Unit Rate	No	$7,900.00
Peak	Unit Rate	No	$186,160.00
WDG	Unit Rate	Yes	$91,766.00
TranSystems	Unit Rate	No	$232,026.00
Northland	Unit Rate	No	$39,600.00
		Sub-Total Outside Services Expense:	$663,945.28

ESTIMATED TOTAL

TOTAL ESTIMATED COST: $3,207,026.38

CONTRACT TIME: 365 CALENDAR DAYS

CONTINGENCY (0%) $0.00

Joy Melita

Signature

09/19/2022

Date

COF Downtown Mile Project

Contract No. 2022-108

TASK/DISCIPLINE	Project Principal	Project Manager	Resident Engineer	Project Engineer-Sr	Project Engineer	Engineer	Designer - Sr.	Designer	Geologist-Sr.	CADD Technician	Environmental	Administrative	Project Administrator	Transportation Planner	Transportation Planner - Sr.	GIS Analysis/Technician	Graphic Designer - Sr.	Graphic Designer	PI Specialist	Total
1.0 Project Management	9	145	0	362	185	0	0	0	0	0	0	0	40	0	0	0	0	0	13	754.0
2.0 Roadway	0	16	0	74	224	670	0	0	0	606	0	0	0	0	0	0	0	0	0	1,590.0
3.0 Drainage	0	15	0	278	494	1244	0	330	0	244	0	0	0	0	0	0	0	0	0	2,605.0
4.0 Traffic and MOT	0	31	0	38	221	288	105	337	0	404	0	0	0	0	0	0	0	0	0	1,424.0
5.0 Structures	0	318	0	0	679	1424	0	0	0	1082	0	0	0	0	0	0	0	0	0	3,503.0
6.0 Geotechnical	0	0	0	220	260	660	0	0	216	100	0	20	0	0	0	0	0	0	0	1,476.0
7.0 Environmental	0	0	0	80	205	74	0	0	0	108	1048	0	0	64	0	28	44	48	0	1,699.0
8.0 Public Involvement	0	32	0	64	32	0	0	0	0	0	0	0	0	0	0	0	68	0	487	683.0
9.0 Rail	0	10	0	127	1162	272	0	0	0	0	0	0	0	0	0	0	0	0	0	1,571.0
10.0 Planning	0	16	80	184	288	120	0	0	0	0	0	0	0	0	0	0	0	0	0	688.0
PROJECT TOTAL HOURS	9	583	80	1427	3750	4752	105	667	216	2544	1048	20	40	64	0	28	112	48	500	15993

COF Downtown Mile Project
Contract No. 2022-108

1.0 Project Management TASK DESCRIPTION	Total Hours	Project Principal	Project Manager	Resident Engineer	Project Engineer-Sr	Project Engineer	Engineer	Designer - Sr.	Designer	Geologist-Sr.	CADD Technician	Environmental	Administrative	Project Administrator	Transportation Planner	Transportation Planner - Sr.	GIS Analysis/Technician	Graphic Designer - Sr.	Graphic Designer	PI Specialist
1.1 Project Management (9 Month Duration)	129	9	40			40								40						
1.2 Project Meetings	0																			
1.2A In Person Kick-off Meeting (1 Total, 3 hours + travel)	71		8		52	8														3
1.2B Monthly Progress Meetings (9 Total, 2 hours, Virtual)	194		27		130	27														10
1.2C Stakeholder Meetings (5 Total x 3 Stakeholders, 1 hour, virtual)	120		30		60	30														
1.3 Project Coordination	0																			
1.3A Survey Coordination	80				40	40														
1.3B Utility Coordination	80				40	40														
1.4 Quality Program	80		40		40															
	0																			
SUBTOTAL 1.0 Project Management	754	9	145	0	362	185	0	0	0	0	0	0	0	40	0	0	0	0	0	13

Task Cost: $ 172,110.00

COF Downtown Mile Project
Contract No. 2022-108

2.0 Roadway TASK DESCRIPTION	Total Hours	Project Principal	Project Manager	Resident Engineer	Project Engineer-Sr	Project Engineer	Engineer	Designer - Sr.	Designer	Geologist-Sr.	CADD Technician	Environmental	Administrative	Project Administrator	Transportation Planner	Transportation Planner - Sr.	GIS Analysis/Technician	Graphic Designer - Sr.	Graphic Designer	PI Specialist
2.1 City Meeting	0																			
2.1.1 City Commision/M&C Meetings (2 mtgs, 2hrs/mtg, 1 staff + travel)	72		16			16	40													
2.1.1.1 (3) Exhibits for City Meetings	27					3	12				12									
2.2 Concept Submittal - 15% Roll Plot	204				14	34	84				72									
2.3 60% Submittal - Plans & Estimate	410				18	48	164	0	0	0	180									
2.4 90% Submittal - Plans & Estimate	521				18	67	232	0	0	0	204									
2.5 PS&E Submittal - Plans & Estimate	356				24	56	138	0	0	0	138									
	0																			
SUBTOTAL 2.0 Roadway	1590	0	16	0	74	224	670	0	0	0	606	0	0	0	0	0	0	0	0	0

Task Cost: $ 210,570.00

JASON DO NOT REMOVE COLOR CODING - NEED TO CHAT WITH ERIC

COF Downtown Mile Project

Contract No. 2022-108

3.0 Drainage TASK DESCRIPTION	Total Hours	Project Principal	Project Manager	Resident Engineer	Project Engineer-Sr	Project Engineer	Engineer	Designer - Sr.	Designer	Geologist-Sr.	CADD Technician	Environmental	Administrative	Project Administrator	Transportation Planner	Transportation Planner - Sr.	GIS Analysis/Technician	Graphic Designer - Sr.	Graphic Designer	PI Specialist
TASK 3.1 Coordination Drainage	0																			
Anticipate (5 Breakout Meetings w/ COF Stormwater, 5 Meetings USACE, 5 Meetings ADOT Drainage & Pump System)	75		15		30		30													
TASK 3.2 Conceptual Drainage	596				54	148	394													
TASK 3.3 Conceptual Pump System	292				28	64	120		80											
TASK 3.4 60% Drainage	558				34	100	304				120									
Task 3.5 60% Stormwater Pump System	252				40	50	72		90											
Task 3.6 90% Drainage	310				26	64	160				60									
Task 3.7 90% Stormwater Pump System	264				32	40	72		120											
Task 3.8 Final PS&E Drainage	122				18	16	68				20									
Task 3.9 Final PS&E Stormwater Pump	92				16	12	24		40											
	0																			
	0																			
	0																			
	0																			
SUBTOTAL 3.0 Drainage	2605	0	15	0	278	494	1244	0	330	0	244	0	0	0	0	0	0	0	0	0

Task Cost: $ 376,030.00

COF Downtown Mile Project
Contract No. 2022-108

4.0 Traffic and MOT						Imara A.	Howard O.		Helayne D.	Anthony V.		Manny C									
TASK DESCRIPTION	Total Hours	Project Principal	Project Manager	Resident Engineer	Project Engineer-Sr	Project Engineer	Engineer	Designer - Sr.	Designer	Geologist-Sr.	CADD Technician	Environmental	Administrative	Project Administrator	Transportation Planner	Transportation Planner - Sr.	GIS Analysis/Technician	Graphic Designer - Sr.	Graphic Designer	PI Specialist
4.1 Internal and Stakeholder Coordination	0																			
4.1.1 City Commision/M&C Meetings (2 mtgs, 2hrs/mtg, 1 staff + travel)	18					16			2											
4.1.1.1 (3) Exhibits for City Meetings	43					5	2	4	20		12									
4.2 Traffic Impact Analysis	0																			
4.2A Traffic Modeling	62		2			16		11	33											
4.3B Safety Evaluation	46		2			8		9	27											
4.2C Alternatives Analysis	88		4			24		11	33		16									
4.2D Traffic Signal Warrant	58		2			16		10	30											
4.2E Traffic Impact Analysis	78		6			24		12	36											
4.3 Concept Submittal - 15% Plans Roll Plot	73		3			8	24	4	18		16									
4.3 Concept Submittal - Construction cost estimate	22		4			2	16													
4.4A Traffic Submittal 60%	518		4		20	60	142	18	70		204									
4.4B Traffic Submittal 90%	260		2		12	24	66	14	46		96									
4.4C RFC Plan Submittal	158		2		6	18	38	12	22		60									
	0																			
SUBTOTAL 4.0 Traffic and MOT	1424	0	31	0	38	221	288	105	337	0	404	0	0	0	0	0	0	0	0	0

Task Cost: $ 182,880.00

COF Downtown Mile Project
Contract No. 2022-108

5.0 Structures TASK DESCRIPTION	Total Hours	Project Principal	Project Manager	Resident Engineer	Project Engineer-Sr	Project Engineer	Engineer	Designer - Sr.	Designer	Geologist-Sr.	CADD Technician	Environmental	Administrative	Project Administrator	Transportation Planner	Transportation Planner - Sr.	GIS Analysis/Technician	Graphic Designer - Sr.	Graphic Designer	PI Specialist
5.1 Concept Submittal	0																			
5.1A Milton Road BNSF Underpass	120		8			24	48				40									
5.1B RDF FUTS Crossing	120		8			24	48				40									
5.1C Existing BNSF RDF Crossing	104		8			24	48				24									
5.1D Retaining Walls	64		4			12	24				24									
5.2 60% Submittal	0																			
5.2A Milton Road BNSF Underpass	860		80			160	360				260									
5.2B RDF FUTS Crossing	340		32			48	140				120									
5.2C Existing BNSF RDF Crossing	272		32			40	120				80									
5.2D Retaining Walls	100		4			16	40				40									
5.2E Special Details	76		4			16	36				20									
5.3 90% Submittal	0																			
5.3A Milton Road BNSF Underpass	635		60			135	260				180									
5.3B RDF FUTS Crossing	208		16			32	80				80									
5.3C Existing BNSF RDF Crossing	140		16			28	48				48									
5.3D Retaining Walls	100		4			16	40				40									
5.3E Special Details	76		4			16	36				20									
5.34PS&E Submittal	0																			
5.4A Milton Road BNSF Underpass	96		12			32	32				20									
5.4B RDF FUTS Crossing	96		12			32	32				20									
5.4C Existing BNSF RDF Crossing	50		8			16	16				10									
5.4D Retaining Walls	24		4			4	8				8									
5.4E Special Details	22		2			4	8				8									
	0																			
SUBTOTAL 5.0 Structures	3503	0	318	0	0	679	1424	0	0	0	1082	0	0	0	0	0	0	0	0	0

Task Cost: $ 493,330.00

COF Downtown Mile Project
Contract No. 2022-108

6.0 Geotechnical TASK DESCRIPTION	Total Hours	Project Principal	Project Manager	Resident Engineer	Project Engineer-Sr	Project Engineer	Engineer	Designer - Sr.	Designer	Geologist-Sr.	CADD Technician	Environmental	Administrative	Project Administrator	Transportation Planner	Transportation Planner - Sr.	GIS Analysis/Technician	Graphic Designer - Sr.	Graphic Designer	PI Specialist
6.1 Background Review, Coordination, Site Visit, Boring Access Plan, Permits	224				32	60	80			32			20							
6.2 Blue Stake, Field Work, Logs, Lab	404				32	40	300			32										
6.3 Geotechnical and Foundation Profiles/Analyses	212				32	40	80			40	20									
6.4 Pavement Analyses	120				20	20	40			20	20									
6.5 Geotechnical and Foundation Reports	344				72	60	120			72	20									
6.6 ADOT Pavement Design and PDS/MDR	172				32	40	40			20	40									
	0																			
SUBTOTAL 6.0 Geotechnical	1476	0	0	0	220	260	660	0	0	216	100	0	20	0	0	0	0	0	0	0

Task Cost: $ 258,280.00

COF Downtown Mile Project
Contract No. 2022-108

7.0 Environmental TASK DESCRIPTION	Total Hours	Project Principal	Project Manager	Resident Engineer	Project Engineer-Sr	Project Engineer	Engineer	Designer - Sr.	Designer	Geologist-Sr.	CADD Technician	Environmental	Administrative	Project Administrator	Transportation Planner	Transportation Planner - Sr.	GIS Analysis/Technician	Graphic Designer - Sr.	Graphic Designer	PI Specialist
Develop Purpose and Need	24											24								
Document Alternatives	36											32						4		
Land Ownership, Jurisdiction, and Land Use	36											32						4		
Social and Economic Considerations	52											40					8	4		
Cultural Resources	112											112								
Section 4(f) and Section 6(f) Resources	64											40					4	8	12	
Traffic and Transportation	51						19					16			16					
Air Quality Analysis	119					95						24								
Noise and Vibration	119					95						16							8	
Utilities	51						19					20					8	4		
Visual Resources	36											16						8	12	
Energy	16											16								
Drainage and Floodplain Considerations	35					15						16						4		
Clean Water Act Sections 404, 401, and 402; National Pollutant Discharge Elimination	84											64						4	16	
Section 408 of the Rivers and Harbors Act	332				80		36				108	60			48					
Biological Resources	92											80					8	4		
Hazardous Materials	40											40								
Secondary and Cumulative Impacts	72											72								
Draft EA Preparation	120											120								
Scoping Meeting, Public Hearing, and PI Support	64											64								
Response to Comments	72											72								
Final EA (Errata) Preparation	72											72								
	0																			
SUBTOTAL 7.0 Environmental	1699	0	0	0	80	205	74	0	0	0	108	1048	0	0	64	0	28	44	48	0

Task Cost: $ 288,190.00

COF Downtown Mile Project
Contract No. 2022-108

8.0 Public Involvement TASK DESCRIPTION	Total Hours	Project Principal	Project Manager	Resident Engineer	Project Engineer-Sr	Project Engineer	Engineer	Designer - Sr.	Designer	Geologist-Sr.	CADD Technician	Environmental	Administrative	Project Administrator	Transportation Planner	Transportation Planner - Sr.	GIS Analysis/Technician	Graphic Designer - Sr.	Graphic Designer	PI Specialist
8.1 Public Involvement Coordination	0																			
8.1A Meetings	18																			18
8.1B Public Involvement Plan	27																			27
8.2 Public Involvement Tools/Materials	0																			
8.2A Project Webpage Content	24																			24
8.2B FAQs	14																			14
8.2C Fact Sheets/Comment Cards	56																	24		32
8.2C.B MetroQuest	92																			92
8.2D Hybrid public meetings	452		32		64	32												44		280
	0																			
SUBTOTAL 8.0 Public Involvement	683	0	32	0	64	32	0	0	0	0	0	0	0	0	0	0	0	68	0	487
																			Task Cost:	$ 109,535.00

COF Downtown Mile Project
Contract No. 2022-108

9.0 Rail TASK DESCRIPTION	Total Hours	Project Principal	Project Manager	Resident Engineer	Project Engineer-Sr	Project Engineer	Engineer	Designer - Sr.	Designer	Geologist-Sr.	CADD Technician	Environmental	Administrative	Project Administrator	Transportation Planner	Transportation Planner - Sr.	GIS Analysis/Technician	Graphic Designer - Sr.	Graphic Designer	PI Specialist
Task 9.1A - Project Coordination and Meetings	40		10		10	20														
Task 9.1B - Update base files developed for Phase 2 Feasibility Study	92					52	40													
Task 9.2 - Concept Design Submittal	364				40	300	24													
Task 9.3 - 60% Design Submittal	511				53	434	24													
Task 9.4 - 90% Design Submittal	122				12	98	12													
Task 9.5 - Final PS&E Submittal	122				12	98	12													
Task 9.6 - Amtrak Station - Southern Platform	0																			
Task 9.6.1 Site Civil	320					160	160													
	0																			
SUBTOTAL 9.0 Rail	1571	0	10	0	127	1162	272	0	0	0	0	0	0	0	0	0	0	0	0	0

Task Cost: $ 278,045.00

COF Downtown Mile Project
Contract No. 2022-108

10.0 Planning TASK DESCRIPTION	Total Hours	Project Principal	Project Manager	Resident Engineer	Project Engineer-Sr	Project Engineer	Engineer	Designer - Sr.	Designer	Geologist-Sr.	CADD Technician	Environmental	Administrative	Project Administrator	Transportation Planner	Transportation Planner - Sr.	GIS Analysis/Technician	Graphic Designer - Sr.	Graphic Designer	PI Specialist
10.1 Master Construction Schedule (Initial)	168		8	80	40	40														
10.1 Master Construction Schedule (Quarterly Updates)	80		8		24	48														
10.3 Rail Safety Plan	440				120	200	120													
	0																			
SUBTOTAL 10.0 Planning	688	0	16	80	184	288	120	0	0	0	0	0	0	0	0	0	0	0	0	0

Task Cost: $ 136,160.00

COF Downtown Mile Project
Contract No. 2022-108

DIRECT EXPENSES										
ITEM						No.	Unit Cost		Cost	
Outside Reproduction										
11"x17" Copies (Color)						2000	$	1.25	$	2,500.00
11"x17" Copies (B&W)							$	0.50	$	-
8 ½" x 11" Copies (Color)						2000	$	0.75	$	1,500.00
8 ½" x 11" Copies B&W)							$	0.25	$	-
5" x 10" card stock mailer (color, 50% bleed)						1000	$	0.50	$	500.00
							SUB-TOTAL:		$	4,500.00
Courier/Postage/Overnight Mail										
Courier						50	$	7.95	$	397.50
Postage						500	$	0.50	$	250.00
Overnight Mail						0	$	5.00	$	-
							SUB-TOTAL:		$	647.50
Mileage										
Site Reconn/Boring Locate	3 mtgs	@	300 miles	roundtrip		900	$	0.560	$	504.00
Field Work mob/demob	8 mtgs	@	300 miles	roundtrip		2400	$	0.560	$	1,344.00
Field Work daily travel	18 mtgs	@	20 miles			360	$	0.560	$	201.60
Meetings	4 mtgs	@	300 miles	roundtrip		1200	$	0.560	$	672.00
Field Visits	9 mtgs	@	300 miles	roundtrip		2700	$	0.560	$	1,512.00
							SUB-TOTAL:		$	4,233.60
Travel*										
Meals	1 staff	@	44 trips	@	66	44	$	66.00	$	2,904.00
Lodging	1 staff	@	20 trips	@	115	20	$	115.00	$	2,300.00
Rental Car	1 staff	@	18 days	@	70	18	$	70.00	$	1,260.00
Airfare (Cultural Specialist)	1 staff	@	1 days	@		1	$	550.00	$	550.00
		@		@		0	$	-	$	-
*Covers only travel 15 miles or more beyond the City Limits or by Firms from other than Flagstaff							SUB-TOTAL:		$	7,014.00
Miscellaneous Expenses										
BNSF TOP Application									$	800.00
BNSF RR Liability Insurance (for ROE)									$	5,000.00
Mailers (Two Mailings, 6.5x11)									$	8,756.00
Display Boards									$	3,000.00
Social Media Advertising									$	1,000.00
Newspaper Advertising									$	3,000.00
							SUB-TOTAL:		$	21,556.00
TOTAL DIRECT EXPENSES										
							TOTAL:		$	37,951.10

PEAK ENGINEERING SCOPE AND FEE

SCOPE OF SERVICES

Date:	August 30, 2022
Project:	**Downtown Mile**
WSP Project No:	TBD
Peak Project No:	22WSP01
Prepared For:	WSP *(Client: City of Flagstaff)*
Prepared By:	J.Leid

PROJECT DESCRIPTION

The project is coordination of City infrastructure needs for an approximate mile-long section of BNSF rail improvements in Flagstaff, Arizona. The "Downtown Mile" bundles the BNSF rail impacted projects for a comprehensive project. These projects include the Walnut-Florence Pedestrian and Bicycle Underpass, Milton Road Underpass Improvements and Lone Tree Overpass.

WSP is the prime consultant and client for the Downtown Mile. Peak Engineering's scope of services includes design of the Santa Fe/Sitgreaves intersection at Route 66/Milton Road and coordination of utilities that may be in conflict with the proposed design. Peak Engineering's scope also includes grading match-up in City right of way at San Francisco and Beaver Streets, between the BNSF right of way and Phoenix Avenue, to accommodate the proposed rail design. Peak will support public involvement efforts.

SCOPE & DELIVERABLES

TASK 1: Administration & Coordination Meetings

Peak Engineering has budgeted to attend the following meetings:

- Preparation, Support and Attendance at two public meetings (PM)
- Preparation, Support and Attendance at one commission/committee meeting (PM)
- Attendance at one Council meeting (PM)
- Participation in regular team coordination meetings through the course of design (9 month design schedule) and weekly updates and tracking of utility coordination efforts.

Administration costs are estimated to be 10% of the total proposed fee, distributed monthly for the duration of the scope. Administration costs include internal project management (schedule, staffing, quality assurance, budget management) and communications not related to meetings listed above.

TASK 2: Utility Coordination

Peak Engineering's scope for design of utilities is as follows:

Peak Engineering will conduct meetings with the following utility companies to present the anticipated scope of work and to capture locations of possible utility conflicts. The goal of these meetings will be to understand prior rights, relocation responsibility and relocation timelines. It is our understanding that

SWI Engineering has performed some subsurface utility exploration as part of the Rio de Flag project. This task includes coordination with SWI to collect and depict that data in the background design files. This task also includes coordination with SWI to document their proposed utilities re-alignments within the project limits.

- Arizona Public Service (APS)
- Unisource Energy (UES)
- Lumen
- Altice
- AT&T
- City of Flagstaff (water, sewer, reclaimed water)

Peak Engineering will prepare agendas and meeting notes from these meetings. Peak will document anticipated relocations in a KMZ file. For design, the relocations associated with the local roadway design will be depicted in the plans. Design of franchise utilities is the responsibility of the utility company.

Peak Engineering will include design of City-owned utility re-alignments at Santa Fe and Sitgreaves should there be conflicts with the vertical design or future stormdrain system. *It is not yet determined if water and sewer utility re-alignments are required or would meet the threshold of ADEQ review. Therefore, we've established an allowance for preparation of utility plan and profile sheets, reports and ADEQ submittal as a separate task. Refer to Task 7 for a detailed description.*

Deliverable: Meeting minutes, KMZ File.

TASK 3: Concept Local Roadway Design (Sante Fe/Sitgreaves Realignment)

Peak Engineering will work with WSP to determine geometry and design requirements for the intersection of Milton Road with Santa Fe. WSP will be responsible for the final intersection design and layout. Peak Engineering will be responsible for design of Santa Fe and Sitgreaves realignment up to the curb return at Milton/Route 66. Peak will prepare concept plans depicting the new geometry and improvements. Peak's concept includes design of the curb ramps at Milton. It is assumed that WSP will provide the intersection layout and will determine storage lengths for the left turn lane (if that is the selected design layout).

Peak Engineering will coordinate with WSP and the rail design to show match-up and transitions from BNSF right of way to existing conditions on San Francisco and Beaver Streets.

Concept plans will depict proposed geometry and improvements extents, including utility impacts.

Deliverable: Concept design plans

TASK 4: Design Development (~60% Design)

Peak Engineering will prepare 60% design plans. The plans will include call-out text and construction notes with enough information to communicate intent but will not be fully keynoted or detailed.

We anticipate the following design sheets:

- Cover
- General Notes & Index
- Construction Control (future submittal)
- Details
- Topographic & Right of Way Survey (existing conditions sheets), if furnished.
- Santa Fe Roadway Design Plan and Profile, including utility relocations, if needed.
- Sitgreaves Roadway Design Plan and Profile, including utility relocations, if needed.

- San Francisco Street grading match-up and utility adjustments
- Beaver Street grading match-up and utility adjustments
- Stormdrain layout sheet(s)
- Striping & Signage Plan

Peak Engineering will show catchbasins and stormdrain pipe in Santa Fe and Sitgreaves to connect to the main stormdrain, if necessary for the realignment of the local streets. It is our understanding that SWI Engineering is designing a stormdrain trunk line associated with the Rio de Flag and Milton Road crossing improvements. We will coordinate with SWI to determine connection points to this stormdrain system.

WSP is responsible for stormdrain design and pumping system for the Milton Road underpass.

Peak will furnish an opinion of probable construction cost in PDF and as an excel sheet for inclusion in the overall project estimate by WSP.

Peak Engineering will submit plans to and request utility response letters from APS (electric), UniSource Energy Services (UES, natural gas), Lumen (communications), Altice (communications) and AT&T (communications).

Deliverables: 60% Design Plans, EOPCC, Franchise Utility Letters

TASK 5: Final 1 Plans (90%)

Peak Engineering will prepare Final 1 Plans. Refer to Task 4 for anticipated plan sheets. The sheet(s) listed as future submittals will be developed and included in this task. The Final 1 Plans will be fully developed, detailed and sealed for submittal to the City of Flagstaff.

Peak Engineering will update the EOPCC and provide an excel spreadsheet for inclusion in WSP's overall project estimate.

Peak Engineering will prepare draft special provisions. The special provisions will reference the City of Flagstaff Engineering Standards & Specifications and MAG Specifications.

This phase includes a detailed quality control (QC) review of the team's design plans for coordination and to check for conflicts between disciplines. Peak will prepare a QC checklist and will include this with the Final 1 submittal if requested.

Deliverable: Final 1 Design Plans, EOPCC, QC Checklist.

TASK 6: Final 2 Plans (100%)

Peak Engineering will address comments and edits in Final 2 Plans for approval and signatures.

Peak Engineering will finalize the Special Provisions.

Deliverable: Final 2 Design Plans, Special Provisions, Comment Responses.

TASK 7: Water and Sewer Realignment Design & ADEQ Submittal (ALLOWANCE, if required)

The vertical design of the roadway at the underpass may require elevation changes on Santa Fe and Sitgreaves. Should the elevation changes or addition of stormdrain require replacement of water and sewer infrastructure , ADEQ review and permitting may be required. If required, this work will be incorporated into the deliverables for Tasks 1-6.

ADEQ review and permitting is required for WATER except as follows (excerpt from Arizona Administrative Code R18-05)

An existing public water system shall be exempt from the plan review requirements of this Article if the public water system is in compliance with this Chapter or is making satisfactory progress towards compliance under a schedule approved by the Department if the applicable structural revision, addition, extension, or modification:

a. *Has a project cost of $12,500 or less; or*

b. *Is made to a water line that:*

i. *Is not for a subdivision requiring plat approval by a city, town, or county;*

ii. *Has a project cost of more than $12,500 but less than $50,000; and*

iii. *Has a design that is sealed and signed by a professional engineer registered in Arizona and the construction of which is reviewed for conformance with the design by a professional engineer registered in Arizona.*

ADEQ review and permitting is required for SEWER except as follows (excerpt from Arizona Administrative Code R18-09-E301)

A. Notice of Intent to Discharge is not required for sewage collection system repairs. Repairs include work performed in response to deterioration or damage of existing structures, devices, and appurtenances with the intent to maintain or restore the system to its original design flow and operational characteristics. Repairs do not include changes in vertical or horizontal alignment.

For the water main replacements, Peak Engineering will prepare standalone construction documents and an engineer's design report for submittal to ADEQ. Peak will prepare the Approval to Construct application; the City will be required to furnish supporting system documentation, sign the application and provide payment.

For the sewer main replacements, Peak Engineering will prepare standalone construction documents and an engineer's design report for submittal to ADEQ. Peak will prepare the Notice of Intent to Discharge application; the City will be required to furnish supporting system documentation, sign the application and provide payment.

Deliverable: Incorporation of water and sewer design plans into Tasks 1-6, preparation of ADEQ submittal documents include the application and reports.

Assumptions & Exclusions:

A topographic survey will be conducted by others and furnished to Peak in AutoCAD format with the project surface (DTM). The topographic survey will include benchmarks for survey control.

Easements and right of way dedication documents, if required, will be prepared by others. We can show proposed easements in the design plans.

Peak's scope for showing utility information in the project basemap is based on available as-built and GIS data, adjusted for survey field-located appurtenances and the results of coordination with adjacent projects.

Peak's scope for drainage design is limited to the portion of the Santa Fe and Sitgreaves alignment.

WSP will provide a report on geotechnical investigation which includes the design pavement structural section.

Peak will coordinate franchise utility design and show linework from franchise utility companies, if provided.

Wheat Design Group will prepare the landscape, irrigation and erosion control plans for inclusion with Peak's roadway design plans.

Peak's scope does not include permitting with ADOT. It is assumed that WSP will manage ADOT submittals.

Peak's scope does not include review or permitting fees.

Construction phase services are not included.

FEE SUMMARY

	Description	Proposed Fee
TASK 1:	Administration & Coordination Meetings	$17,620
TASK 2:	Utility Coordination	$13,460
TASK 3:	Concept Local Roadway Design (Santa Fe/Sitgreaves Realignment, Beaver & San Francisco match-ups)	$30,100
TASK 4:	Design Development (~60% Design)	$39,580
TASK 5:	Final 1 Plans (90%)	$40,520
TASK 6:	Final 2 Plans (100%)	$10,620
	TOTAL Basic Services	**$151,900**
TASK 7:	Water and Sewer Realignment Design & ADEQ Submittal (ALLOWANCE, if required) Water - $17,130 Sewer - $17,130	$34,260
	TOTAL	**$186,160**

Please refer to the cost detail summary, attached, for a breakdown of hours and hourly rates in support of the proposed fee. **This work will be performed lump sum, percent complete utilizing the established rates as shown in the attached fee proposal based on the scope outlined herein.** If additional scope is required, a subsequent contract modification will be submitted at WSP's direction.

SCHEDULE

Peak anticipates work beginning October 2022 with completion of the construction documents in Spring 2023.

END

Client Name: WSP

Project Name: City of Flagstaff DOWNTOWN MILE

Project Number: 22WSP01

Client Information

Name: ***JASON CARLAFTES, P.E.***

Address:

Project Budget Summary

	Task Description	Principal Engineer		Project Manager		Project Engineer		Designer		Engineering Intern		Technical Drafter		Clerical		Total Hours	Labor Cost per Task
	Hourly Rate:	$200		$180		$170		$130		$90		$90		$80			
		Hours	Dollars	Hours	Dollars	Hours	Dollars	Hours	Dollars	Hours	Dollars	Hours	Dollars	Hours	Dollars		
1	Admin & Coordination Meetings	-	$ -	79.00	$ 14,220	20.00	$ 3,400	-	$ -	-	$ -	-	$ -	-	$ -	99.00	$ 17,620
2	Utility Coordination	-	$ -	24.00	$ 4,320	40.00	$ 6,800	18.00	$ 2,340	-	$ -	-	$ -	-	$ -	82.00	$ 13,460
3	Concept Local Roadway Design	-	$ -	35.00	$ 6,300	88.00	$ 14,960	60.00	$ 7,800	-	$ -	-	$ -	13.00	$ 1,040	196.00	$ 30,100
4	60% Design	-	$ -	44.00	$ 7,920	122.00	$ 20,740	84.00	$ 10,920	-	$ -	-	$ -	-	$ -	250.00	$ 39,580
5	Final 1 (90%) Design	-	$ -	49.00	$ 8,820	110.00	$ 18,700	100.00	$ 13,000	-	$ -	-	$ -	-	$ -	259.00	$ 40,520
6	Final 2 (100%) Design	-	$ -	12.00	$ 2,160	36.00	$ 6,120	18.00	$ 2,340	-	$ -	-	$ -	-	$ -	66.00	$ 10,620
7	ADEQ Submittal for Water & Sewer ALLOWANCE	-	$ -	44.00	$ 7,920	93.00	$ 15,810	81.00	$ 10,530	-	$ -	-	$ -	-	$ -	218.00	$ 34,260
8	Not Used	-	$ -	-	$ -	-	$ -	-	$ -	-	$ -	-	$ -	-	$ -	-	$ -
9	Not Used	-	$ -	-	$ -	-	$ -	-	$ -	-	$ -	-	$ -	-	$ -	-	$ -
10	Not Used	-	$ -	-	$ -	-	$ -	-	$ -	-	$ -	-	$ -	-	$ -	-	$ -
	LABOR TOTAL:	0	$ -	287	$ 51,660	509	$ 86,530	361	$ 46,930		$ -				$ 1,040		$ 186,160

Reimbursable Project Expenses

A	Printing & Reprographics	$ -
B	Mileage	$ -
C	Meals & Lodging	$ -
D	Equipment	$ -
E	Other (Parking)	$ -
	RPE TOTAL:	$ -

Sub-Consultants

Survey	$ -
Landscape Architect	$ -
Architect	$ -
Geotechnical	$ -
Other	$ -
SUB-CONSULTANT TOTAL:	$ -

PROJECT TOTAL:

$ 186,160

TRANSYSTEMS CORPORATION SCOPE AND FEE

TranSystems
2400 Pershing Road | Suite 400
Kansas City, MO 64108
Tel 816 329 8600
www.TranSystems.com

Scope (Florence-Walnut Railroad Underpass, Milton Road Temporary Shoring and Rio De Flag Temporary Shoring)

Following discussions with the project team TranSystems is pleased to present our scope for design of a new bridge at MP 344.30 for the F.U.T.S Trail Underpass. We're currently reviewing what was previously designed in 2012 and will complete a cost evaluation of using a Reinforced Concrete Box due to the tracks shifting north. The structure will be designed and detailed per the requirements in the BNSF/UP Grade Separation Guidelines dated January 1, 2016. Submittals will follow the requirements in Table 3-2. Bridge designs will utilize the latest BNSF Standards where applicable.

- Concept will include a cost evaluation between a bridge and RCB
- Once a concept is selected a 30% submittal will follow(Applicant response, Type Selection Report, Design Plan, Construction Phasing)
- 60% (Applicant response, Design Plans and Calculations, Geotechnical Report, Project Specifications and/or Special Provisions, Drainage Report and Plan, Construction Phasing)
- Final Plans (Applicant response, Design Plans and Calculations, Geotechnical Report, Project Specifications and/or Special Provisions, Construction Phasing)
- Temporary shoring design will also be completed at this structure to facilitate staged construction. The temporary shoring will be designed and detailed per the requirements in the BNSF/UP Guidelines for Temporary Shoring dated December 7, 2021.

In addition to the above structure design, TranSystems will also design and detail the temporary shoring for the Milton Road Bridge and the Rio De Flag Project where each of these cross the BNSF tracks. These temporary shoring designs will also be completed to facilitate staged construction. The temporary shoring will be designed and detailed per the requirements in the BNSF/UP Guidelines for Temporary Shoring dated December 7, 2021.

Assumptions

- The proposed track centers of 15' will require construction to be within the "NO EXCAVATION" limit of 15' and BNSF has approved the use of temporary shoring required for construction of these bridges/structures. No separate design exception approval is required.
- Temporary shoring for Milton Road Bridge is only for protection of the bridge construction from the BNSF tracks, no shoring design for the protection of Milton Road.
- Temporary shoring for Rio De Flag Project is only for protection of the bridge/box construction from the BNSF tracks, no shoring design for the protection of any adjacent roadway/parking lot.
- Where piles are required for bridge design, with the rock shallow in this area it is assumed that piles will be socketed for their designs.
- Florence-Walnut Railroad Underpass for Pedestrian Trail
    - Additional coordination with BNSF per the BNSF/UP Grade Separation Guidelines (1/05/16) is assumed.
    - Previously approved bridge plans from 2012 per the new track layout is being shifted north and is assumed that new approval from BNSF for updated location is required. Since the previous approval, new guidelines have been issued that require a new look at the design requirements for this underpass.

TranSystems
2400 Pershing Road | Suite 400
Kansas City, MO 64108
Tel 816 329 8600
www.TranSystems.com

- Underpass bridge design will be coordinated with the City of Flagstaff for trail design.
- Final grading/retaining walls under bridge will be coordinated with the City of Flagstaff and will be completed by TranSystems as part of the bridge design from BNSF ROW to ROW.
- Lighting requirements under the bridge will be coordinated with the City of Flagstaff and will be completed by others.
- Assumes that the previous BNSF approval of the trail underpass that BNSF continues to approve the use of an underpass crossing and that a detailed type selection report has already been submitted and approved to BNSF for this underpass crossing.
- Final trail design by others.
- No aesthetics will be added to the underpass bridge.

	Principal	Project Manager	Bridge Engineer 3	Bridge Engineer 2	Bridge Technicain 4	Bridge Technicain 1		
Rates	*$ 350.00*	*$ 240.00*	*$ 260.00*	*$ 168.00*	*$ 152.00*	*$ 93.00*		
Task								
Project Management							Hours	Fee
TWG Meetings		9					9	$ 2,160.00
BNSF Coordination		20	50				70	$ 17,800.00
BNSF and USACE Meetings	2	2	15				19	$ 5,080.00
SUBTOTAL PROJECT MANAGEMENT	2	31	65	0	0	0	98	$ 25,040.00
Design Services Florence-Walnut Underpass, Milton Rd Shoring & RDF Shoring							Hours	Fee
Concept/Cost Evaluation		4	25	40	30	40	139	$ 22,460.00
30% Plan		4	60	90	80	120	354	$ 55,000.00
60% Plan		2	40	60	60	70	232	$ 36,590.00
Final Plans		2	30	40	40	60	172	$ 26,660.00
Plan Review - QA/AC Process	4	60	80	80		140	364	$ 63,060.00
SUBTOTAL DESIGN SERVICES AND QA/QC	4	72	235	310	210	430	1261	$ 203,770.00
EXPENSES								
Airfare (2 Trips)						$800/flight		$ 1,600.00
Car Rental						4 days @ $200/day		$ 800.00
Lodging						4 days @ $138/day		$ 552.00
Meals						4 days @ $66/day		$ 264.00
SUBTOTAL EXPENSES								$ 3,216.00
							TOTAL DESIGN FEE	$ 232,026.00

NORTHLAND EXPLORATION SURVEYS SCOPE AND FEE

Northland Exploration Surveys, Inc.

August 30, 2022

WSP USA, Inc.
Jason Carlaftas
1230 West Washington Street
Suite 405
Tempe, AZ 85281

RE: Survey services for the City of Flagstaff Downtown Mile, City of Flagstaff, Arizona.

Dear Mr. Carlaftas,

We appreciate the opportunity to offer survey services for the above mentioned project. We understand that we will conduct those survey services per your email dated August 15, 2022:

1. Conduct the research and field survey necessary to determine the location of the existing Right of Way of Milton Road, Route 66, ATSF Right of Way and adjoining streets and parcels.

2. Conduct a topographic survey of the areas outlined in the above mentioned email. This will include all visible improvements, including, but not limited to, street improvements, visible utilities (including measure-downs), the existing Rio De Flag wash

3. Draft those items surveyed and the boundaries surveyed and any existing recorded easements over the effected parcels at a scale of 1" = 20'. We will also include the current owner and record information for the parcels affected with calculated parcel side lines.

4. Coordinate with other sub-consultants, such as Survwest, concerning coordinating their information with ours.

5. Calculate and draft any temporary construction easements for the project.

6. Conduct any additional surveying, research and computations as needed for additional information.

The survey and map will be surveyed in the Arizona Central Coordinate system, scaled to ground at a central control point and NGVD88 elevations.

We propose to conduct the above mentioned services for the following costs:

Parcel Research/Right of Way survey:

24 hours @ $170:	$ 4,080.00
32 hours @ $120:	$ 3,840.00
Subtotal:	**$ 7,920.00**

Topographic survey:

40 hours @ $170:	$ 6,800.00
24 hours @ $120:	$ 2,880.00
Subtotal:	**$ 9,680.00**

Coordination:

16 hours @ $120:	$ 1,920.00
Subtotal:	**$ 1,920.00**

Temporary Construction Easements/Takings:

40 hours @ $120:	$ 4,800.00
Subtotal:	**$ 4,800.00**

Additional surveying/research:

16 hours @ $170:	$ 2,720.00
24 hours @ $120:	$ 2,880.00
Subtotal:	**$ 5,600.00**

Railroad surveying/research:

40 hours @ $170:	$ 6,800.00
24 hours @ $120:	$ 2,880.00
Subtotal:	**$ 9,680.00**

Total Initial Estimate/Cost: **$39,600.00**

If the above mentioned proposal is agreeable to you, please sign and either FAX or mail this proposal back to us. Again, we appreciate the opportunity to offer survey services to you.

Kenneth A. Krenke
Chief Surveyor

Accepted this _____ day of _____, 2022.

_____
Jason Carlaftas
For WSP USA, Inc.

WPSUSACOFDowntownMile

WHEAT DESIGN GROUP SCOPE AND FEE

WHEAT | DESIGN GROUP
LANDSCAPE ARCHITECTS

August 25, 2022

Jason Carlaftes, P.E.
WSP

RE: City of Flagstaff, Downtown Mile Project
RSOQ NUMBER: 2022-108

Hello Jason,
We are pleased to submit this Scope and Fee proposal for providing landscape architecture services for the City of Flagstaff, Downtown Mile project. Please refer to the attached Workhour Estimates for a detailed breakdown of services and associated fees.

SCOPE OF WORK

Assumptions:

1. *Scope does not include a native plant inventory.*
2. *The following City of Flagstaff Engineering Standards will be used for design of landscape architectural project features: Title 10 – Streets; Title 17 - Erosion Control; Title 18 - Landscaping Standards for Rights-of-Way; and Title 19 - Irrigation Systems.*
3. *LID/green infrastructure will be integrated into our hardscape and landscape plans where feasible. City of Flagstaff's Low Impact Development Manual (January 2009) will be utilized during design.*
4. *WSP will provide CAD base design files and aerials.*
5. *Structure aesthetics includes formliner design for retaining walls, bridge barrier, piers and abutments.*
6. *Wheat Design Group will design all structure aesthetics and hardscape/streetscape elements.*
7. *Design of structure aesthetics and hardscape/streetscape elements will be presented to the City of Flagstaff's Beautification and Public Art Commission for review.*
8. *Erosion Control plans will be developed for both the roadway and BNSF.*
9. *The technical review, checking procedures, and monitoring process shall follow WSP's Project Specific Quality Management Plan, including internal QC Reviews and Interdisciplinary Reviews. Hours are allocated for QC review for each submittal.*
10. *All submittals will be in pdf format; including no mylars for Signed & Sealed Final submittal.*
11. *All submittals will be emailed to WSP.*

TASK 1.0 PROJECT MANAGEMENT / MEETINGS

This task includes project administration, invoices, managing project files, and preparing for and attending project meetings. Meetings include:

- (9) Project team technical meetings (1x per month)(all virtual)
- (9) Team Working Group (TWG) meetings (1x per month)(all virtual)
- (2) Over-the-Shoulder Review Meetings (after 60% and 90% submittals)(virtual)
- (2) Site Visits for research and other miscellaneous meetings (in Flagstaff)

TASK 2.0 PUBLIC INVOLVEMENT

Public involvement includes:

- Preparation and attendance to (2) Public Meetings (in Flagstaff)

Deliverables:

1. (2) Exhibit boards for each Public Meeting reflecting landscape/aesthetic concepts (36" x 48" board). Graphics on boards will include rendered elevations, rendered plans and section views, plant palette, and supporting images (4 boards total).

TASK 3.0: 60% SUBMITTAL

Preliminary Design Submittal (60%): Design plans, special provisions and cost estimate will be developed to an approximate 60% level design and submitted to the City of Flagstaff. This level of design will include all major features but not have complete details included with submission. Intent of this submittal is to provide enough information to the City and Stakeholders to perform a 60% level review of concepts and provide comments to the Design Team.

Deliverables:

1. Preliminary Structures Aesthetics key map and details
2. Preliminary Hardscape/ streetscape plans and details
3. Preliminary Landscape plans and details
4. Preliminary Irrigation plans and details
5. Preliminary Erosion control plans and details
6. Quantities and cost estimate
7. Preliminary Special Provisions

TASK 4.0: 90% SUBMITTAL

Final Design Submittal (90%): Design plans and special provisions will be developed to an approximate 90% level design and submitted to the City for review. This level of design is considered substantially complete and will include all major features and supporting details. This submittal is intended to allow the City and Stakeholders a final review of the project for comments prior to Release for Construction.

Deliverables:

1. Final Structures Aesthetics key map and details
2. Final Hardscape/ streetscape plans and details
3. Final Landscape plans and details
4. Final Irrigation plans and details
5. Final Erosion control plans and details
6. Quantities and cost estimate
7. Final Special Provisions

TASK 5.0 Plans, Specifications and Estimate (PS&E) SUBMITTAL

PS&E (Sealed Plans): Sealed plans, special provisions and cost estimate will be submitted to the City for acceptance.

Deliverables:

1. Signed & Sealed plans, Cost Estimate and Special Provisions

WHEAT | DESIGN GROUP
LANDSCAPE ARCHITECTS

TASK 6.0 SWPPP BOOK

To be submitted with the 90% submittal.

Deliverables:

1. SWPPP Book for Contractor using ADOT template

FEES

Total consultant cost is **$91,766.00.** Work will be provided on a lump sum basis. The work will be based on the hourly rates provided and based on the hours and tasks listed in the attached cost derivation documents. Work beyond this scope will be considered additional services and will not proceed without approval from the Client. Additional work may be provided under a separate contract amendment.

We very much look forward to working with WSP and the City of Flagstaff on this project.

Sincerely,

Laura Mielcarek
Principal, Wheat Design Group

WHEAT | DESIGN GROUP
LANDSCAPE ARCHITECTS

Wheat Design Group DERIVATION OF COST PROPOSAL SUMMARY

PROJECT: **City of Flagstaff, Downtown Mile Project** DATE: 8/25/2022

Flagstaff Project No.:
CONTRACT TIME: 9 Months
CONTRACT TYPE: Lump Sum

CONSULTANT: Wheat Design Group, Inc.
PREPARED BY: Laura Mielcarek, Principal
DBE: #1025

DIRECT LABOR COST

TASK DESCRIPTION	CLASSIFICATION	No. HOURS Hours	UNIT RATES	TOTAL COST Cost
Landscape Architectural Services	Project Manager-Sr.	182	$160.00	$29,120.00
	Registered LA	168	$138.00	$23,184.00
	Designer	204	$102.00	$20,808.00
	CADD Technician	166	$95.00	$15,770.00

(A) Direct Labor 720 Hrs. **$88,882.00**

DIRECT EXPENSES

TRAVEL (Rental car, fuel, lodging, meals for site visit)		$2,596.00
EXHIBITS (36" x 48" boards)		$288.00
	=	**$2,884.00**

(E) OUTSIDE SERVICES & SUBCONSULTANT COSTS

Sub Names	Sub Fees

(F) TOTAL COST FOR ALL SUBCONSULTANT AND OUTSIDE SERVICES = **$0.00**

(G) TOTAL COST = **$91,766.00**

Laura Mielcarek, Principal

8/25/2022
Date

8/25/2022

Wheat Design Group Workhour Estimate by Task
City of Flagstaff, Downtown Mile Project

	Description	Project Manager-Sr.	Registered LA	Designer	CADD Technician	TOTAL
1.0	**Project Management / Meetings**					
	Project Management (over 18 months)	18	0	0	0	18
	Project team technical meetings (18)	18	0	0	0	18
	Team Working Group (TWG) Meetings (18)	18	0	0	0	18
	Over-the-shoulder Review Meetings after submittals (2)	4	4	0	0	8
	Site Visits (2) (2 people)	24	24	0	0	48
	Subtotal	**82**	**28**	**0**	**0**	**110**

	Description	Project Manager-Sr.	Registered LA	Designer	CADD Technician	TOTAL
2.0	**Public Involvement**					
	Preparation and attendance to Public Meetings (2)	24	28	24	24	100
	Subtotal	**24**	**28**	**24**	**24**	**100**

	Description	Project Manager-Sr.	Registered LA	Designer	CADD Technician	TOTAL
3.0	**60% Submittal**					
	Initial Structure aesthetics key map and details	2	8	24	24	58
	Initial Hardscape/streetscape plans and details	2	6	12	12	32
	Initial Landscape plans and details	2	6	12	12	32
	Initial Irrigation plans and details	2	6	12	12	32
	Initial Erosion control plans and details	2	8	12	12	34
	Quantities and Cost Estimate	2	6	0	0	8
	Special Provisions	8	0	0	0	8
	Project Specific Quality Management Plan	8	8	8	0	24
	Subtotal	**28**	**48**	**80**	**72**	**228**

	Description	Project Manager-Sr.	Registered LA	Designer	CADD Technician	TOTAL
4.0	**90% Submittal**					
	Final Structure aesthetics key map and details	2	6	16	16	40
	Final Hardscape/streetscape plans and details	2	4	8	6	20
	Final Landscape plans and details	2	4	8	6	20
	Final Irrigation plans and details	2	4	8	6	20
	Final Erosion control plans and details	2	4	8	6	20
	Quantities and Cost Estimate	2	4	0	0	6
	Special Provisions	6	0	0	0	6
	Project Specific Quality Management Plan	8	8	8	0	24
	Subtotal	**26**	**34**	**56**	**40**	**156**

	Description	Project Manager-Sr.	Registered LA	Designer	CADD Technician	TOTAL
5.0	**RFC Submittal**					
	Signed & Sealed plans, Cost Estimate and Special Provisions	4	8	6	6	24
	Project Specific Quality Management Plan	8	8	8	0	24
	Subtotal	**12**	**16**	**14**	**6**	**48**

	Description	Project Manager-Sr.	Registered LA	Designer	CADD Technician	TOTAL
6.0	**SWPPP Book**					
	Production of SWPPP Book	4	8	24	24	60
	Project Specific Quality Management Plan	6	6	6	0	18
	Subtotal	**10**	**14**	**30**	**24**	**78**
	TOTAL WORKHOURS	**182**	**168**	**204**	**166**	**720**

8/25/2022

EXHIBIT A: ESTIMATED DIRECT EXPENSES

TRAVEL: SITE VISITS

Mileage:	# of Trips	avg. mi. per round trip	Cost/mi.	Cost	Notes
	4	520	$0.625	$1,300.00	

Lodging:	Trips	Rooms per night	Cost/night	Cost	
	4	2	$96.00	$768.00	4 Trips to Flagstaff

Meals:	Days	2 Meals Per Day for 2 people	Cost/Day	Cost	
	4	8	$66.00	$528.00	2 meals per day for 2 people

TOTAL TRAVEL =	$2,596.00

PLOTTING

say 0 total

	No. of Copies	Cost per Copy	Cost
Vellum Plots (24x36)		$3.50	$0.00
Photo Mylars		$9.00	$0.00

TOTAL PLOTS =	$0.00

REPRODUCTIONS:

Reports (See EXHIBIT B) $0.00

Copies other than reports

Color Copies	No. of Copies	Cost per Copy	Cost
8 1/2"x11'		$0.50	$0.00
11"x17"		$1.50	$0.00
Black & White Copies			
8 1/2"x11'		$0.05	$0.00
11"x17"		$0.12	$0.00
Blacklines (24x36)		$1.50	$0.00

TOTAL REPRODUCTIONS =	$0.00

EXHIBITS

	No. of Copies	Cost per Copy	Cost
Aerial Photo, 40 scale		$8.00	$0.00
(Mounting on 36" x 48" Foam Board for public meetings)	4	$72.00	$288.00
Presentation Blacklines		$4.00	$0.00
Color Photo Reductions		$8.00	$0.00

TOTAL EXHIBITS =	$288.00

SPECIALIZED VENDORS

	Cost
IAS Laboratories - Horticultural Soil Analysis	$0.00
Vendor Name	$0.00
Vendor Name	$0.00

TOTAL SPECALIZED VENDORS =	$0.00

GSI SCOPE AND FEE

Geomechanics Southwest, Inc.

5435 W Mohave St
Phoenix, Arizona 85043
602-252-0559
AROC 079441 / ADWR 498 www.gsidrilling.com

Date: August 23, 2022
Proposal # 15422P

Kevin Porter, P.E.
WSP USA
350 W Washington Street, Suite 300
Tempe, Arizona 85281
Kevin.porter@wsp.com

RE: Flagstaff Downtown Mile R3

SCOPE: Auger / Core Work with Truck Mount

- **Provide a CME-75HT truck mounted drill & 3-man Crew.**
- **Drill will come equipped with 4-1/4"ID HSA, HQ3 Wireline Core & associated support equipment.**
- **Auger/Sample / Core the following:**
  - **three (3) bridge borings to a maximum depth of 75-ft each (Night Work).**
  - **Three (3) roadway borings to a maximum depth of 10-ft each.**
- **Drive SPT's and ring lined barrels at 5-ft intervals to depth in each boring.**
- **Continuous core when refusal is encountered.**
- **GSI will subcontract all concrete coring and patch with fast set non-shrink grout.**
- **GSI will provide non-Potable water from the Flagstaff reclaimed water services for coring.**
- **GSI will permit and grout any borings that encounter gw per ADWR, charges will apply.**
- **GSI will provide BNSF trained crews, no additional insurance costs assumed.**

ITEM	QUANTITY	UNITS	UNIT PRICE	LINE TOTAL
Mobilization / Demobilization	1	EACH	1850.00	$1,850.00
Daily Prep / Local Travel / Interim Travel	6	DAYS	250.00	$1,500.00
Auger / Sample	45	L.F.	17.50	$ 787.50
HQ3 Core	135	L.F.	52.00	$7,020.00
Core Bit / Fluid Charges	135	L.F.	12.50	$1,687.50
Core Boxes (wax impregnated)	14	EACH	12.50	$ 175.00
Support Truck/Water Truck/Water Wagon	7	DAYS	1100.00	$7,700.00
Access / Safety / Clean Up / Client Directed Standby (est., qty.)	7	HRS.	230.00	$1,610.00
ADWR Permitting	1	EACH	250.00	$ 250.00
Grout Abandonment	180	L.F.	10.00	$1,800.00
Geotech Ring Sets	15	EACH	28.50	$ 427.50
Additional Crew Member	7	DAYS	500.00	$3,500.00
Night Surcharge	60	HRS.	55.00	$3,300.00
Light Plant	6	NIGHTS	175.00	$1,050.00
Pavement Core	6	EACH	420.00	$2,520.00
Pavement Patch	6	EACH	75.00	$ 450.00
Crew Expenses (3-men) lodging $146.00 per man	6	NIGHTS	438.00	$2,628.00
Crew Expenses (3-men) M&IE $56.00 per man	7	DAYS	168.00	$1,176.00
BNSF / eRailSafe Training	0	EACH	345.00	$ 0.00
			ESTIMATED TOTAL	**$39,431.50**

We estimate completion time of 7 rig days on-site to complete, based on the assumptions listed above.

SCOPE: Auger / Core Work with Track Mount

- **Provide a CME-75HT truck mounted drill & 3-man Crew.**
- **Drill will come equipped with 4-1/4"ID HSA, HQ3 Wireline Core & associated support equipment.**
- **Auger/Sample / Core the following:**
  - **Two (2) bridge borings to a maximum depth of 75-ft each.**
  - **five (5) ret wall borings to a maximum depth of 50-ft.**
- **Drive SPT's and ring lined barrels at 5-ft intervals to depth in each boring (3-additional in upper 10-ft).**
- **Continuous core when refusal is encountered.**
- **GSI will provide non-Potable water from the Flagstaff reclaimed water services for coring.**
- **GSI will permit and grout any borings that encounter gw per ADWR, charges will apply.**
- **GSI will provide BNSF trained crews, no additional insurance costs assumed.**

ITEM	QUANTITY	UNITS	UNIT PRICE	LINE TOTAL
Mobilization / Demobilization	1	EACH	2400.00	$2,400.00
Daily Prep / Local Travel / Interim Travel	9	DAYS	250.00	$2,250.00
Auger / Sample	105	L.F.	22.00	$2,310.00
HQ3 Core	295	L.F.	66.00	$19,470.00
Core Bit / Fluid Charges	295	L.F.	12.50	$3,687.50
Core Boxes (wax impregnated)	30	EACH	12.50	$ 375.00
Support Truck/Water Truck/Water Wagon	10	DAYS	1100.00	$11,000.00
Access / Safety / Clean Up / Client Directed Standby/Weather Delays/Brush Clearing (est., qty.)	18	HRS.	295.00	$5,310.00
ADWR Permitting	0	EACH	250.00	$ 0.00
Grout Abandonment	400	L.F.	10.00	$4,000.00
Geotech Ring Sets	20	EACH	28.50	$ 570.00
Additional Crew Member	10	DAYS	500.00	$5,000.00
Crew Expenses (3-men) lodging $146.00 per man	9	NIGHTS	438.00	$3,942.00
Crew Expenses (3-men) M&IE $56.00 per man	10	DAYS	168.00	$1,680.00
BNSF / eRailSafe Training	1	EACH	345.00	$ 345.00
		ESTIMATED TOTAL		**$62,339.50**

We estimate completion time of 10 rig days on-site to complete, based on the assumptions listed above.

We at Geomechanics Southwest Inc., appreciate the opportunity to provide you with an estimate. If you have any questions, please don't hesitate to call or email us. We look forward to hearing from you soon.

Respectfully submitted by,

GEOMECHANICS SOUTHWEST, INC.

Mike Shelquist
Operations Manager

Copies (1) addressee
WSP 082222 – Flagstaff Downtown Mile R3

QUAIL SCOPE AND FEE

QUAIL CONSTRUCTION
Serving Arizona Since 1999

Quail Construction LLC Flagstaff Division
7200 E 31st Place
Yuma, AZ 85365
928-314-1212

QUOTATION

Quote Date	Quote ID
8/19/2022	081922CDS3

Valid Through: 9/18/2022

WSP USA, Inc.
Kevin Porter

Phone: 480-449-4933

Email: kevin.porter@wsp.com

Job Location:
Historic Route 66 & N Humphreys St.
Flagstaff
Quote Created By: Colby Stumm

Bid Line#	Item Description	Price	UOM	Qty/Day	Days	Total Qty.	Total
S-2	Equipment - W/B RLC & Hard Closure *	$195.00	Per Day	1	2	2	$390.00
S-2	Setup or Pickup - W/B RLC & Hard Closure	$202.50	Per Day	2	2	4	$810.00
S-3	Equipment - W/B LLC *	$102.50	Per Day	1	2	2	$205.00
S-3	Setup or Pickup - W/B LLC	$140.00	Per Day	2	2	4	$560.00
S-4	Equipment - N/B RLC *	$102.50	Per Day	1	2	2	$205.00
S-4	Setup or Pickup - N/B RLC	$140.00	Per Day	2	2	4	$560.00
R-1	Equipment - S/B LTBC *	$50.00	Per Day	1	2	2	$100.00
R-1	Setup or Pickup - S/B LTBC	$75.00	Per Day	2	1	2	$150.00
R-1, R-2	Shadow Vehicle	$75.00	Per Hour	4	2	8	$600.00
R-3	No Parking Signs *	$1.25	Per Each	15	2	30	$37.50
R-3	Set & Remove Lane Shift	$155.00	Per Day	1	1	1	$155.00
UnloadZone	Shadow Vehicle - Unload Zone	$75.00	Per Hour	3	1	3	$225.00
12 / Lane	18" Flag on Dowel *	$2.50	Per Each	36	1	36	$90.00
10 / Lane	Sand Bag (filled) *	$2.50	Per Each	30	1	30	$75.00
Per Loc.	Traffic Control Plan *	$60.00	Per Each	7	1	7	$420.00

Note: The * indicates taxable items.

EQUIPMENT	$937.50
ONE TIME CHARGES	$585.00
LABOR	$3,060.00
SUBTOTAL	$4,582.50
SALES TAX (9.181%)	$139.78
QUOTE TOTAL	$4,722.28

This quote is for traffic control equipment and labor required to access the 7 specified work areas.
Locations: S-2, S-3, S-4, R-1, R-2, R-3, and "Unload Zone"

Each location has a daily cost for equipment and labor. Sand bags, flags and TCPs will be charged as needed.

Any closure or additional labor outside this scope of work will be charged at time and material.

Add'l Terms: This quote is valid for 90 days.

Initials _____

8/19/2022

Colby Stumm
Quail Construction LLC Flagstaff Division

Date

Accepted By:

Signature

Date

Print Name

Title

Company

WOOD SCOPE AND FEE

PROPOSAL / ORDER FOR TESTING SERVICES

Wood Environment & Infrastructure Solutions, Inc. 3630 E. Wier Avenue Phoenix, AZ 85040 Phone: 602-437-0250 Email:	Wood Project No.: Wood Remittance Address (if different than address to the left): **Wood Environment & Infrastructure Solutions, Inc.**

Wood is pleased to present the following proposal to conduct Materials Testing Services to:

CLIENT	WSP US	Proposal No.: PB22-08-09
	1230 W. Washington St., Suite 405	Comments: Cost Plus – No Max All other testing requested will be billed per Wood's attached 2022 Fee Schedule
	Tempe, Arizona 85281	
	Kevin Porter	
	Office: 480-966-8295 Kevin.Porter@wsp.com	

ITEM	QUANTITY	UNIT	DESCRIPTION	UNIT PRICE	EXTENDED PRICE
1	**1**	**1**	**Attached Proposal No. PB22-08-09**	**$7,900.00**	**$7,900.00**
			Estimated Project Sub Total	**TOTAL**	
			Office Expense and Report Charge of 6%		

Wood will perform the testing services specified above subject to and in accordance with the terms and conditions on the face and reverse of or attached to this Order. By signing below, the signatory certifies that he is duly authorized to sign this Order and incur the charges as specified herein and to accept all terms and conditions of this Order for and on behalf of CLIENT. Unless otherwise stated as a lump sum, Wood will only invoice for actual services authorized and performed at the rates above.

(Not including applicable taxes)

Wood:

Signature	Print Name/ Title	Date
Signature	Print Name/Title	Date

CLIENT: (Upon Signature by Client, this Proposal will be a binding order for testing services.)

Signature	Print Name	Date

Wood Environment & Infrastructure Solutions, Inc.
TESTING SERVICES TERMS AND CONDITIONS

DEFINITIONS: "Wood" shall mean Wood Environment & Infrastructure Solutions, Inc., and "CLIENT" shall mean exclusively the party for whom Wood is providing testing services as set forth on the face of this Order. "Order" shall mean the contract between Wood and CLIENT created by this document

COMPENSATION: Wood will be compensated for testing services as specified on the face of this Order. Unit prices shall govern in the event of any discrepancy between unit prices and extended prices. Invoices will be submitted at least monthly for Services rendered. Terms of payment are net thirty (30) days from date of invoice with a late fee of one and one-half percent (1.5%) per month or eighteen percent (18%) per annum or the maximum amount allowable by law on balances past due. Interest shall be computed at 31 days from the date of invoice. In addition, any collection fees, attorneys' fees, court costs, and other related expenses incurred by Wood in the collection of delinquent invoice amounts shall be paid by CLIENT.

If CLIENT reasonably objects to all or any portion of an invoice, CLIENT shall notify Wood of that fact in writing within ten (10) days from the date of receipt of Wood's invoice, give reasons for the objection, and pay that portion of the invoice not reasonably in dispute. Failure of CLIENT to provide such written notice within the allowed ten (10) day period shall be deemed to be a waiver of all objections to that invoice.

CLIENT's payment shall represent CLIENT's acceptance of the Services invoiced by Wood. Wood may suspend performance of Services under this Agreement if: (i) CLIENT fails to make payment in accordance with the terms hereof, or (ii) Wood reasonably believes that CLIENT will be unable to pay Wood in accordance with the terms hereof and notifies CLIENT in writing prior to such suspension of Services. Such suspension shall continue until Wood has been paid in full for all balances past due including applicable service charges and CLIENT provides Wood with adequate assurance of CLIENT's ability to make future payments in accordance with the terms hereof. If any such suspension causes an increase in the time required for the performance of any part of the Services, the performance schedule and/or period for performance shall be extended for a period of time equal to the suspension period.

If the payments under this Agreement are based on a time and materials basis, after January 1 of each subsequent calendar year, the rates may be increased by Wood up to an overall average increase of five percent (5%); provided that an overall average increase in excess of five percent (5%) shall be subject to CLIENT's approval. Wood shall provide CLIENT with thirty (30) days advance notice of any change in rates.

SAMPLE RETRIEVAL AND DISPOSAL: Unless otherwise specified, CLIENT shall retrieve and dispose of, in accordance with applicable law, all test samples and sample residuals within thirty (30) days of Wood's transmittal of test results to CLIENT. Test samples and sample residuals not retrieved within 30 days may be disposed of, at Wood's sole discretion, and/or will be subject to Wood's then-current storage fees for which CLIENT agrees to be fully responsible and pay promptly.

WARRANTY: Wood will strive to perform testing services and present results in accordance with currently accepted practices and standards for firms engaged in similar work and using personnel and equipment suitable therefor. THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EITHER EXPRESS OR IMPLIED, INCLUDING ANY WARRANTIES OF MERCHANTABILITY OR FITNESS FOR PURPOSE.

INDEMNIFICATION: CLIENT shall indemnify and save Wood harmless from and against loss, damage, injury, costs (including attorneys' fees and cost of investigation), or liability to the extent arising from: (i) the negligent acts or omissions or willful misconduct of CLIENT and its employees and agents, and/or (ii) any allegation that Wood is the owner or operator of a site or arranged for the treatment, transportation or disposal of hazardous materials.

LIMITATION OF LIABILITY: ***CLIENT's sole and exclusive remedy for any alleged breach of warranty by Wood shall be to require Wood to re-perform any defective testing services; however, fees and costs to re-perform testing services shall not exceed the Order value paid or to be paid to Wood. Notwithstanding any other provision of this Order, the total liability of Wood, its officers, directors and employees for liabilities, claims, judgments, demands and causes of action arising under or related to this Order, whether based in contract or tort, shall be limited to the lesser of Wood's fee as set forth on the face of this Order, the amount actually paid to Wood under this Order, or $5,000. All claims by CLIENT shall be deemed relinquished unless filed within one (1) year after completion of the testing services by Wood.***

Wood and CLIENT each hereby waive any right to recover from the other party for any special, incidental, indirect, or consequential damages (including, but not limited to: loss of use, loss of revenue, loss of profit, loss of contracts, loss of product or production, or loss of business opportunity) incurred by either Wood or CLIENT or for which either party may be liable to any third party, which damages have been or are occasioned by services performed or reports prepared or other work performed hereunder.

ASSIGNMENT AND SUBCONTRACTING: CLIENT shall not assign this Order without the prior written approval of Wood. Wood may subcontract portions of the testing services to a qualified subcontractor without prior approval of CLIENT.

TERMINATION: Wood may terminate this Order upon prior written notice to CLIENT. Upon termination, CLIENT shall pay Wood for all services performed hereunder through the date of termination.

FORCE MAJEURE: Should performance of Services by Wood be affected by causes beyond its reasonable control, Force Majeure results. Force Majeure includes but is not restricted to: acts of God; acts of a legislative, administrative or judicial entity; acts of contractors other than contractors engaged directly by Wood; earthquakes; fires; floods; labor disturbances; epidemics, pandemics; and unusually severe weather. Wood will be granted a time extension and the parties will negotiate an equitable adjustment to the price of any affected Services, where appropriate, based upon the effect of the Force Majeure on performance by Wood. The Parties agree that the current COVID-19 Pandemic shall be deemed a Force Majeure under this section and that any on-going or future potential or actual disruptions, or delays in performance of services or deliverables related to the COVID-19 Pandemic will be subject to the time and compensation requirements listed in this Section 6.

DOCUMENTS: All reports or other documents (or copies) furnished to Wood by CLIENT, shall at CLIENT'S written request, be returned upon completion of the services hereunder; provided, however, that Wood may retain one (1) copy of all such documents. All reports or documents (or copies thereof) in any form prepared by Wood under this Order are Instruments of Service and are prepared for the sole and exclusive benefit of the CLIENT. Wood has title to all Instruments of Service. CLIENT'S right of use is limited to specified deliverables as set forth in this Order, if any.

WAIVER: The failure of either Wood or CLIENT in any one or more instances to enforce one or more of the terms or conditions of this Order or to exercise any right or privilege in the Order or the waiver by Wood or CLIENT of any breach of the terms or conditions of this Order shall not be construed as thereafter waiving any such term, condition, right, or privilege, and the same shall continue and remain in force and effect as if no such failure to enforce had occurred.

DISPUTES: If a claim, dispute, or controversy arises out of or relates to the interpretation, application, enforcement, or performance of services under this Order, Wood and CLIENT agree first to try in good faith to settle the dispute by negotiations between senior management of Wood and CLIENT. If such negotiations are unsuccessful, Wood and CLIENT agree to attempt to settle the dispute by good faith mediation if both parties agree. If the dispute cannot be settled through mediation, and unless otherwise mutually agreed, the dispute shall be settled by litigation in an appropriate court in the state of the Wood office entering into this Order. CLIENT hereby waives the right to trial by jury for any disputes arising out of this Order. Except as otherwise provided herein, each party shall be responsible for its own legal costs and attorneys' fees.

GOVERNING LAW: This Order shall be governed and construed in accordance with the laws of the state of the Wood office entering into this Order.

INDEPENDENT CONTRACTOR: Wood shall be fully independent in performing the services and shall not act as an agent or employee of CLIENT.

FIELD REPRESENTATION: Unless otherwise expressly agreed in writing, Wood shall not be responsible for the safety or direction of the means and methods of contractors or their employees or agents not retained by Wood, and the presence of Wood at the CLIENT's site will not relieve the contractor of its responsibilities for performing the work in accordance with applicable regulations, or in accordance with project plans and specifications. If necessary, CLIENT will advise any contractors that Wood's services are so limited. Wood will not assume the role of "prime contractor", "principal contractor", "constructor", "controlling employer", or their equivalents unless the scope of such services are expressly agreed in writing.

ANTI-BRIBERY: The Parties undertake to protect the standards of business practice of the other Party at all times and to act in such a way as to uphold the good name and reputation of the other Party and not to do or attempt to do any act or thing which is intended to and/or which in fact causes any damage to or brings discredit upon the other Party and, in particular, the Parties will not:
(a) Offer or give or agree to give to any director, officer, employee or agent of the other Party or any other entity any gift or consideration of any kind as an inducement or reward for doing or for forbearing to do or for having done or forborne to do any action in relation to the obtaining or execution of any contract or for showing or forbearing to show any favor or disfavor to any person in relation to any contract.
(b) Induce or attempt to induce any officer, servant or agent of any private or public body to depart from his duties to his employer nor be involved with any such arrangement.

ESTIMATE: This Proposal is an estimate based upon our review of the project specifications and the proposed construction schedule. Additional services requested beyond the above outlined scope of services will be charged in accordance with our Standard Material Testing Unit Fee Schedule which is available upon request. Costs incurred for retesting or standby time are not included.

ENTIRE AGREEMENT/ACCEPTANCE: The terms and conditions set forth herein constitute the entire understanding of Wood and CLIENT. All previous proposals, offers, and other communications relative to the provisions of these services are hereby superseded. CLIENT acknowledges and agrees that its use of any purchase order or other form to procure services is solely for administrative purposes and in no event shall Wood be bound to any terms and conditions on such form regardless of reference to or signature. CLIENT shall endeavor to reference this Order on any purchase order (or any other form), but CLIENT's failure to do so shall not operate to modify this Order.

CLIENT's Initials

August 18, 2022, Revised August 19, 2022

WSP USA
1230 W. Washington St., Suite 405
Tempe, Arizona 85281

Attention: Kevin Porter, P.E.

Re: Flagstaff Downtown Mile

Wood Environment & Infrastructure Solutions, Inc. (Wood) is pleased to submit this cost proposal for laboratory testing. It is our understanding that WSP USA will perform the sampling and will submit the samples to Wood's Phoenix laboratory for testing.

ITEM			
LABORATORY TESTING	**QUANTITY**	**EACH**	**TOTAL**
Sieve Analysis	10	$70.00	$700.00
Ring Density	8	$30.00	$240.00
Atterberg Limits	10	$85.00	$850.00
One Dimensional Consolidation	2	$285.00	$570.00
Direct Shear	6	$350.00	$2,100.00
Expansion (Swell)	0	$160.00	$0.00
R-Value	2	$300.00	$600.00
pH/Resistivity	4	$160.00	$640.00
Sulfates and Chlorides	4	$70.00	$280.00
Unconfined Compression Strength of Rock Cores w/ Density	30	$55.00	$1,650.00
Moisture Density Relationship (Proctor)	2	$135.00	$270.00
		TOTAL	**$7,900.00**

Should you have any questions concerning this proposal, we would appreciate the opportunity to review and clarify.

Respectfully submitted,
Wood Environment & Infrastructure Solutions, Inc.

Hiram Franco

Hiram Franco
Laboratory Manager
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Scott Thompson

Scott Thompson
Construction Materials Manager
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Construction Materials Testing and Inspection
Wood – Phoenix 2022 Fee Schedule

Aggregate Testing

A.	Aggregate Durability Index (ASTM D3744, AASHTO T210)	$	210.00/each
B.	Artificial Crushing		200.00/each
C.	Moisture-Density Relationship (Bulking Effect)(AASHTO T-19 as applicable)		95.00/each
D.	Calcium Carbonate Percent by Weight in Aggregates		Quote
E.	California Bearing Ratio (CBR) with Modified Proctor (ASTM D1883, AASHTO T193)		550.00/each
F.	California Bearing Ratio (CBR) with Standard Proctor (ASTM D1883, AASHTO T193)		500.00/each
G.	Clay Lumps and Friable Particles (ASTM C142, AASHTO T112)		125.00/each
H.	Cleanliness Value (CTM 227)		200.00/each
I.	Crushing Coarse Aggregate for Potential Alkali Reactivity		250.00/each
J.	Flakiness Index of Aggregate (ARIZ 233)		110.00/each
K.	Flat and Elongated Particles (ASTM D4791)		175.00/each
L.	Fractured Faces (ARIZ 212, FLH507)		95.00/each
M.	L.A. Abrasion of Coarse Aggregate (ASTM C535)		250.00/each
N.	L.A. Abrasion of Coarse Aggregate (ASTM C131) (AASHTO T96)		200.00/each
O.	Max. Dry Unit Weight and Water Content Range Using Vibrating Hammer (ASTM D7382)		350.00 each
P.	Max. Index Density and Unit Weight of Soils Using a Vibratory Table (ASTM D4253)		250.00 each
Q.	Min. Index Density and Unit Weight of Soils and Calculation of Relative Density (ASTM D4254)		250.00 each
R.	Organic Content (ASTM D2975, AASHTO T267)		125.00/each
S.	Organic Impurities in Fine Aggregate (ASTM C40, AASHTO T21)		145.00/each
T.	Percent Carbonates in Aggregate (ARIZ 238)		110.00/each
U.	Potential Alkali Reactivity of Aggregate		Quote
V.	Sand Equivalent (ASTM D2419, AASHTO T176)		90.00/each
W.	Sand Equivalent, ADOT Wash Method (ARIZ 242)		125.00/each
X.	Sieve Analysis, Coarse (Dry Sieve) (ASTM C136, AASHTO T27, ARIZ 201)		50.00/each
Y.	Sieve Analysis, Coarse and Fine, Washed (ASTM C136, AASHTO T27, ARIZ 201)		70.00/each
Z.	Sieve Analysis, Fine, Washed (ASTM C136, AASHTO T27, ARIZ 201)		70.00/each
AA.	Soundness of Aggregate by Use of Sodium (Magnesium) Sulfate (ASTM C88, AASHTO T104)		250.00/each
BB.	Specific Gravity and Absorption of Coarse Aggregate (ASTM C127, AASHTO T85, ARIZ 210)		85.00/each
CC.	Specific Gravity and Absorption of Fine Aggregate (ASTM C128, AASHTO T84, ARIZ 211)		100.00/each
DD.	Uncompacted Void Content (ARIZ 247, & FHWA & AASHTO)		125.00/each
EE.	Unit Weight and Voids in Aggregate (ASTM C29, AASHTO T19)		75.00/each
FF.	Unit Weight, Moisture Density Relationship (Bulking Effect) (ASTM C29, AASHTO T19)		175.00/each
GG.	Methylene Blue Value of Mineral Aggregate		285.00/each
HH.	Vaughan and Soares Testing		350.00/each

Soils Testing

A.	Collapse Potential of Soils (ASTM D5333)	$	200.00/each
B.	Consolidation (ASTM D2435, AASHTO T216)		285.00/each
C.	Direct Shear (ASTM D3080)		350.00/each
D.	Direct Shear Remolded (ASTM D3080)		375.00/each
E.	Hydrometer Analysis (ASTM D422, AASHTO T88) (includes Sieve Analysis C136)		280.00/each
F.	Natural Soil Moisture Content (ASTM D2216, AASHTO T265)		19.00/each
G.	One-Dimensional Expansion (Swell) (ASTM D4546) Undisturbed		160.00/each
H.	pH and Minimum Resistivity of Soils and Aggregates (ARIZ 236)		160.00/each
I.	pH of Soils and Aggregates (AZ 236)		42.00/each
J.	Minimum Resistivity of Soils and Aggregates (AZ 236)		130.00/each
K.	Plasticity Index (Dry Prep) (ASTM D4318, AASHTO T89/90)		85.00/each
L.	Plasticity Index (Wet Prep) (ASTM D4318, AASHTO T89/90/T146)		120.00/each
M.	Proctor-Modified (ASTM D1557, AASHTO T180)		155.00/each
N.	Proctor-Standard (ASTM D698, AASHTO T99, ARIZ 225/226)		135.00/each
O.	R-Value (ASTM D2844, AASHTO T190, CAL 301)		300.00/each
P.	Sieve Analysis, Coarse (Dry Sieve) (ASTM C136, AASHTO T27, ARIZ 201)		60.00/each
Q.	Sieve Analysis, Coarse and Fine, Washed (ASTM C136, AASHTO T27, ARIZ 201)		95.00/each
R.	Sieve Analysis, Fine, Washed (ASTM C136, AASHTO T27, ARIZ 201)		70.00/each
S.	Soil Specific Gravity (ASTM D854, AASHTO T100)		170.00/each
T.	Soil Unit Weight (Undisturbed Sample) with Moisture Content		30.00/each
U.	Sulfate and Chloride Content (ARIZ 733, ARIZ 736)		70.00/each
V.	Lime Stabilization Mix Design		Quote

*Testing for modifications to above specification, call for quote.

Construction Materials Testing and Inspection
Wood – Phoenix 2022 Fee Schedule

Soils Testing Continued

W.	Unconfined Compressive Strength, (AASHTO T208)(Set of 3)……..	150.00/set
X.	Crumb Test Method (USBR 5400-89)	35.00/each
Y.	Density of Undisturbed: Ring Samples	30.00/each
Z.	Density of Undisturbed: With Porosity Calculation.....	32.00/each
AA.	Moisture Density Relations Test: Single Point (Any Point)	90.00/each
BB.	Permeability (Flex Wall) – Cohesive (ASTM D5084): In Situ	360.00/each
CC.	Permeability (Flex Wall) – Cohesive (ASTM D5084): Remolded	400.00/each
DD.	Permeability (Granular Soil).....	357.00/each
EE.	Pinhole Dispersion Test (ASTM D4647).....	256.00/each
FF.	Relative Density (ASTM D4253 & ASTM D4254)	500.00/each
GG.	Sample Preparations.....	70.00/hour
HH.	ASTM C33 Package	Quote
II.	Triaxial – Unconsolidated Undrained (ASTM D2850)	370.00/each
JJ.	Triaxial Consolidated Undrained (ASTM D4767)……	1700.00/each
KK.	Resilient Modulus of Subgrade……	1750.00/each
LL.	Resilient Modulus of Subbase……..	1750.00/each

Rock Core Testing

A.	Unconfined Compressive Strength, Rock Core (ASTM D2166)	$	55.00/each
B.	Point Load Index (ISFRM).....		60.00/each

CONCRETE / SOIL CEMENT

Portland Cement Concrete / Soil Cement

C.	Compressive Strength - Concrete Cores (ASTM C42, AASHTO T24).....	$	35.00/each
D.	Compressive Strength - Concrete Cylinders (ASTM C39, AASHTO T22)		20.00/each
E.	Compressive Strength - Concrete Masonry Units (ASTM C140).....		70.00/each
F.	Compressive Strength - Grout Prisms (UBC 21-17).....		20.00/each
G.	Compressive Strength - Masonry Prisms (ASTM E447, UBC 24-26) (2 High Blocks).....		150.00/each
H.	Compressive Strength - Mortar Cylinders (ASTM C109, AASHTO T106).....		20.00/each
I.	Compressive Strength - Soil Cement (ADOT)		22.00/each
J.	Flexural Strength of Concrete (ASTM C293).....		60.00/each
K.	Flexural Strength of Concrete with Mold Cleanup (ASTM C293)		75.00/each
L.	Grout or Mortar Mix Design.....		Quote
M.	Length Change (Shrinkage) of Hardened Concrete (ASTM C157) (Set of 3).....		550.00/set
N.	Portland Cement Concrete Mix Design.....		Quote
O.	Shotcrete Panel Fabrication & Coring, 3 Cores (ASTM C1140)		195.00/each
P.	Shotcrete Panel Core Testing (ASTM C42)……..		42.00/each
Q.	Soil Cement Design		Quote
R.	Time of Setting of Concrete Mixtures (ASTM C403).....		125.00/each

ASPHALTIC CONCRETE / SLURRY / MICROSURFACING

A.	Abson Recovery, Asphalt Content (ASTM D1856 & D2172, AASHTO T170 & T164).....	$	450.00/each
B.	Analysis of Cut Cores		Quote
C.	Asphalt Drain Down Test		325.00/each
D.	Bulk Specific Gravity of Bituminous Mixtures, SSD (ASTM D2726, AASHTO T166).....		35.00/each
E.	Bulk Specific Gravity Using Paraffin/Parafilm-Coated Specimens (ASTM D1188, AASHTO T275)		65.00/each
F.	Centrifuge Extraction of Bituminous Mixture (ASTM D2172, AASHTO T164)		200.00/each
G.	Centrifuge Extraction and Gradation of Bituminous Materials (ASTM D2172, AASHTO T164)		255.00/each
H.	Coating and Stripping of Bituminous Mixtures (ASTM D1664, AASHTO T182, CTM 302).....		120.00/each
I.	Effect of Water on Cohesion of Bituminous Mixtures, IMC (ASTM D1075, AASHTO T165, ARIZ 802)		550.00/each
J.	Extraction/Recovery, Absolute Viscosity, Penetration		595.00/each
K.	Gyratory Compaction (AASHTO T312) (Set of 2)		160.00/each

*Testing for modifications to above specification, call for quote.

Construction Materials Testing and Inspection
Wood – Phoenix 2022 Fee Schedule

Asphalt Concrete Continued

L.	Hveem (Stabilometer) (Bulk Density) (Set of 3) (ASTM D1559, D1560)	150.00/each
M.	Ignition Oven Calibration (ARIZ 427)	700.00/each
N.	Ignition-Gradation (ASTM, AASHTO, ADOT)	160.00/each
O.	Loaded Wheel	250.00/each
P.	Marshall Test - Stability, Flow, Bulk Density (Set of 3) (ASTM D1559, AASHTO T245) (Field Sample)	135.00/each
Q.	Dynamic Modulus of HMA	1800.00/each
R.	Nuclear Asphalt Content Gauge Calibration	700.00/each
S.	Preparation of Slurry Seal Specimens	75.00/each
T.	Preparing Nuclear Knowns	700.00/each
U.	Reflux Extraction and Gradation of Bituminous Materials (ASTM D2172, AASHTO T164)	295.00/each
V.	Rotovapor Recovery of Asphalt, Asphalt Content (ASTM D5404 & D2172)	450.00/each
W.	Shultz Breuer Ruck (Additional points $700 each) (ISSA TB144)	800.00/each
X.	Tensile Strength Ratio, (ASTM D4867, AASHTO T283)	550.00/each
Y.	Theoretical Maximum Specific Gravity, Rice Test (ASTM D2041, AASHTO T209, ARIZ 417) (Field Sample)	135.00/each
Z.	Thickness Determination on AC Cores	15.00/each
AA.	Volatile Distillates in Bituminous Paving Mixtures (ASTM D1461, AASHTO T110)	475.00/each
BB.	Wet Track Abrasion Test, 1 hour	275.00/each
CC.	Wet Track Abrasion Test, 6 day	350.00/each
DD.	Moisture Content of Hot Mix by Oven Method (T329, ARIZ 406)	50.00/each

ASPHALT CONCRETE MIX DESIGNS / SLURRY AND MICROSURFACING JOB MIX FORMULAS

A.	Asphalt Rubber - ARAC Mix Design	Quote
B.	Asphalt Rubber – AR-ACFC Mix Design	Quote
C.	Asphaltic Concrete Mix Design - Cold Mix Recycled, Marshall Method	Quote
D.	Asphaltic Concrete Mix Design - Marshall Method, 4 Inch	Quote
E.	Hveem Design	Quote
F.	Superpave Asphalt Mix Designs	Quote
G.	Trial Mix Design	Quote
H.	Slurry Seal Job Mix Formula (MAG715, ISSA, MCDOT) (Cohesion, Consistency, split consistency, mix test, setting, water resistance, wet stripping, loaded wheel test, **does not include Aggregate testing**)	1600.00/each
I.	Micro Surfacing Job Mix Formula (MAG, ISSA, Various agencies) (Cohesion, Consistency, split consistency, mix test, setting, water resistance, wet stripping, WTAT 1 hour, , loaded wheel test, lateral displacement, specific gravity, **does not include Aggregate testing**)	1750.00/each
J.	Micro Surfacing Job Mix Formula (ADOT or other that requires SBR test) ($1750 plus $1500 SBR) (Cohesion, Consistency, split consistency, mix test, setting, water resistance, wet stripping, WTAT 1 hour/6 days, loaded wheel test, **does not include Aggregate testing**)	3250.00/each

ASPHALT BINDER

Superpave PG Binder Testing

A.	Bending Beam Rheometer (AASHTO T313)	$ 225.00/each
B.	Bending Beam Rheometer with RTFO/PAV Aging	475.00/each
C.	Bending Beam with Physical Hardening (AASHTO T313)	425.00/each
D.	Brookfield Viscosity (ASTM D4402, AASHTO T316)	95.00/each
E.	Brookfield Viscosity, Temp Sweep 3 points (ASTM D4402, AASHTO T316)	225.00/each
F.	Brookfield Viscosity, Temp Sweep 4 points (ASTM D4402, AASHTO T316)	275.00/each
G.	Direct Tension (AASHTO T314)	250.00/each
H.	Direct Tension with RTFO/PAV Aging	495.00/each
I.	Dynamic Shear Rheometer (AASHTO T315)	175.00/each
J.	Dynamic Shear Rheometer, Linearity Test	225.00/each
K.	Dynamic Shear Rheometer, Temp. Sweep	225.00/each
L.	PG Classification (AASHTO R29)	1,050.00/each
M.	PG Verification with Critical Cracking Temperature (AASHTO M320 Table2)	1,525.00/each
N.	PG Classification with Direct Tension (AASHTO R29/T314)	1,175.00/each
O.	PG Grade Blend Development	Quote
P.	PG Verification (AASHTO M320)	850.00/each
Q.	PG Verification with Direct Tension (AASHTO M320/T314)	1,050.00/each
R.	PG Verification, (Caltrans Section 92)	1,095.00/each
S.	PG Verification, (Caltrans Section 92 w/o Solubility)	975.00/each

*Testing for modifications to above specification, call for quote.

Construction Materials Testing and Inspection
Wood – Phoenix 2022 Fee Schedule

Superpave PG Binder Testing Continued

T.	Pressure Aging Vessel (AASHTO R28)	175.00/each
U.	Rolling Thin Film Oven (ASTM D2872, AASHTO T240)	135.00/each
V.	Rolling Thin Film Oven with Mass Loss (ASTM D2872,AASHTO T240)	145.00/each
W.	Multiple Stress Creep Recovery TP-70	375.00/each
X.	Temperature Viscosity Curve, Brookfield, specific gravity, DSR	450.00/each

Asphalt Cement Testing

A.	Absolute Viscosity (140°F; 60°C) (ASTM D2171, AASHTO T202)	$ 95.00/each
B.	AR Grade Asphalt Verification (AASHTO M226)	795.00/each
C.	AR Grade Asphalt Verification, Partial Series	Quote
D.	Ash in Bituminous Materials (ASTM D2939, AASHTO T111)	175.00/each
E.	Asphalt Grade Blend Development	Quote
F.	Brookfield Viscosity, Asphalt (ASTM D2994, ASTM D4878-A or ASTM D5018)	125.00/each
G.	Brookfield Viscosity, Asphalt (ASTM D4402, AASHTO T316)	95.00/each
H.	Chemical Analysis of Asphalt, Complete Series, Modified Rostler/Sternberg	950.00/each
I.	Crack Sealant Evaluation	Quote
J.	Crack Sealant Verification	Quote
K.	Crack Sealant, Bond Test	400/each
L.	Crack Sealant, Flexibility	Quote
M.	Crack Sealant, Flow	Quote
N.	Crack Sealant, Tensile Adhesion	Quote
O.	Ductility of Bituminous Materials (ASTM D113, AASHTO T51)	125.00/each
P.	Elastic Recovery (ASTM D6084, AASHTO T301)	150.00/each
Q.	Flash and Fire Point, Cleveland Open Cup (ASTM D92, AASHTO T48)	95.00/each
R.	Flash and Fire Point, Cleveland Open Cup, co-polymer products (ASTM D92, AASHTO T48)	150.00/each
S.	Flash and Fire Point, Tag Open Cup (ASTM D3143, AASHTO T79)	95.00/each
T.	Haake Viscosity, Asphalt	85.00/each
U.	Heptane/Xylene Equivalent (AASHTO T102)	250.00/each
V.	Kinematic Viscosity (275°F; 135°C or 140°F; 60°C) (ASTM D2170, AASHTO T201)	135.00/each
W.	n-Heptane Insolubles (ASTM D3279)	250.00/each
X.	n-Pentane Insolubles	225.00/each
Y.	Penetration (@ Temperatures other than 77°F; 25°C) (ASTM D5, AASHTO T49)	95.00/each
Z.	Penetration (77°F; 25°C) (ASTM D5, AASHTO T49)	95.00/each
AA.	Penetration Grade Asphalt Verification (AASHTO M20)	595.00/each
AA.	Penetration Grade Asphalt Verification, Partial Series	Quote
BB.	Percent of Ash Content (ASTM D5040)	200.00/each
CC.	Rolling Thin Film Oven Test (ASTM D2872, AASHTO T240)	135.00/each
DD.	Rolling Thin Film Oven with Mass Loss	145.00/each
EE.	Separation of Asphalt Cement (FHWA Method, TX 540C)	175.00/each
FF.	Smoke Point (ADEQ Procedure)	$ 175.00/each
GG.	Softening Point of Asphalt, Ring and Ball (ASTM D36, AASHTO T53)	95.00/each
HH.	Solubility of Bituminous Materials (ASTM D2042, AASHTO T44)	120.00/each
II.	Solubility of Bituminous Materials, Centrifuge (ASTM D5546)	295.00/each
JJ.	Solubility of Bituminous Materials, Modified	165.00/each
KK.	Specific Gravity of Bituminous Materials (ASTM D70, AASHTO T228)	95.00/each
LL.	Specific Gravity (ASTM D1298)	185.00/each
MM.	Spot Test (AASHTO T102)	175.00/each
NN.	Thin Film Oven Aging	185.00/each
OO.	Torsional Recovery (CTM 332)	250.00/each
PP.	Toughness and Tenacity (ASTM D5801, NEV 745)	275.00/each
QQ.	Vialit test for chip retention, Single temperature (Modified EN 12272-3)	400.00/each
RR.	Vialit test for chip retention, Three temperatures (Modified EN 12272-3)	500.00/each
SS.	Viscosity Grade Asphalt Verification (AASHTO M226)	795.00/each
TT.	Viscosity Grade Asphalt Verification, Partial Series	Quote
UU.	Water in Petroleum Products (ASTM D95, AASHTO T55)	250.00/each

Asphalt Rubber Binder Tests

A.	Asphalt Compatibility Test, Crack Sealant	$ 150.00/each
B.	Asphalt Rubber Binder Design Profile (AZ Profile)	1500.00/each
C.	Asphalt Rubber Binder Design Profile (CA Profile)	1700.00/each

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Asphalt Rubber Binder Tests Continued

D.	Asphalt Rubber Binder Evaluation	Quote
E.	Asphalt Rubber Binder Verification	Quote
F.	Asphalt Rubber Binder Verification, Partial Series	Quote
G.	Asphalt Rubber Blend Submittal Sample	300.00/each
H.	Bitumen Content, Carbon Disulfide (ASTM D4)	250.00/each
I.	Bitumen Content, TCE (ASTM D4 modified)	165.00/each
J.	Brookfield Viscosity, Asphalt (ASTM D2994 or ASTM D5018)	125.00/each
K.	Brookfield Viscosity, Crack Sealant, (ASTM D2196)	150.00/each
L.	Bulk Density of Crumb Rubber	150.00/each
M.	Crack Sealant Preparation (ASTM D5167 Jacketed Melter)	175.00/each
N.	Cone Penetration (ASTM D5329)	95.00/each
O.	Crumb Rubber Chemical Composition	1250.00/each
P.	Fiber Content of Crumb Rubber	60.00/each
Q.	Rotational Viscosity	95.00/each
R.	Metal Content of Crumb Rubber	60.00/each
S.	Mineral Content of Crumb Rubber	75.00/each
T.	Physical Examination and Gradation of Crumb Rubber	Quote
U.	Resilience (ASTM D5329)	95.00/each
V.	Rubber Gradations (ASTM C136)	85.00/each
W.	Specific Gravity of Crumb Rubber (ASTM D1817, CT 208)	185.00/each
X.	Thermogravimetric Analysis	Quote

EMULSIFIED/CUTBACK

Emulsified/Cutback Asphalt Tests

A.	Cement Mixing Test	$ 125.00/each
B.	Classification Test, Uncoated Particles	150.00/each
C.	Coating (SE214) T-59	65.00/each
D.	Cutback Asphalt Blend Development	Quote
E.	Cutback Asphalt Verification, without Water Content (AASHTO M 81/82)	795.00/each
F.	Demulsibility (ASTM D244, AASHTO T59)	110.00/each
G.	Direct Flame Test (ASTM D2939)	175.00/each
H.	Distillate Fraction on Cutback (ASTM D402, AASHTO T78)	275.00/each
I.	Drying Time (ASTM D2939)	250.00/each
J.	Emulsified Rejuvenating Agent, Complete Series (Modified Rostler/Sternberg) (ASTM D2006)	Quote
K.	Emulsified Rejuvenating Agent, Complete Series	Quote
L.	Emulsion Verification, RS-1, RS-2, SS-1, SS-1h (ASTM D977, AASHTO M140)	950.00/each
M.	Emulsion Verification, HFRS-2 (ASTM D977, AASHTO M140)	1075.00/each
N.	Emulsion Verification, QS-1H (ASTM D977, AASHTO M140)	695.00/each
O.	Emulsion Verification, CRS-1, CRS-2, CSS-1, CSS-1h (ASTM D2397, AASHTO M208)	975.00/each
P.	Emulsion Verification, CQS-1h (ASTM D2397, AASHTO M208)	795.00/each
Q.	Emulsion Verification, CQS-1h (MAG 713)	950.00/each
R.	Emulsion Verification, Partial Series	Quote
S.	Flexibility (ASTM D2939)	295.00/each
T.	Float Test (ASTM D139)	125.00/each
U.	Freezing T-59	150.00/each
V.	High Float Emulsion Verification (ASTM D977, AASHTO M140)	1050.00/each
W.	Identification test for Cationic Slow Set (AASHTO T59, Section 27)	275.00/each
X.	Low Temperature Distillation	250.00/each
Y.	Low Temperature Vacuum Distillation (ASTM D244, AASHTO T59)	295.00/each
Z.	Miscibility (ASTM D244, AASHTO T59)	85.00/each
AA.	Particle Charge (ASTM D244, AASHTO T59)	85.00/each
BB.	pH Determination	85.00/each
CC.	Residue and Oil Distillate by Distillation (ASTM D244, AASHTO T59)	185.00/each
DD.	Residue by Evaporation (ASTM D244, AASHTO T59, ARIZ 512, CTM 331, D2834)	95.00/each
EE.	Residue by Evaporation (ASTM D2393, CT331 to obtain residue)	150.00/each
FF.	Residue by Evaporation, Low Temperature (ASTM D7497)	250.00/each
GG.	Resistance to Freezing (ASTM D2939)	150.00/each
HH.	Resistance to Water (ASTM D2939)	250.00/each
II.	Resistance to Heat (ASTM D2939)	250.00/each
JJ.	Resistance to Kerosene (ASTM D 2939)	450.00/each

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Emulsified/Cutback Asphalt Tests Continued

KK.	Saybolt Furol Viscosity (ASTM D88, AASHTO T72)	135.00/each
LL.	Settlement, 5-Day (ASTM D244, AASHTO T59)	195.00/each
MM.	Sieve Test (ASTM D244, AASHTO T59)	95.00/each
NN.	Storage Stability, 1-Day (ASTM D244, AASHTO T59)	150.00/each
OO.	Uniformity, (ASTM D2939)	150.00/each
PP.	Vacuum Distillation of Modified Emulsion (ARIZ 504)	250.00/each
QQ.	Volatile Content of Coatings (ASTM D2369)	250.00/each
RR.	Weight Per Gallon (ASTM D244, ASTM D2939, AASHTO T59)	150.00/each
SS.	Weight Per Gallon, Density of Liquid Coatings (ASTM D1475)	225.00/each
TT.	Wet Film Continuity (ASTM D2939)	95.00/each
UU.	Wet Flow (ASTM D2939)	125.00/each

Asphalt Binder Grade Verification

A.	AR Graded Asphalt (ASTM D3381, AASHTO M226)	$ 795.00/each
B.	PBA Asphalt	Quote
C.	Penetration Graded Asphalt (ASTM D946, AASHTO M20)	595.00/each
D.	PG Classification (AASHTO R29)	1050.00/each
E.	PG Classification with Direct Tension (AASHTO R29/T316)	1,175.00/each
F.	PG Verification (AASHTO M320)	850.00/each
G.	PG Verification with Direct Tension (AASHTO M320/T316)	1050.00/each
H.	Viscosity Graded Asphalt (ASTM D3381, AASHTO M226)	795.00/each
I.	Identification of Rapid Setting Cationic Emulsion T-59	195.00/each
J.	Identification of Cationic Slow Setting Emulsion T-59	135.00/each
K.	Emulsified Asphalt/Job Aggregate Coating Test T-59	125.00/each
L.	Water Content T-59	375.00/each

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