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TASK ORDER NO. 01

TASK ORDER NAME: FRONT RUNNER FORWARD ENVIRONMENTAL STUDIES PACKAGE NO. 1

PROJECT CODE: MSP252 – FR Double Track

This is Task Order No. 01 to the FrontRunner Forward On-Call Environmental Study Contract entered into by and between Utah Transit Authority (UTA) and Parametrix, Inc. (Contractor) as of January 27, 2022.
Parametrix Consult, Inc. DP

This Task Order is part of the Front Runner Forward On Call Environmental Study Contract and is governed by the terms thereof.

The purpose of this Task Order is to specifically define the scope, schedule, fee, and other terms applicable to the work identified herein.

UTA and Contractor hereby agree as follows:

1.0 SCOPE OF SERVICES

The scope of work for the Task Order No. 01 is hereby attached and incorporated into this Task Order.

2.0 SCHEDULE

The Completion Date for this Task is 12/21/2022.

3.0 FEE

The price for this task order is a not to exceed $692,725.00. Invoices will be billed on monthly basis for work completed to date.

4.0 APPLICABILITY OF FEDERAL CLAUSES

This Task Order does ☐ does not ☒ [Check Applicable] include federal assistance funds which requires the application of the Federal Clauses appended as Exhibit D to the FrontRunner Forward Environmental Study Pool Consultant Contract.

IN WITNESS WHEREOF, this Task Order has been executed by UTA and the Contractor or its appointed representative

UTAH TRANSIT AUTHORITY:

By: _____
Mary DeLoretto, Interim Executive Director Date
> $100,000

By: _____
David Hancock, Interim Chief Service Dvlpmt. Ofc. Date
< 100,000

By: _____
Todd Provost, Dir. of Capital Development Date
< $50,000

By: _____
Janelle Robertson, Project Manager Date
< $10,000

DocuSigned by:
Michael Bell
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Legal Review
12/27/2021

Procurement Review

PARAMETRIX, INC.:

By: David Pennington

Date: 12/23/2021

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SCOPE OF WORK
TASK ORDER NO. 1 ENVIRONMENTAL STUDY AND PRELIMINARY DESIGN SERVICES FOR FRONT RUNNER FORWARD INITIAL INVESTMENT PROJECTS PACKAGE 1

Utah Transit Authority
UTA CONTRACT NO. 21-034961VW FRONTRUNNER ENVIRONMENTAL PROFESSIONAL SERVICES

INTRODUCTION

Parametrix, Inc. (CONSULTANT) will prepare National Environmental Policy Act (NEPA) environmental studies for four double-track improvements projects in the FRF program, and will provide preliminary engineering for one of the projects. The projects are:

		CONSULTANT Scope of Work	
Double Track Segments	**Length**	**Environmental Study**	**Preliminary Design**
Clearfield to Roy (Task 2)	3.7 miles	Categorical Exclusion	None.
Centerville to WoodsCross (Task 3)	2.0 miles	Categorical Exclusion	None
Lehi (Task 4)	1.6 miles	Categorical Exclusion	None
American Fork (Task 5)	2.6 miles	Categorical Exclusion	Preliminary design (approximately 30%)

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1. PROPOSED PERSONNEL

Our proposed personnel for this task order feature the following key and support staff identified in our RFQu NO. 21-03496VW response of October 20, 2021:

- Project Manager: Daryl Wendle, PARAMETRIX
- Environmental Lead: Mark Mazzola, PARAMETRIX
- Design Lead: Mark Dorn, DEA
- Support Staff:
  - Ian Kilpatrick, PARAMETRIX, Planner
  - Kathryn Seckel, PARAMETRIX, Scientist
  - Alyssa Worsham, PARAMETRIX, Planner
  - Charles Allen, PARAMETRIX, Traffic and Transportation
  - Leah Jaramillo, DEA, Public Involvement
  - Lance Meister, CSA, Noise and Vibration
  - Sheri Murray Ellis, Certus, Cultural Resources, Section 106
  - Tim Martin, DEA, Track, Deputy Design Manager, Systems/Signals)
  - Kevin Farley, DEA, Civil/Traffic/Structural, Drainage)
  - Jim Ellerbroek, DEA, UPRR Coordination Advisor
  - Marriah McReery, PARAMETRIX. Project Accountant

2. SCOPE OF SERVICES

The CONSULTANT's scope for the following services is based on the materials provided in UTA's December 7, 2021 task order request, including the attachments providing narrative and design drawing depictions of the four subject doubletracking projects. For efficiency, those attachments are incorporated by reference.

The following assumptions guide the scope of work for Tasks 2 (Clearfield to Roy), Task 3 (Centerville to Woods Cross), and Task 4 (Lehi):

- Preliminary Design/Engineering. Conceptual design/configuration layout will be completed and provided by the UTA FrontRunner Forward Program Management Services Consultant (PMSC). PMSC will conduct detailed analysis and preliminary design within focused areas as-needed (e.g., where retaining walls or residential properties are impacted). CONSULTANT will not prepare design for these segments.
- Union Pacific Railroad Coordination. UTA and PMSC will lead coordination with Union Pacific. All coordination and communication with the Union Pacific Railroad will be through the UTA Project Manager and PMSC. CONSULTANT will provide exhibits and graphics, based on other products or information developed through this task order, or through materials provided by UTA and PMSC, to support this coordination.
- Public Outreach. PMSC will lead public outreach. CONSULTANT will support PMSC by preparing exhibits, data, graphics, and information for public meetings, within limits of the resources provided under this agreement.

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The following assumptions guide the scope of work for all tasks:

- The detailed environmental scope identified for Task 2 will generally be followed for the other projects covered in tasks 2 to 5, unless otherwise noted.
- Environmental mappings will be based on information available from USGS or Utah Geospatial Resources Center's State Geographic Information Database (SGID), and other jurisdictional databases, using aerial photography, and survey information to be available from UTA or the PMSC. Detailed field surveys along the length of the improved segments of the corridor are not anticipated.
- UTA and the PMSC will determine the detailed operations plan to be assumed in the environmental review, which could affect the scope of work, level of effort and schedule for transportation and noise/vibration, as well as treatments for rail/roadway crossings. To support the timely progression of design and environmental studies for the four projects, which would address speed, safety and reliability concerns in each location, the scope and level of effort here assumes existing operations.

Task 1: Project Management, Administration, and Coordination

1.1 Project Management, Administration, and Coordination.

CONSULTANT will coordinate with UTA and the PMSC project manager and PMSC team during the conduct of the task order. This includes task includes bi-monthly coordination meetings by the CONSULTANT team leads with UTA and the PMSC team to review the overall status and progress of the double track projects, as well as monthly invoicing and progress reporting. Other ongoing meetings for the coordination of the individual projects are covered in tasks 2 to 5.

As an initial project management deliverable, the CONSULTANT will prepare a summary Project Management Plan to support project kickoff. The PMP will include brief sections on team organization, contacts, general communication protocols, a master schedule, the QA/QC processes that will be followed, and safety procedures. The PMP will also include summary action statements for each of the below projects to confirm the focus of the environmental review, confirm methods and documentation anticipated, and provide a deliverables schedule, including reviews. This includes initiating a tracking list of data needs, including materials available or to be produced by UTA or the PMSC or others (such as survey information, past environmental reports, as-builts, etc.). Up to two meetings to review and discuss the PMP are anticipated. This task also includes an allocation for the core team members (up to 20 staff) to participate in safety training/orientation, assumed to be conducted virtually.

Deliverables:

- Meeting Agendas and Meeting Notes with Action Items
- Data Needs Tracking List
- Project Management Plan including
  - Deliverables Schedule
  - QA/QC Process
  - Organization, Contacts, Communications

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Task 2: Environmental Study for UTA Double Track Segment - *Clearfield to Roy*

2.1 Environmental Services. CONSULTANT will conduct environmental activities and prepare required environmental documents for the double tracking project segment, including the following:

- CONSULTANT will conduct environmental resource impact review and documentation required to obtain a Federal Transit Administration (FTA) approved NEPA document including but not limited to field work, mapping, and reporting. This is anticipated to include completing the FTA Region 8 Categorical Exclusion (CE) worksheet.
- CONSULTANT will perform Section 106 and Section 4(f) surveys and studies. Section 106 agency consultation will be conducted by FTA; CONSULTANT will assist UTA with Section 106 documentation.
- CONSULTANT will prepare map set showing environmental resources in the project area, based on data available through USGS, UGS, survey information, and other readily available sources. CONSULTANT will submit GIS layers to UTA at the conclusion of the project.
- CONSULTANT will prepare a table summarizing required mitigation and anticipated environmental permits for each project, and a mapping showing location-specific mitigation. The environmental maps and table will be used to track environmental commitments during final design and construction.

The NEPA environmental analysis for the presumed CE will address the elements of the environment identified in the FTA Region 8 CE Worksheet, and will include analysis of affected environment, impacts (operational and construction), indirect and cumulative effects, and mitigation. In addition to the completed FTA Region 8 CE Worksheet, the environmental document will include background documentation describing:

- Acquisitions and Relocations –identifying properties affected by type (residential, commercial, and public), and total displacements by type. Properties affected will be listed in tabular and mapped format.
- Air Quality –Air quality analysis will be qualitatively performed to demonstrate conformity, based on adopted documents in the regional TIP; hot spot analysis is not anticipated.
- Biological Resources, Wetlands, Ecosystems – Based on initial information on the project, biological or ecosystem impacts on areas near the existing rail line would be limited, but this will be confirmed by reviews of existing information including environmental mapping to be developed as part of this task. Any fill of streams or wetlands are anticipated to be avoided, and waters or wetlands appearing on maps within 50 feet of the construction footprint will be reviewed. If potential streams or wetlands are identified on mappings, up to three locations will be investigated and their type and boundaries estimated using GPS or similar tools, assuming access is available. If access is not available, the boundary estimation will be done based on visual reconnaissance and available aerial photos. The effort will include documentation and correspondence demonstrating the potential presence or impacts to any species that are listed as threatened or endangered under the Endangered Species Act (ESA). This effort will also include the preparation of information for the FTA ESA Screening Checklist.
- Environmental Justice – This effort will consider the presence of minority and low-income populations (business owners, land owners, and residents) within about a quarter-mile of the study area. Most of the areas immediately adjacent to the alignment do not have minority or low-income populations. However, this section will also discuss UTA's outreach efforts targeted specifically at minority or low-income populations, as applicable.

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- Hazardous Materials – This effort will focus on the acquisition of sites representing the highest level of complexity or concern that could impact the project's development. Regulatory database information on existing sites with known or potential contamination will be collected within the study area. This section will also include a categorization of known hazardous material sites by risk levels. FTA's Standard Operating Procedures regarding Environmental Site Assessments for properties to be acquired by grant applicants would be conducted later in project development, but is not included in Environmental scope because property acquisition requirements remain preliminary.
- Historic and Cultural Resources – This effort will support UTA's/FTA's initiation and coordination efforts to complete the Section 106 process. The effort will include correspondence supporting the initiation of consultation identifying the proposed actions, setting, proposed area of effect (APE), and initiation of coordination with agencies and other stakeholders regarding historic and archaeological resources. The Consultant, which includes the cultural resource sub-consultant, Certus Environmental, will support UTA and FTA by developing the information, materials and recommended findings needed for FTA to conduct and complete the Section 106 process. The findings of all related desktop research and field studies will be documented in a Cultural and Historic Resources Technical Memorandum. The efforts will include:
  - A review of Utah SHPO project site, and structures digital records to identify previously reported and/or known cultural resources in the 100-foot-wide corridor area following the project footprint.
  - A review historical maps, air photos, and other sources to identify potential cultural resources in the survey area and assist in assessing those documented during fieldwork
  - Consultation with the Utah Geological Survey (UGS) regarding known and potential fossil resources that could be affected by the proposed project, if such resources were previously of concern in the development of existing FrontRunner tracks.
  - Conduct intensive-level archaeological and selective reconnaissance-level architectural surveys for cultural resources within the 100-ft wide corridor area.
  - Report and document surveys and document cultural resources (up to 25 in this project area, based on initial review of databases by CONSULTANT).
- Land Use and Zoning, Farmlands – This effort will provide information on the existing and planned land uses and will summarize adopted comprehensive plans and zoning designations to support an evaluation of compatibility of proposed project with land use plans. Anticipated plans, including subarea plans, that are in development but not yet adopted will also be identified.
- Noise and Vibration – This section will apply FTA screening level analysis to determine if the project will have the potential for noise or vibration impacts at sensitive receptors, consistent with FTA noise and vibration methodology. A Noise and Vibration Screening Memo will be prepared by subconsultant CS Acoustics. If the project exceeds screening criteria and indicates the potential for noise impacts, more detailed assessments will be recommended.
- Recreational – This section will describe parks and recreation areas located in or adjacent to the study area, and assess potential impacts and mitigation needed.
- Section 4(f) and Section 6(f). This section would document research conducted to confirm the potential effects on Section 4(f) and Section 6(f) resources. Based on initial project information, no Section 4(f) recreation or nature preserves qualifying as Section 4(f) resources are known to be in the study area. No Section 6(f) properties are assumed to be affected but the presence of such properties will be documented. While the potential for the project area to include significant historic properties qualifying as Section 4(f) properties remains to be determined through this scope of work, this scope assumes that

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adverse effects to such properties would be avoided, and effects by the project would be within *de minimis* or temporary occupancy levels.

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- Safety and Security – This section will examine the potential for the project's potential environmental impacts on safety and security, but will reference UTA's systems and procedures in place for FrontRunner and related projects, with no anticipated major changes in safety conditions occurring as part of the project action.
- Transportation – This section will consist of a screening level review of existing conditions and future growth rates on at-grade crossings within the project corridor, and an assessment of whether any changes involved in the project would warrant detailed analysis of potential impacts. A Transportation Impact Screening Technical Memo will be prepared, and if impacts are identified, the memo will define the level of additional analysis necessary to further define impacts and mitigation. Traffic modeling or patronage forecasting is not anticipated, and station access features and conditions would remain unchanged. Parking impacts are not anticipated as a result of this project.
- Visual and Aesthetics – This analysis will generally characterize the setting of the project and effects on visual conditions and potentially sensitive views. Effects are anticipated to be limited, and no visual simulations are anticipated.
- Water Resources and Floodplains – This section will discuss water resources, including groundwater, water quality, streams, wetlands, and floodplains.
  - Water Resources, including groundwater and sole source aquifers: This section will utilize available design information and environmental database resources to characterize existing drainage, groundwater, flooding, and water quality conditions in the study area. This task will also include measures to meet stormwater management requirements, in accordance with applicable local, state, or federal standards. In coordination with Task 2.5, the stormwater component will focus on identifying applicable requirements, the extent of approximate areas needed for facilities, and whether or not impacts would remain as a result of the project. Proposed design measures and best management practices (BMPs) will be identified, and if impacts remain, mitigation would be identified. No substantial development within mapped floodplains is anticipated, and there would be no alteration of floodways.
  - Wetlands and Streams: This section will assess the potential for stream or wetland impacts, which planning to date show would be limited. The wetlands and streams assessment will be coordinated with the biological and ecosystems analysis. The section will discuss any temporary or permanent impact to mapped streams or wetlands or alterations to streams and waterways within 50 feet of the project footprint. Based on planning to date, the project would have no direct physical impacts to wetlands or streams/waterways subject to the Clean Water Act; however, additional field reconnaissance will be performed to confirm the accuracy of available mapping data and review the potential for unmapped resources. This field reconnaissance would be conducted in areas where rights of entry are available. In areas where rights of entry are not available and land cannot be visually assessed in the field, available aerial photography and mappings will be used and the documentation will reflect the survey limitation. If impacts are identified, avoidance through design would be the first strategy to be explored, prior to further analysis and documentation. Section 404 consultations with other agencies are not anticipated.
- Utilities – The effort will describe existing major utilities and potential conflicts, including irrigation or water canals, based on available design information.
- Construction -- This effort will describe the general construction plan defined through available design information, and will identify impacts due to construction activities, including noise, visual, utility disruption, debris and spoil disposal, and staging areas. It will also address air and water quality impacts,

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visually quality and aesthetic, safety and security issues, and disruptions to traffic, utilities, and access to property.

- **Cumulative and Indirect Impacts** -- This effort will identify other interrelated, indirect or cumulative actions within the study area, and discuss cumulative and indirect impacts related to the project action.
- **Mitigation** – Mitigation will be described within each resources section. This section will provide a summary mitigation table and mapping.
- **Public Involvement** – This section will summarize public outreach efforts undertaken for the project, including public meetings, based on information provided by UTA and the PMSC.
- Where environmental elements do not require the preparation of a technical report or memo to support the environmental analysis summarized in the CE, a summary memo compiling background or source document references will be developed to file.

Deliverables:

- Environmental Map Set of Action Area and Vicinity
- FTA Region 8 CE Worksheet (up to 5 major rounds or versions
- Technical Background Memo with source information and impact notes for topic areas not involving detailed calculations or assessments
- Technical Memo/Report for Cultural/Section 106
- Draft Letters for Section 106 Initiation, Proposed Area of Potential Effect, Determinations of Eligibility, Determination of Effect
- Noise and Vibration Screening Technical Memo
- Transportation Screening Impact Technical Memo

Assumptions:

- FTA's decision regarding whether a Documented Categorical Exclusion or Environmental Assessment will be made prior to the initiation of detailed documentation and analysis.
- Actions by others, including developments on properties adjacent to the project, would be defined as separate projects and not a consequence of the proposed project.
- Applicable UTA Environmental Study Report Requirements would be met by the NEPA document and related processes.
- Publication printing and distribution costs will be UTA's responsibility.
- Production and review of deliverables will involve four (4) drafts with track change/iterations and one (1) final NEPA document, including referenced documents such as technical reports, mappings, and engineering drawings with basic project design information.

2.2 Public Outreach Support.

CONSULTANT will support PMSC with documents, information, data, or graphics based on available information or related products developed through this scope of work or by others, up to the limitations allocated for this task.

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Task 3: Environmental Study for UTA Double Track Segment – *Centerville to Woods Cross*

CONSULTANT will complete the following subtasks for the Centerville to Woods Cross Segment:

3.1 Environmental Services

The scope of services and deliverables would be the same as defined in task 2.1. Alterations to canals are assumed to be a utility impact and not a water resource.

3.2 Public Outreach Support

The scope of services would be the same as defined in task 2.2.

Task 4: Environmental Study for UTA Double Track Segment – *Lehi*

CONSULTANT will complete the following subtasks as described in Task 2, for the Lehi Segment:

4.1 Environmental Services

The scope of services and deliverables would be the same as defined in task 2.1.

4.2 Public Outreach Support

The scope of services would be the same as defined in task 2.2.

Task 5: Environmental Study and Preliminary Design for UTA Double Track Segment – *American Fork*

The following are assumptions from UTA and the PMSC that guide the more detailed scope of work below for Task 5:

- Preliminary Design/Engineering. A conceptual configuration layout will be provided to the CONSULTANT by PMSC. CONSULTANT will advance the configuration layout to approximately 20% design (horizontal and vertical control, cut and fill lines, construction easements, right-of-way needs).
- Survey and Mapping. PMSC will provide survey and mapping to the CONSULTANT.
- Union Pacific Railroad Coordination. UTA and PMSC will lead coordination with Union Pacific. All coordination and communication with the Union Pacific Railroad will be through the UTA Project Manager and PMSC.
- Public Outreach. PMSC will lead public outreach. CONSULTANT will support PMSC by preparing exhibits and information for public meetings. CONSULTANT will support PMSC with documents, information, data, or graphics, generally based on existing information or products developed through this Task Order or by others.

5.1 Preliminary Design/Engineering.

CONSULTANT will prepare preliminary (20%) design. A conceptual configuration layout will be provided to the CONSULTANT by the PMSC. The CONSULTANT will advance the conceptual configuration to a design level sufficient (approximately 20% with horizontal and vertical control, cut and fill lines, construction easements, right of way needs) to conduct the environmental resource impact review required for the environmental document, and to estimate quantities and costs. The CONSULTANT will prepare design in accordance with UTA standards and specifications unless design waivers and deviations are approved. CONSULTANT will prepare preliminary engineering at a level to support environmental impact assessments and documentation, which is generally focused on disturbed areas and new transportation facilities and infrastructure. This would include, as applicable:

- Rail and special track

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- Structural design , primarily the location, extent and heights of retaining walls
- Drainage facilities
- Utilities
- Civil and site development design
- At-grade crossings
- Right-of-way
- Railroad signal design

Subtasks to be provided in task 5.1 are:

5.1.01 Design Management and Quality Control

- Provide design management and overall coordination of consultant team activities in a manner to efficiently complete the 20% design deliverables
- Participate in a constructability review to establish necessary construction staging areas, access to define the overall footprint of the project including temporary construction easement requirements
- Conduct quality control and assurance measures consistent with UTA's standard practices as well as those followed by each firm's policy which will include:
  - identification of reviewers for each major discipline as well as a quality manager.
  - Detailed and independent reviews of each major deliverable
  - Review of the design interfaces between different design disciplines
- Internal Quality assurance audit of QC plan activities by consultant team
- Documentation procedures to maintain records of quality control and assurance activities performed.

Deliverables:

- Meeting minutes from regular Design Team coordination meetings with Documentation of monitoring and quality assurance audits of Quality Control reviews of major submittals
- Meeting minutes associated with QC process training as appropriate and deliverable-specific QC review instructions, etc.

5.1.02 Design Production

- Manage production and assembly of a draft and final 20% Design Plan Set in compliance with UTA CADD standards and consistent with the concurrent environmental documentation and design review comments

Deliverables:

- Draft and Final 20% Design Drawing Set, showing rail and track improvements and overall project footpring, including structural and site civil
- Draft outline of specifications by design element

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Assumptions:

- Detailed definition of contents of in progress and 20% design submittals, including for UPRR submittals, would be developed during project kick-off and the PMP development in Task 1.

5.1.03 Rail and Special Track

- Refine trackway typical sections including the location of existing and proposed utilities, drainage features and other associated infrastructure (retaining walls, etc.)
- Establish the preferred horizontal and vertical control for the track alignment to optimize train operational performance and determine the design speed
- Provide information on geometric spirals and track superelevation
- Define special trackwork elements, focusing on locations and quantities needed to support environmental review and to support preliminary UPRR coordination – turnouts; crossing panels, other
- Identify constrained sections along the appropriate design segment and develop and review modified "constrained" cross sections as necessary to address questions, concerns and cost estimates in these locations
- Conduct quality control reviews per overarching QC Plan
- Calculate 20% design quantities by appropriate bid items

Deliverables:

- Draft 10% and draft and final 20% rail plans, profiles and details to be delivered under Task 5.01.02
- 20% Design quantities to be assembled under Task 5.5

5.1.04 Civil and site development design

- Coordination with survey team and development of existing digital terrain model (DTM) for the corridor
- Conduct investigation of Commuter Rail as-built drawings to confirm facilities on the corridor
- Establish the preliminary limits of civil improvements other than at-grade crossings
- Incorporate relevant design features into base design as accepted by UTA and appropriate jurisdiction.
- Develop preliminary site designs for ancillary areas such as signal housings
- Refine the limits of preliminary construction footprint for the project and anticipated right-of-way requirements including full and partial acquisitions, permanent easements for maintenance and temporary construction easements
- Prepare 20% Design
- Calculate 32% design quantities by appropriate bid items

Deliverables:

- Draft draft and final 20% civil design information to be delivered under Task 5.1.03. or 5.1.05
- 20% Design quantities to be assembled under Task 5.5

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Assumptions:

- Assumes no roadway impacts to 8020 North, West 300 South, and no redesign required for those roadways

5.1.05 At-Grade Crossings

- Develop preliminary designs for the railroad grade-crossing installations for the following:
  - Center Street
  - 200 South
  - Main Street
  - 100 North
  - 500 West
- Provide crossing installation details for those crossings deemed "rail ready" which include those constructed under UTA FrontRunner South and UDOT Pioneer Crossing
- Prepare signing and striping plans for each crossing
- Prepare 20% Design drawings
- Calculate 20% design quantities by appropriate bid items

Deliverables:

- Draft and final 20% roadway crossing plans, profiles and details to be delivered under Task 5.1.02
- 20% Design quantities to be assembled under Task 5.5

Assumptions:

- Assumes traffic analysis will not be required at any of the locations beyond the screening level assessment conducted in task 5.2.
- PMSC will produce UPRR permitting plan sets

Potential betterments or improvements would be identified in preparation of 10% concepts, but the level of effort assumes that improvements would generally be focused on the UTA side of the alignment.5.1.06 Structural Design

- Define retaining walls parameters (length and height) along the project corridor
- Participate in constructability review to define construction staging areas, access and temporary construction easements
- Prepare 20% Design with retaining wall information shown on track plan and profile drawings
- Calculate 20% design quantities by appropriate bid items

Deliverables:

- Draft and final 20% structural plans and details to be delivered under Task 5.1.03
- 20% Design quantities to be assembled under Task 5.5

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Assumptions:

- Assumes 7 retaining wall locations located opposite of UPRR right of way
- Assumes design of retaining walls is horizontal layout, profile, and typical section. Wall structural analysis will be performed during final design.
- Assumes designs of box culverts will not be required (based on PMSC Exhibits)
- Assumes no modifications will be required at the Pioneer under-crossing

5.1.07 Drainage Design

- Develop 20% stormwater drainage design information for the extent of the corridor including longitudinally along the railroad corridor
- Develop 20% drainage design and conveyance information for all roadway and rail crossings, for inclusion in Task 5.1.05
- Calculate 20% design quantities by appropriate bid items

Deliverables:

- Draft and final 20% drainage information to be delivered under Task 5.1.03 and 5.1.05
- 20% Design quantities to be assembled under Task 5.5

Assumptions:

- Assumes irrigation system designs are not included as part of preliminary design, but will be identified

5.1.08 Preliminary Railroad Signal Design

- Identify railroad signaling and design requirements for the purpose of defining facilities and locations for environmental review
- Review existing signal design plans including signal control lines, cable plans and details for equipment to determine impacts caused by proposed improvements
- Produce schematic design showing size and location of relocated ductbank (assuming current ductbank is shown in existing signal design plans)
- Coordinate with civil and track designers to place proposed grade crossing equipment and any other necessary signal equipment in appropriate locations along the tracks (equipment will be shown in track plans at 20%)
- Up to three meetings to coordinate with UTA and the PMSC to determine operational changes and related requirements
- Coordinate with traffic designers to determine any impacts at grade crossings that may result in the need for additional traffic signal equipment or that may affect traffic ques or traffic timing at grade crossings

Deliverables:

- Schematic plan showing scope of ductbank relocation, scope of fiber relocation and any new or modified train signal equipment along the tracks, to be included in a composite utility set (5.1.10)

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- 20% estimated quantities for train signal system modifications and fiber optic to be assembled under Task 5.5

Assumptions:

- UTA or the PMSC will coordinate with owner(s) of existing fiber optic facility and provide requirements to be considered in this task

Detailed systems and signal analysis and design would be conducted in final design, and this effort is limited to a level appropriate for environmental review, with concepts based on UTA typical installations

5.1.09 Geotechnical analysis

- Not used
-

5.1.10 Utilities

- Coordinate with Subsurface Utility Engineering team for utility records research and identification and confirmation of existing utilities on the corridor
- Update and manage an inventory of existing public and private utilities within the vicinity of the project, based on information provided by the PMSC
- Prepare composite existing utility plan set for the corridor for inclusion in 20% Plan Set

Deliverables:

- Composite existing utility drawings for inclusion in 20% Design Plan Set
- 20% Design quantities to be assembled under Task 5.5

Assumptions:

- Survey to be conducted by UTA and the PMSC will include horizontal location of utilities, with test holes to be done with final design
- PMSC will be responsible for meeting with utility owners to understand the characteristics of their existing infrastructure and parameters of potential mitigation measures including "maintaining in place" or relocation, and confirming anticipated utility relocation requirements
- Assumes water and sanitary sewer relocations anticipated to be horizontal/lateral shift, and not required to be relocated beyond impacted area. Assumes no analyses required.
- Assumes overhead utility lines and systems will not be required.
- Assumes Relocation Agreements prepared during final design phase.
- Assumes relocation costs of 3rd party (gas, electric, telephone, fiber) systems to be prepared and provided by utility company
- Assumes existing utility agreements will be provided by UTA

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5.1.11 Right-of-way

- Confirm right-of-way acquisition requirements
- Confirm permanent maintenance and temporary construction easements
- Identify land acquisitions and easements on drawings
- Produce necessary linework for inclusion in the track and civil design drawings
- Calculate right-of-way areas for acquisitions, permanent and temporary easements

Deliverables:

- ROW linework for inclusion in track and civil drawings
- Updated right-of-way inventory summary spreadsheet (if appropriate)

Assumptions:

- Assumes UTA and/or PMSC will coordinate with property owners. PMSC will be responsible for assembling an inventory of property owner information along the corridor as needed for public relations. Identify those properties that will be impacted as a partial or full acquisition and permanent or temporary easements
- Right-of-way quantities by acquisition and easements will be developed by PMSC.
- Right of way graphics in support of ROW negotiations or property owner coordination will be the responsibility of the PMSC
- Assumes site visits with property owners will not be required
- Assumes ROW acquisition costs to be estimated by UTA
- Assumes ROW Documents will be prepared during final design
- Assumes preparation of 1 ROW Exhibit prepared for each Owner (assumes 15 Exhibits)
- Assumes utility impacts within ROW acquisition area (i.e. septic tanks, sprinkler systems) not included with preliminary design.

5.1.12 Lighting and Electrical

- Conduct a preliminary lighting analysis for the railroad crossings areas using local and national guidelines
- Prepare a technical report summarizing findings and recommendation
- Provide design input into the location of any supplemental lighting fixtures as part of the railroad crossing plans as necessary
- Produce lighting and electrical quantities as appropriate

Deliverables:

- Street lighting assessment technical memorandum
- Supplemental streetlighting infrastructure design information for inclusion in railroad crossing plan set
- 30% Design quantities to be assembled under Task 5.5
- Right-of-way inventory summary

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5.2 Environmental Services. CONSULTANT will conduct environmental activities and prepare environmental documents for the double tracking project segment.

- The scope of services and deliverables would be the same as defined in task 2.1.

5.3 Public Outreach Support. CONSULTANT will support PMSC with documents, information, data, or graphics.

- The scope of services would be the same as defined in task 2.2.

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5.4 Union Pacific Railroad Coordination Support.

CONSULTANT will provide design information that would support PMSC coordination with Union Pacific, but PMSC will have responsibility for preparing the plan sets and information specific to Union Pacific requirements, including at the 10% and approximately 30% levels. The information needed is assumed to be based on other design deliverables to UTA and that requested formats would generally be aligned and such expectations will be identified during Task 1 project kickoff. PMSC will submit plans to and coordinate with the Union Pacific Railroad, and is assumed to be responsible for detailed permitting packages that UPRR may require.

The services by CONSULTANT include:

- Assisting PMSC in preparing for meetings with UPRR and other regulatory authorities
- Up to three meetings with PMSC for the purposes of coordinating submittal requirements and information needed from the CONSULTANT
- Assist in reviewing permitting request documents in compliance with standard UPRR check list
- Participating in UPRR permit coordination meetings and negotiations where preliminary design deliverables are involved

5.5 Quantities and Cost Estimate.

CONSULTANT will prepare a quantity estimate with PMSC responsible for cost estimating. Quantity take-offs shall be coordinated with UTA and should reflect FTA's Standard Cost Codes (SCC). The services by CONSULTANT include:

- Compiling, organizing quantities that are calculated as part of each discipline subtask
- Establishing bid/pay item breakdowns by specification

Deliverables:

- 30% Design quantities

3. FEE

Attachment 1 provides a summary fee estimate overall and by task.

4. SCHEDULE

Attachment 2 provides a schedule for the typical work program for a double-tracking project; the schedule will be refined as proposed under Task 1, including defining the dates for design details of each project to be used as the basis for the environmental documentation or for coordination with other parties such as UPRR.

Utah Transportation Authority
FRONTRUNNER ENVIRONMENTAL PROFESSIONAL SERVICES, CONTRACT 21-034961vw
FRF Environmental Studies Package #1

FRF Environmental Studies Package #1

Task	SubTask	Description	Labor Dollars	Labor Hours	Parametrix: Daryl Wendle	Parametrix: Marriah McCreery	Parametrix: Katheryn Seckel	Parametrix: Mark Mazzola	Parametrix: Alyssa Worsham	Parametrix: Kaylee Moser	Parametrix: Charles Allen	Certus: Sheri Ellis / Cultural Resources	Certus: Sheri Ellis / Admin	CSA: Lance Meister
		Fully Burdened Rate with Fee of 10%:			$284.67	$123.65	$161.17	$218.32	$117.33	$116.11	$183.46	$109.53	$45.50	$158.72
01		**Project Management, Administration and Coordination**	**$58,458.30**	**358**	**40**	**138**	**0**	**96**	**40**	**0**	**0**	**28**	**8**	**0**
01	01	Kick-Off Meeting	$3,351.60	16	4	2	0	8	0	0	0	2	0	0
01	02	Project Management Plan	$17,306.36	108	4	8	0	40	40	0	0	16	0	0
01	03	Monthly Progress Meetings	$13,499.08	60	24	8	0	24	0	0	0	4	0	0
01	04	Monthly Progress Reports, Schedule Updates, Invoices	$24,301.26	174	8	120	0	24	0	0	0	6	8	0
02		**Clearfieldto Roy**	**$61,782.79**	**380**	**8**	**0**	**68**	**96**	**70**	**24**	**16**	**25**	**8**	**32**
02	01	Environmental Services	$56,312.03	347	8	0	68	96	70	24	16	25	8	32
	01.01	*Mapping and CE Development*	$20,507.88	112	8	0	0	60	40	0	0	4	0	0
	01.02	*Built Environment*	$12,755.84	80	0	0	40	16	24	0	0	0	0	0
	01.03	*Natural Environment*	$8,629.88	56	0	0	20	12	0	24	0	0	0	0
	01.04	*Noise and Vibration*	$6,603.06	42	0	0	8	0	2	0	0	0	0	32
	01.05	*Cultural Resources*	$4,410.69	37	0	0	0	8	0	0	0	21	8	0
	01.06	*Transportation*	$3,404.68	20	0	0	0	0	4	0	16	0	0	0
02	02	Public Outreach Support	$5,470.76	33	0	0	0	0	0	0	0	0	0	0
03		**Centerville to Woods Cross**	**$55,770.62**	**335**	**8**	**0**	**70**	**96**	**44**	**24**	**16**	**24**	**8**	**12**
03	01	Environmental Services	$50,299.86	302	8	0	70	96	44	24	16	24	8	12
	01.01	*Mapping and CE Development*	$20,398.35	111	8	0	0	60	40	0	0	3	0	0
	01.02	*Built Environment*	$9,939.92	56	0	0	40	16	0	0	0	0	0	0
	01.03	*Natural Environment*	$8,629.88	56	0	0	20	12	0	24	0	0	0	0
	01.04	*Noise and Vibration*	$3,428.66	22	0	0	8	0	2	0	0	0	0	12
	01.05	*Cultural Resources*	$4,410.69	37	0	0	0	8	0	0	0	21	8	0
	01.06	*Transportation*	$3,492.36	20	0	0	2	0	2	0	16	0	0	0
03	02	Public Outreach Support	$5,470.76	33	0	0	0	0	0	0	0	0	0	0
04		**Lehi**	**$54,564.08**	**335**	**8**	**0**	**62**	**94**	**46**	**24**	**8**	**40**	**8**	**12**
04	01	Environmental Services	$49,093.32	302	8	0	62	94	46	24	8	40	8	12
	01.01	*Mapping and CE Development*	$20,946.00	116	8	0	0	60	40	0	0	8	0	0
	01.02	*Built Environment*	$9,939.92	56	0	0	40	16	0	0	0	0	0	0
	01.03	*Natural Environment*	$8,629.88	56	0	0	20	12	0	24	0	0	0	0
	01.04	*Noise and Vibration*	$2,575.94	16	0	0	0	2	2	0	0	0	0	12
	01.05	*Cultural Resources*	$5,299.24	48	0	0	2	4	2	0	0	32	8	0
	01.06	*Transportation*	$1,702.34	10	0	0	0	0	2	0	8	0	0	0
04	02	Public Outreach Support	$5,470.76	33	0	0	0	0	0	0	0	0	0	0
05		**American Fork**	**$437,147.32**	**2,713**	**8**	**0**	**84**	**88**	**40**	**24**	**24**	**28**	**8**	**20**
05	01	Preliminary Design/Engineering	$344,318.88	2164	0	0	0	0	0	0	0	0	0	0
	01.01	*Design Management and Quality Control*	$47,126.76	204	0	0	0	0	0	0	0	0	0	0
	01.02	*Design Production*	$40,595.80	260	0	0	0	0	0	0	0	0	0	0
	01.03	*Rail and Special Track*	$94,385.20	600	0	0	0	0	0	0	0	0	0	0
	01.04	*Civil and Site Development Design*	$18,114.60	156	0	0	0	0	0	0	0	0	0	0
	01.05	*At-Grade Crossings*	$38,717.60	240	0	0	0	0	0	0	0	0	0	0
	01.06	*Structural Design*	$16,220.04	124	0	0	0	0	0	0	0	0	0	0
	01.07	*Drainage Design*	$23,200.50	150	0	0	0	0	0	0	0	0	0	0
	01.08	*Railroad Signal Design*	$21,133.60	80	0	0	0	0	0	0	0	0	0	0
	01.09	*Geotechnical Analysis*	$0.00	0	0	0	0	0	0	0	0	0	0	0
	01.10	*Utilities*	$20,029.12	176	0	0	0	0	0	0	0	0	0	0
	01.11	*Right-of-Way*	$15,116.26	114	0	0	0	0	0	0	0	0	0	0
	01.12	*Lighting and Electrical*	$9,679.40	60	0	0	0	0	0	0	0	0	0	0
05	02	Environmental Services	$53,515.92	324	8	0	84	88	40	24	24	28	8	20
	02.01	*Mapping and CE Development*	$20,617.41	113	8	0	0	60	40	0	0	5	0	0
	02.02	*Built Environment*	$9,939.92	56	0	0	40	16	0	0	0	0	0	0
	02.03	*Natural Environment*	$8,629.88	56	0	0	20	12	0	24	0	0	0	0
	02.04	*Noise and Vibration*	$1,289.36	8	0	0	8	0	0	0	0	0	0	0
	02.05	*Cultural Resources*	$7,346.95	59	0	0	8	0	0	0	0	23	8	20
	02.06	*Transportation*	$5,692.40	32	0	0	8	0	0	0	24	0	0	0
05	03	Public Outreach Support	$5,470.76	33	0	0	0	0	0	0	0	0	0	0
05	04	Union Pacific Railroad Coordination Support	$12,202.32	56	0	0	0	0	0	0	0	0	0	0
05	05	Quantities and Cost Estimate	$21,639.44	136	0	0	0	0	0	0	0	0	0	0
		Labor Hour Totals:	$667,723.12	4,123	72	138	284	470	240	96	64	145	40	76
		Labor Totals:	$667,725		$20,496	$17,064	$45,772	$102,610	$28,159	$11,147	$11,741	$15,882	$1,820	$12,063
		Other Direct Expenses	$25,000											

Task	SubTask	Description	DEA: Mark Dorn	DEA: Jean Jaramillo	DEA: Kevin Farley	DEA: Kevin Jeffers	DEA: Terri O'Brien	DEA: Ken Holt	DEA: Tim Ellerbroek	DEA: Mike Butler	DEA: Briana Lebowitz	DEA: Jeff McBride	DEA: Zach Bailey	DEA: Bob Clegg	DEA: Andy Powell	DEA: Christine Isom	DEA: Tim Martin	DEA: Daniel Bernier	DEA: Craig Samuele	DEA: Jordan Becker	DEA: Dasha Wallace	DEA: Stephen Pearsall
		Fully Burdened Rate with Fee of 10%:	$369.27	$163.85	$253.21	$264.17	$121.05	$116.47	$311.57	$140.53	$136.07	$205.82	$99.01	$261.72	$285.95	$280.58	$185.23	$109.25	$148.57	$157.99	$115.63	$177.23
01		**Project Management, Administration and Coordination**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**8**	**0**
01	01	Kick-Off Meeting	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01	02	Project Management Plan	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01	03	Monthly Progress Meetings	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01	04	Monthly Progress Reports, Schedule Updates, Invoices	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	0
02		**Clearfieldto Roy**	**0**	**33**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
02	01	Environmental Services	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	01.01	*Mapping and CE Development*	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	01.02	*Built Environment*	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	01.03	*Natural Environment*	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	01.04	*Noise and Vibration*	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	01.05	*Cultural Resources*	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	01.06	*Transportation*	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02	02	Public Outreach Support	0	33.38885	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03		**Centerville to Woods Cross**	**0**	**33**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
03	01	Environmental Services	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	01.01	*Mapping and CE Development*	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	01.02	*Built Environment*	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	01.03	*Natural Environment*	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	01.04	*Noise and Vibration*	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	01.05	*Cultural Resources*	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	01.06	*Transportation*	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03	02	Public Outreach Support	0	33.38885	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04		**Lehi**	**0**	**33**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
04	01	Environmental Services	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	01.01	*Mapping and CE Development*	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	01.02	*Built Environment*	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	01.03	*Natural Environment*	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	01.04	*Noise and Vibration*	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	01.05	*Cultural Resources*	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	01.06	*Transportation*	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04	02	Public Outreach Support	0	33.38885	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05		**American Fork**	**76**	**33**	**84**	**80**	**12**	**48**	**16**	**8**	**178**	**68**	**590**	**20**	**128**	**16**	**296**	**220**	**300**	**40**	**152**	**24**
05	01	Preliminary Design/Engineering	68	0	76	80	12	48	0	8	178	68	590	20	128	16	240	220	300	40	72	0
	01.01	*Design Management and Quality Control*	60	0	60	0	12	0	0	0	0	0	0	0	0	0	0	0	0	0	72	0
	01.02	*Design Production*	8	0	16	0	0	0	0	0	0	20	0	4	12	0	0	120	80	0	0	0
	01.03	*Rail and Special Track*	0	0	0	0	0	0	0	0	0	0	0	0	0	0	240	100	220	40	0	0
	01.04	*Civil and Site Development Design*	0	0	0	0	0	0	0	8	40	8	100	0	0	0	0	0	0	0	0	0
	01.05	*At-Grade Crossings*	0	0	0	0	0	0	0	0	0	0	160	0	80	0	0	0	0	0	0	0
	01.06	*Structural Design*	0	0	0	0	0	0	0	0	28	0	80	0	0	16	0	0	0	0	0	0
	01.07	*Drainage Design*	0	0	0	0	0	0	0	0	110	40	0	0	0	0	0	0	0	0	0	0
	01.08	*Railroad Signal Design*	0	0	0	80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	01.09	*Geotechnical Analysis*	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	01.10	*Utilities*	0	0	0	0	0	0	0	0	0	0	160	16	0	0	0	0	0	0	0	0
	01.11	*Right-of-Way*	0	0	0	0	0	48	0	0	0	0	50	0	16	0	0	0	0	0	0	0
	01.12	*Lighting and Electrical*	0	0	0	0	0	0	0	0	0	0	40	0	20	0	0	0	0	0	0	0
05	02	Environmental Services	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	02.01	*Mapping and CE Development*	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	02.02	*Built Environment*	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	02.03	*Natural Environment*	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	02.04	*Noise and Vibration*	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	02.05	*Cultural Resources*	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	02.06	*Transportation*	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05	03	Public Outreach Support	0	33.38885	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05	04	Union Pacific Railroad Coordination Support	0	0	0	0	0	0	16	0	0	0	0	0	0	0	16	0	0	0	0	24
05	05	Quantities and Cost Estimate	8	0	8	0	0	0	0	0	0	0	0	0	0	0	40	0	0	0	80	0
		Labor Hour Totals:	76	134	84	80	12	48	16	8	178	68	590	20	128	16	296	220	300	40	160	24
		Labor Totals:	$28,065	$21,883	$21,270	$21,134	$1,453	$5,591	$4,985	$1,124	$24,220	$13,996	$58,416	$5,234	$36,602	$4,489	$54,828	$24,035	$44,571	$6,320	$18,501	$4,254

Project Total $ 692,725

Labor Total by Company	Hours	Labor Total	Expense Total	Total	%
Parametrix	1364	$236,989	$10,000	$246,989	36%
Certus	185	$17,702	$2,500	$20,202	3%
CSA	76	$12,063	$2,500	$14,563	2%
DEA	2498	$400,971	$10000	$410,971	59%
Labor Total:	4,123	$667,725	$25,000	$692,725	100%

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Attachment 2 - Schedule