

TASK ORDER NO. 03

**TASK ORDER NAME: FRONT RUNNER FORWARD ENVIRONMENTAL STUDIES -
ADVANCED CONCEPTUAL DESIGN - AMERICAN FORK, LEHI, WOODS CROSS, CLEARFIELD**

PROJECT CODE: MSP252 – FR Double Track

This is Task Order No. 03 to the FrontRunner Forward On-Call Environmental Study Contract entered into by and between Utah Transit Authority (UTA) and Parametrix Consult., Inc. (Contractor) as of January 27, 2022.

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. 03 is hereby attached and incorporated into this Task Order.

2.0 SCHEDULE

The Completion Date for this Task is 03/31/2023.

3.0 FEE

The price for this task order is a not to exceed \$1,519,521.00. 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: _____
Jay Fox, Executive Director Date
> \$100,000

By: _____
Mary DeLoretto, Chief Service Development Officer Date
< 100,000

By: _____
David Hancock, Director of Capital Development Date
< \$50,000
7/12/2022

By: _____
Project Manager Date
< \$10,000

DocuSigned by: *Mike Bell*
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Legal Review 7/13/2022

DocuSigned by: *Brian Moses*
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Procurement Review 7/13/2022

Parametrix Consult, Inc. :

DocuSigned by: *Jeff Peacock*
By: _____
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Date: 7/12/2022

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Task Order 3 Advanced Conceptual Design and supporting services for American Fork, Lehi, Woods Cross and Clearfield Segments

Task 1: Design Management and Deliverables

1.01 Design and Task Order 3 Management

- Provide design management and overall coordination of consultant team activities for the completion of the Advanced Conceptual Design (approximately 25%) deliverables for four doubletracking segments of the FrontRunner Commuter Rail system, as well as supporting cost estimating, geotechnical and wetland delineation efforts. These segments include:
 - American Fork
 - Lehi
 - Woods Cross
 - Clearfield
- Participate in one constructability review per segment to establish necessary construction staging areas and access to define the overall footprint of the project including temporary construction easement requirements
- Develop monthly progress reports and invoices covering all four segments and tasks included in Task Order 3
- Provide for integrated schedule and progress reporting for all Task Order 3 subtasks through December 2022

Deliverables:

- Meeting minutes from weekly Project Management meetings with PMSC/UTA
- Meeting minutes from biweekly Design Team coordination meetings
- Monthly progress reports and invoices
- Monthly

Assumptions:

- Task 1 will be invoiced with costs tracked proportionately to each segment project
- The design team will meet biweekly with UTA to coordinate design issues and perform cross disciplinary reviews.
- UTA/PMSC will manage the overall project schedule.
- The PMSC will prepare and conduct a constructability review at 20%. The constructability review will cover all four segments of the project.
- There will be no major changes in the alignment and features in the updated designs developed at the conclusion of Task Order 1 for the environmental documentation phase for all four segments, or in the underlying analysis and UPRR coordination supporting those designs.
- Structural engineering calculations will be performed at the new bridge in the American Fork segment as noted in Task 3.05 but no other structural calculations will be completed as part of this scope
- Impacts to structures on private property will not be evaluated as part of this scope
- Drainage calculations for pipe capacities, flow rates, detention pond volumes and other engineered systems are not included in this scope. The advanced conceptual design effort will be confined to researching available data, displaying available data and providing plan-view concepts for any proposed modifications so that pipe sizes and lengths can be estimated

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- No signal system calculations will be performed. Specifically, safe-braking distance calculations and grade crossing approach distance calculations will not be provided.

1.02 Project Management Plan and Quality Management Plan

- Develop a Project Management Plan including an organization chart, project/segment level schedule, deliverables list and a draft drawings list suitable for inclusion in the UTA/PMSC Project Management Plan (the draft schedule and draft drawings list
- Conduct Quality reviews for all deliverables consistent UTA's standard practices as well as those followed by each firm's policy.

Deliverables:

- Project Management Plan, including schedule and deliverables status lists to be updated monthly
- Quality Review Logs for deliverables in tasks 2 through 9.

1.03 Design Production

- Manage production and assembly of a draft and final 25% UTA Plan Set (drawing list attached) in compliance with UTA CADD standards and consistent with the concurrent environmental documentation and Advanced Conceptual Design review comments
- Develop Draft Advanced Conceptual Design Reports that will include the following:
 - Project design and status narratives, including basis of design, issues to be resolved, and necessary decisions required from UTA or others
 - Description of retaining wall and other miscellaneous structural types, special considerations, construction staging and access
 - A list of any design exceptions anticipated to require approval by UTA or jurisdictional agency partners

Deliverables:

- Draft and Final Advanced Conceptual Design Report(s), one each for all 4 segments of the FrontRunner Forward improvements
- Draft and Final Advanced Conceptual Design Drawing Sets, one each for all 4 segments of the FrontRunner Forward improvements

Assumptions:

- The project will use the OpenRoads CAD platform to deliver the project
- ProjectWise will be used to manage design files.
- The project will comply with UTA CADD standards from October 2007

Task 2: American Fork Advanced Conceptual Design

2.01 Rail and Special Track (Includes Segment Design Coordination)

- Coordinate design activities for the American Fork segment
- Participate in one constructability review to define construction staging areas, access, and temporary construction easements

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- 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
- 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
- Prepare design information for inclusion in the Plan Set
- Provide necessary input to Advanced Conceptual Design Report
- Conduct quality control reviews
- Calculate 25% design quantities by appropriate bid items

Deliverables:

- Draft and final track plans for inclusion in the 25% Plan Set to be delivered under section 1.03 above
- Written narrative of rail and special track elements for inclusion in Advanced Conceptual Design Report delivered under Task 1.03
- 25% Design quantities for rail and special trackwork

2.02 Civil and site development design

- Develop site design for construction access road at Lehi bridge
- Prepare design information for inclusion in the 25% Plan Set
- Calculate 25% design quantities by appropriate bid items

Deliverables:

- Draft and final information for inclusion in the 25% Plan Set to be delivered under Task 1.03
- Written narrative of civil roadway and site design elements with necessary detail for inclusion in Advanced Conceptual Design Report delivered under Task 1.03
- 25% Design quantities for civil and site designs

2.03 At-Grade Crossings

- Develop grade crossing sheets for the crossings listed below in preparation for the on-site diagnostic meeting with UPRR and others (see below). Grade crossing sheets to track and civil elements typical for UPRR diagnostic coordination, including plan views of roadway and pedestrian improvements, proposed warning devices, and pavement markings.
- Participate in over the shoulder/design review with UPRR, Lehi City and all project partners on-site to confirm design approach.
- Provide comment responses to the concept layout review by UPRR
- Develop draft and final grade crossing plans for the railroad grade-crossing installations at the locations listed below. Plans to reflect comment responses to UPRR diagnostic meeting. Plans

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to include roadway alignments and profiles; curb and sidewalk layout at crossing; pedestrian treatments at crossing; pavement markings; track and crossing infrastructure; warning devices; signage and striping. Locations include:

- Center Street
- 200 South
- Main Street
- 100 North
- 500 West
- 900 North
- 1500 North
- Prepare 25% Design drawings for at-grade crossings
- Calculate design quantities by appropriate bid items

Deliverables:

- Draft and final roadway crossing plans, profiles and details to be delivered under Task 1.03
- Written narrative of roadway crossing elements with necessary detail for inclusion in Advanced Conceptual Design Report delivered under Task 1.03
- 25% Design quantities

Assumptions:

- PMSC will coordinate design review meeting for project partners, including requesting and assembling comments

2.04 Structural Design

- Develop advanced conceptual designs for
 - Load rating and strengthening of existing culverts is not anticipated or included.
 - 25% design of the Lehi Irrigation Bridge adjacent to and independent of the existing UTA bridge and UPRR culvert.
- Participate in one constructability review to define construction staging areas, access, and temporary construction easements
- Prepare design plan-view information (x-ref) for inclusion in the 25% plan set including Dry Creek Box Culvert and Lehi Irrigation Bridge, plus wall locations, heights and limits and construction staging areas
- Prepare supplemental detail drawings to support cost estimating if necessary, such as typical sections
- Calculate 25% design quantities by appropriate bid items.

Deliverables:

- Draft and final 25% structural design information and supplemental detail drawings (if necessary) to be delivered under Task 1.03
- Written narrative of structural design elements with necessary detail for inclusion in Advanced Conceptual Design Report delivered under Task 1.03
- 25% design quantities

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2.05 Drainage Design

- Develop 25% stormwater drainage design information for inclusion in the 25% Plan Set for the extent of the corridor including along the railroad corridor
- Develop 25% drainage designs and conveyance infrastructure for all roadway and rail crossings
- Calculate 25% design quantities by appropriate bid items

Deliverables:

- Draft and final 25% drainage information for inclusion in the 25% Plan Set under Task 1.03
- Written narrative of drainage design elements with necessary detail for inclusion in 25% Design Report delivered under Task 1.03
- 25% design quantities for drainage by appropriate bid item

2.06 Railroad Signal Design

- Identify railroad signaling and design requirements
- Review existing signal design plans to determine impacts caused by proposed improvements
- Design shall address the removal of the existing interlocking at American Fork North interlocking and addition of new interlocking at new #24 POTO location
- Design shall address additional pinch point detectors being added
- Coordinate with civil and track designers to place proposed grade crossing equipment, and other necessary signal equipment shown in 10% roll plots, in appropriate locations along the tracks (signal equipment will be shown in civil/track plans at 25%)
- Coordinate with UTA and PMSC as required to determine any operational changes that are needed including adjustments to existing speed codes, cut section locations and crossing approaches
- 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
- Estimate 25% system design quantities by appropriate bid items

Deliverables:

- 25% estimated quantities for train signal system modifications and fiber optic
- Written narrative describing modifications to train signal system for the Advanced Conceptual Design Report delivered under Task 1.03 . Narrative shall identify operational constraints and design exceptions identified during the advanced conceptual design.
- Modified UTA Single Line Diagrams detailing project concept

2.07 Utilities

- Update and manage an inventory of existing public and private utilities within the vicinity of the project
- Attend meetings with utility owners to be led by PMSC as necessary to understand the characteristics of their existing infrastructure and parameters of potential mitigation measures including “maintaining in place” or relocation
- Confirm anticipated utility relocation requirements

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- Update composite existing utility information as appropriate for the corridor for inclusion in 25% Plan Set
- Coordinate with PMSC/UTA and civil, track, structures and other team disciplines to identify and mitigate conflicts between proposed infrastructure elements and existing and proposed utilities

Deliverables:

- Composite existing utility information for inclusion in 25% design set to be delivered under Task 1.03
- 25% design quantities

2.08 Right-of-Way and Survey Control

- Confirm right-of-way acquisition requirements and document any ROW assumptions in the Advanced Conceptual Design Report. Report will include requirements and/or assumptions on permanent acquisitions, permanent maintenance easements, permanent slope easements, permanent subterranean easements, permanent aerial easements, and temporary construction easements.
- Develop ROW drawings that identify land acquisitions and easements on drawings. Include a table for each sheet showing the project file number, tax lot ID, site address, Owner, Need by Date (can be left blank), type of easement, and TCE duration (can be left blank).
- Produce necessary linework for inclusion in the track and civil design drawings
- Calculate right-of-way areas for acquisitions, permanent and temporary easements
- Develop a ROW database in an Excel spreadsheet showing each property expected to be impacted by the project. Include typical ROW database information, including tax lot ID#, Owner, zoning, Site Address, type and square footage of impact, and other pertinent information. Include zoning based on tax assessor data for each property and type of impact, including acquisition, legal, and assumed demolition costs. Identify/inventory impacted structures
- Develop a ROW database in an Excel spreadsheet showing each property expected to be impacted by the project. Include typical ROW database information, including tax lot ID#, Owner, zoning, Site Address, type and square footage of impact, and other pertinent information.
- Identify/inventory impacted structures
- Develop ROW and Survey Control sheets. Sheets will include existing survey information, plan view of project area, and ROW tables

Deliverables:

- ROW technical summary of requirements and assumptions for inclusion in the Design Report
- ROW linework for inclusion in the track and civil drawings
- Right-of-way quantities by acquisition and easements
- ROW database in Excel
- ROW and Survey Control plans (1"=3000' full size) for inclusion in the 25% Plan set under Task 1.03

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Assumptions:

- UTA/PMSC will lead the coordination and interaction with property/real estate services, including property level cost estimates and ownership investigations
- UTA/PMSC will conduct outreach to property owners and identify/inventory impacted structures and their current purposes

2.09 Not used

Task 3: Lehi Advanced Conceptual Design

3.01 Rail and Special Track (Includes Segment Design Coordination)

- Coordinate design activities for the Lehi segment
- Participate in one constructability review to define construction staging areas, access, and temporary construction easements
- 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 (25%) track alignment to optimize train operational performance and determine the design speed
- Provide information on geometric spirals and track superelevation
- 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
- Prepare design information for inclusion in the 25% Plan Set
- Provide necessary input to Advanced Conceptual Design Report
- Conduct quality control reviews
- Calculate 25% design quantities by appropriate bid items

Deliverables:

- Draft and final track plans for inclusion in the 25% Plan Set to be delivered under section 1.03 above
- Written narrative of rail and special track elements for inclusion in Advanced Conceptual Design Report delivered under Task 1.03
- 25% Design quantities for rail and special trackwork

3.02 Civil and site development design

- Develop site designs for ancillary areas such as signal housings or cell tower relocation.
- Prepare design information for inclusion in the Advanced Conceptual Plan Set
- Calculate 25% design quantities by appropriate bid items

Deliverables:

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- Draft and final design information for inclusion in the 25% Plan Set to be delivered under Task 1.03
- Written narrative of civil roadway and site design elements with necessary detail for inclusion in Advanced Conceptual Design Report delivered under Task 1.03
- 25% Design quantities

3.03 At-Grade Crossings (Not used for Lehi)

- No grade crossing modifications are anticipated in this segment (except for possible signal modifications that will be reviewed under Task 3.06)

Deliverables:

- None

3.04 Structural Design

Provide structural input related to construction of proposed walls along this segment

- Participate in one constructability review to define construction staging areas, access, and temporary construction easements
- Prepare design information linework (x-refs) for inclusion in the 25% plan set. Wall location and layout will be shown on track and civil sheets.
- Prepare 25% design drawings
- Estimate 25% design quantities by appropriate bid items

Deliverables:

- Linework (x-ref) for including on track and/or civil/utility sheets to be delivered under Task 1.03
- Written narrative of structural design elements with necessary detail for inclusion in Design Report delivered under Task 1.03
- 25% design quantities for walls

3.05 Drainage Design

- Develop stormwater drainage design information for inclusion in the 25% Plan Set for the extent of the corridor including along the railroad corridor
- Develop drainage designs and conveyance infrastructure for all roadway and rail crossings
- Calculate 25% design quantities by appropriate bid items

Deliverables:

- Draft and final 25% drainage information for inclusion in the 25% Plan Set to be delivered under Task 1.03
- Written narrative of drainage design elements with necessary detail for Advanced Conceptual Design Report delivered under Task 1.03
- 25% design quantities

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3.06 Railroad Signal Design

- Identify railroad signaling and design requirements
- Review existing signal design plans to determine impacts caused by proposed improvements
- Design shall address the removal of the existing interlocking at Lehi North interlocking and addition of new interlocking at new #24 POTO location
- Coordinate with civil and track designers to place proposed signal equipment shown in 10% roll plots in appropriate locations along the tracks (signal equipment will be shown in civil/track plans at 25%)
- Coordinate with UTA and PMSC to determine operational changes such as adjustments to existing speed codes, cut section locations and crossing approaches
- Estimate 25% system design quantities by appropriate bid items

Deliverables:

- 25% estimated quantities for train signal system modifications and fiber optic
- Written narrative describing modifications to train signal system for the Advanced Conceptual Design Report delivered under Task 1.03 . Narrative shall identify operational constraints and design exceptions identified during the advanced conceptual design.
- Modified UTA Single Line Diagrams detailing project concept

3.07 Utilities

- Update and manage an inventory of existing public and private utilities within the vicinity of the project
- Attend meetings with utility owners to be led by PMSC as necessary to understand the characteristics of their existing infrastructure and parameters of potential mitigation measures including “maintaining in place” or relocation
- Confirm anticipated utility relocation requirements
- Update composite existing utility information as appropriate for the corridor for inclusion in 25% Plan Set
- Coordinate with PMSC/UTA and civil, track, structures and other team disciplines to identify and mitigate conflicts between proposed infrastructure elements and existing and proposed utilities.

Deliverables:

- Updated composite existing utility information for inclusion in 25% design set to be delivered under Task 1.03
- 25% design quantities

3.08 Right-of-Way and Survey Control

- Confirm right-of-way acquisition requirements and document any ROW assumptions in the Design Report. Report will include requirements and/or assumptions on permanent acquisitions, permanent maintenance easements, permanent slope easements, permanent subterranean easements, permanent aerial easements, and temporary construction easements.

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- Develop ROW drawings that identify land acquisitions and easements on drawings. Include a table for each sheet showing the project file number, tax lot ID, site address, Owner, Need by Date (can be left blank), type of easement, and TCE duration (can be left blank).
- Produce necessary linework for inclusion in the track and civil design drawings
- Calculate right-of-way areas for acquisitions, permanent and temporary easements
- Develop a ROW database in an Excel spreadsheet showing each property expected to be impacted by the project. Include typical ROW database information, including tax lot ID#, owner, zoning, Site Address, type and square footage of impact, and other pertinent information. Develop ROW and Survey Control sheets. Sheets will include existing survey information, plan view of project area, and ROW tables
- Identify/inventory impacted structures

Deliverables:

- ROW technical summary of requirements and assumptions for inclusion in Design Report
- ROW linework for inclusion in plan set
- ROW and Survey Control plans (1"=3000' full size) for inclusion in the 25% Plan set under Task 1.03
- ROW database in Excel
- Right-of-way quantities by acquisition and easements

Assumptions:

- UTA/PMSC will lead the coordination and interaction with property/real estate services, including property level cost estimates and ownership investigations
- UTA/PMSC will conduct outreach to property owners and identify/inventory impacted structures

3.09 Lighting and electrical

- No lighting analysis for Lehi Segment

Deliverables:

- none

Task 4: Woods Cross Advanced Conceptual Design

4.01 Rail and Special Track (includes Segment Design Coordination)

- Coordinate design activities for the Woods Cross segment
- Participate in one constructability review to define construction staging areas, access, and temporary construction easements
- Refine trackway typical sections including the location of existing and proposed utilities, drainage features and other associated infrastructure (retaining walls, etc)
- Provide information on geometric spirals and track superelevation

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- 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
- Prepare Track Plan and Profile drawings for the proposed UFRC track alignment. Sheets will include guardrail data and curve data.
- Prepare up to 1 track detail sheet for a standard crossing panel.
- Prepare track typical section drawings at key locations along UFRC alignment. Assumed to include key locations such as undercrossings and retaining walls.
- Prepare track earthwork sections at approximately every 500’ of alignment as well as at key locations such as undercrossings and retaining walls.
- Provide input to Advanced Conceptual Design Report
- Conduct quality control reviews
- Calculate 25% design quantities for track

Deliverables:

- Draft and final Track plan and profile drawings at 1” = 100’ scale full size for inclusion in the 25% Plan Set to be delivered under section 1.03 above
- Up to 1 track detail section listed above
- Approximately 5 Track typical sections sheets at 1” = 4’ scale full size.
- Track Earthwork sheets at 1” = 20’ scale full size.
- Written narrative of rail and special track elements for inclusion in Advanced Conceptual Design Report delivered under Task 1.03
- 25% Design quantities for rail and special trackwork

4.02 Civil and site development design

- Confirm Civil and Site requirements, assumptions, and written narrative regarding proposed improvements and document these in the Design Report.
- Establish the anticipated limits of civil improvements including roadway, sidewalks, curb and gutter plan layouts, and pavement markings. Develop roadway horizontal and vertical alignments.
- Develop site designs for ancillary areas such as signal housings or cell tower relocation.
- Prepare Civil and Utility sheets to show proposed improvements along UFRC alignment, including existing and proposed drainage, existing and proposed utilities, proposed fencing, wall limits, cut and fill limits, and significant removals.
- Prepare up to two Civil and Utility Detail sheets if needed to show specific areas of concern where greater detail or treatment is needed
- Prepare Roadway sheets to show the proposed improvements listed above for the following roadways anticipated to be impacted by the project:
 - Access Rd to Holly Refinery
- Prepare signing and striping drawings for the Roadway sheets listed above.
- Coordinate with UDOT on compatibility of proposed track expansion with respect to future I-15 expansion plans. Document findings and concurrence in design report
- Calculate 25% design quantities by appropriate bid items

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Deliverables:

- Written narrative of civil roadway and site design elements with necessary detail for inclusion in Advanced Conceptual Design Report delivered under Task 1.03
- Civil and Utility drawings at 1" = 50' scale full size for inclusion in the 25% Plan Set to be delivered under Task 1.03
- Up to 2 Civil and Utility Detail drawings for inclusion in Advanced Conceptual Design Report delivered under Task 1.03
- Roadway drawings at 1" = 25' scale full size for inclusion in the 25% Plan Set to be delivered under Task 1.03
- Signing and Striping drawings at 1" = 25' scale full size for inclusion in the 25% Plan Set to be delivered under Task 1.03
- Compatibility Review Memo documenting concurrence with future I-15 plans (and included in design report delivered under Task 1.03)
- 25% Design quantities

4.03 At-Grade Crossings

- Develop grade crossing sheets for the crossings listed below in preparation for the on-site diagnostic meeting with UPRR and others (see below). Grade crossing sheets to show approximately 20% design-level track and civil elements typical for UPRR diagnostic coordination, including plan views of roadway and pedestrian improvements, proposed warning devices, and pavement markings.
- Participate in on-site diagnostic design review with UPRR, UFRC, Woods Cross, UDOT, and all project partners on-site to confirm design approach.
- Provide comment responses to the concept layout review by UPRR
- Develop draft and final 25% grade crossing plans for the railroad grade-crossing installations at the locations listed below. Plans to reflect comment responses to UPRR diagnostic meeting. Plans to include roadway alignments and profiles; curb and sidewalk layout at crossing; pedestrian treatments at crossing; pavement markings; track and crossing infrastructure; warning devices; signage and striping. Locations include:
 - 500 South
 - 1600 North
- Prepare 25% Design drawings
- Calculate 25% design quantities by appropriate bid items

Deliverables:

- Draft and final 25% roadway crossing plan and profile, and signing and striping plans, to be delivered under Task 1.03
- Written narrative of roadway crossing elements with necessary detail for the Design Report delivered under Task 1.03
- 25% Design quantities

Assumptions:

- PMSC will coordinate design review meetings for project partners, including requesting and assembling comments

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- PMSC will set up and coordinate compatibility review process and meetings with UDOT and project partners

4.04 Structural Design

- Provide structural input related to construction of proposed walls along this segment
- Participate in one constructability review to define construction staging areas, access, and temporary construction easements
- Prepare design information linework (x-refs) for inclusion in the 25% plan set. Wall location and layout will be shown on track and civil sheets.
- Calculate 25% design quantities by appropriate bid items

Deliverables:

- Linework (x-ref) for including on track and/or civil/utility sheets to be delivered under Task 1.03
- Written narrative of structural design elements with necessary detail for the Design Report delivered under Task 1.03
- 25% design quantities for walls

Assumptions:

- The existing undercrossing in the Woods Cross segment at 400 N is currently wide enough to span all proposed improvements, including track and access roads, and so no structural modifications to bridge superstructures, substructures, or abutments are anticipated.
- No structural calculations will be provided.
- Retaining wall plan and profile sheets are excluded
- Wall curve data tables are excluded

4.05 Drainage Design

- Develop 25% stormwater drainage design plan view and conveyance information, including proposed modifications to existing structures and proposed ditch modifications, along the proposed UFRC alignment.
- Prepare stormwater drainage design linework (x-refs) for inclusion in the 25% set. Drainage information will be shown on the track plan and profile sheets.
- Develop stormwater drainage designs and conveyance information for roadway and grade crossing locations. Grade crossing locations are listed in Task 4.03 above. Drainage information for grade crossings will be shown on the grade crossing sheets.
- Develop stormwater drainage profiles for the proposed 48" and 84" Reinforced Concrete Pipe adjacent to I-15 (approx. station 43922+00 to end)
- Prepare up to 2 supplemental drainage detail sheets to support cost estimating as needed.
- Calculate 25% design quantities by appropriate bid items

Deliverables:

- Draft and final 25% drainage information for inclusion in the 25% Plan Set to be delivered under Task 1.03
- Drainage profile sheets at 1"=25' (H) scale full size
- Up to 2 Supplemental drainage detail sheets

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- Written narrative of drainage design elements with necessary detail for inclusion in 25% Design Report delivered under Task 1.03
- 25% design quantities

Assumptions:

- It is assumed that existing conveyance structures for rail and roadway infrastructure are sufficiently sized to handle existing and future drainage requirements. It is assumed that proposed conveyance structures sizes provided in the conceptual design documents are sufficiently sized to handle existing and future drainage requirements. Catchment analysis, drainage volume analysis, flow analysis, and conveyance sizing is excluded.
- Proposed drainage profiles and inverts for structures not noted above are excluded.

4.06 Railroad Signal Design

- Identify railroad signaling and design requirements
- Review existing signal design plans to determine impacts caused by proposed improvements
- 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 civil/track plans at 25%)
- Coordinate with UTA and PMSC as required to determine any operational changes that are needed including adjustments to existing speed codes, cut section locations and crossing approaches
- 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 queues or traffic timing at grade crossings
- Estimate 25% system design quantities by appropriate bid items

Deliverables:

- 25% estimated quantities for train signal system modifications and fiber optic
- Written narrative describing modifications to train signal system for the Design Report delivered under Task 1.03_ Narrative shall identify operational constraints and design exceptions identified during the advanced conceptual design.
- Modified UTA Single Line Diagrams detailing project concept

4.07 Utilities

- Update and manage an inventory of existing public and private utilities within the vicinity of the project. Prepare composite existing utility information for the corridor for inclusion on the Civil and Utility sheets prepared under Task 4.02 above.
- Attend 1 meeting with each utility owner to be led by PMSC , to understand the characteristics of their existing infrastructure and parameters of potential mitigation measures including “maintaining in place” or relocation
- Confirm anticipated utility relocation requirements. Develop linework and callouts for proposed utility relocations. Linework for utility relocations will be included on the Civil and Utility sheets prepared under Task 4.02 above.
- Develop up to 3 utility section and detail sheets showing plan view and cross section information for specific areas of concern.

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- Coordinate with PMSC/UTA and civil, track, structures and other team disciplines to identify and mitigate conflicts between proposed infrastructure elements and existing and proposed utilities.
- Develop proposed utility quantities.

Deliverables:

- Updated composite existing utility information to be shown on Civil and Utility sheets
- Proposed utility relocations to be shown on Civil and Utility sheets
- Utility section and detail sheets at 1"=25' scale full size
- 25% design quantities for utilities

4.08 Right-of-Way and Survey Control

- Confirm right-of-way acquisition requirements and document ROW assumptions in the Design Report. Report will include requirements and/or assumptions on permanent acquisitions, permanent maintenance easements, permanent slope easements, and temporary construction easements.
- Develop drawings to identify land acquisitions and easements on drawings. ROW linework will be shown on the track plan and profile drawings.
- Calculate right-of-way areas for acquisitions, permanent and temporary easements. Develop tables for ROW information that will show project ID number, tax lot ID, site address, Owner, type of easement or acquisition, and square footage of impact. ROW tables will be shown on the ROW and Survey Control Sheets.
- Develop ROW and Survey Control sheets. Sheets will include existing survey information, plan view of project area, and ROW tables.
- Develop a ROW database in an Excel spreadsheet summarizing ROW tables shown on plans.
- Owner will identify/inventory impacted structures (see assumptions below). Information regarding structures provided by Owner will be included on ROW sheets and the ROW Excel database.

Deliverables:

- ROW technical summary of requirements and assumptions for inclusion in Design Report
- ROW and Survey Control plans (1"=3000' full size) for inclusion in the 25% Plan set under Task 1.03
- ROW database in Excel, including square foot quantities by acquisition and easements.

Assumptions:

- UTA/PMSC will lead the coordination and interaction with property/real estate services, including property level cost estimates and ownership investigations
- UTA/PMSC will conduct outreach to property owners and identify/inventory impacted structures
- Information on existing tax lot Id's, Owner names, and site addresses will be collected from existing Tax Assessor data. Information not available from Tax Assessor data will not be provided.

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- No new survey will be performed. Survey information included on sheets will be that provided by Owner and is assumed to be the same survey information used in the Conceptual Design.

4.09 Not Used

Task 5: Clearfield Advanced Conceptual Design

5.01 Rail and Special Trackwork (includes Segment Design Coordination)

- Coordinate design activities for the Clearfield segment
- Participate in one constructability review to define construction staging areas, access, and temporary construction easements
- Refine trackway typical sections including the location of existing and proposed utilities, drainage features and other associated infrastructure (retaining walls, etc)
- Provide information on geometric spirals and track superelevation
- Identify constrained sections along the appropriate design segment and develop and review modified “constrained” cross sections to address questions, concerns and cost estimates in these locations
- Prepare Track Plan and Profile drawings for the proposed UFRC track alignment. Sheets will include guardrail data and curve data.
- Prepare up to 3 track detail sheets for a standard #24 turnout, one detail for a turnout construction pad, and for standard crossing panels.
- Prepare track typical section drawings at key locations along UFRC alignment. Assumed to include key locations such as undercrossings and retaining walls.
- Prepare track earthwork sections at approximately every 500’ of alignment as well as at key locations such as undercrossings and retaining walls.
- Provide input to Advanced Conceptual Design Report
- Conduct quality control reviews
- Calculate 25% design quantities for track

Deliverables:

- Draft and final 25% Track plan and profile drawings at 1” = 100’ scale full size for inclusion in the 25% Plan Set to be delivered under section 1.03 above
- Up to 3 Draft and final 25% track detail sheets listed above
- Approximately 6 Track typical sections sheets at 1” = 4’ scale full size.
- Track Earthwork sheets at 1” = 20’ scale full size.
- Written narrative of rail and special track elements for the Design Report delivered under Task 1.03
- 25% Design quantities for rail and special trackwork

Assumptions:

- Separate track geometry sheets are excluded

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5.02 Civil and site development design

- Confirm Civil and Site requirements, assumptions, and written narrative regarding proposed improvements and document these in the Design Report.
- Establish the anticipated limits of civil improvements including roadway, sidewalks, curb and gutter plan layouts, and pavement markings. Develop roadway horizontal and vertical alignments. Develop site designs for ancillary areas such as signal housings or cell tower relocation.
- Prepare Civil and Utility sheets to show proposed improvements along UFRC alignment, including existing and proposed drainage, existing and proposed utilities, proposed fencing, wall limits, cut and fill limits, and significant removals.
- Prepare up to two Civil and Utility Detail sheets if needed to show specific areas of concern where greater detail or treatment is needed
- Prepare Roadway sheets to show the proposed improvements listed above for the following roadways anticipated to be impacted by the project:
 - S Depot St.
 - Depot St. near E Hilltop Dr S
 - Intersection of E 200 St and S Depot St.
- Prepare signing and striping drawings for the Roadway sheets listed above.
- Prepare design information for inclusion in the 25% Plan Set
- Calculate 25% design quantities by appropriate bid items

Deliverables:

- Written narrative of civil roadway and site design elements for inclusion in Advanced Conceptual Design Report delivered under Task 1.03
- Civil and Utility drawings at 1" = 50' scale full size for inclusion in the 25% Plan Set to be delivered under Task 1.03
- Up to 2 Civil and Utility Detail drawings for the Design Report delivered under Task 1.03
- Roadway drawings at 1" = 25' scale full size for inclusion in the 25% Plan Set to be delivered under Task 1.03
- Signing and Striping drawings at 1" = 25' scale full size for inclusion in the 25% Plan Set to be delivered under Task 1.03
- 25% Design quantities for civil and site development

Assumptions:

- Stations and offsets for proposed improvements shown on Civil & Site sheets are excluded
- Roadway signage design is excluded
- Curb and Gutter profiles are excluded
- Roadway typical sections are excluded
- Roadway detail sheets are excluded

5.03 At-Grade Crossings

- Develop grade crossing sheets for the crossings listed below in preparation for the on-site diagnostic meeting with UPRR and others (see below). Grade crossing sheets to show track and

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civil elements typical for UPRR diagnostic coordination, including plan views of roadway and pedestrian improvements, proposed warning devices, and pavement markings.

- Participate in on-site diagnostic design review with UPRR, UFRC, Sunset City, Clinton City, UDOT, and all project partners on-site to confirm design approach.
- Provide comment responses to the concept layout review by UPRR
- Develop draft and final 25% grade crossing plans for the railroad grade-crossing installations at the locations listed below. Plans to reflect comment responses to UPRR diagnostic meeting. Plans to include roadway alignments and profiles; curb and sidewalk layout at crossing; pedestrian treatments at crossing; pavement markings; track and crossing infrastructure; warning devices; signage and striping; . Locations include:
 - 1300 NORTH (DOT Crossing Inventory #805620P)
 - SR37 /1800 N (DOT Crossing Inventory #805619V)
- Prepare 25% Design drawings for at grade crossings
- Calculate 25% design quantities by appropriate bid items

Deliverables:

- Draft grade crossing sheets for the diagnostic meeting(s) with UPRR
- Draft and final 25% roadway crossing plan and profile sheets and signing and striping sheets to be delivered under Task 1.03
- Written narrative of roadway crossing elements with necessary detail for inclusion in Advanced Conceptual Design Report delivered under Task 1.03
- 25% Design quantities

Assumptions:

- PMSC will coordinate design review meetings for project partners, including requesting and assembling comments

5.04 Structural Design

- Participate in one constructability review to define construction staging areas, access, and temporary construction easements
- Prepare design information linework (x-refs) for inclusion in the 25% plan set. Wall location and layout will be shown on track and civil sheets.
- Calculate 25% design quantities by appropriate bid items

Deliverables:

- Draft and final 25% structural design linework (x-ref) for including on track and/or civil/utility sheets to be delivered under Task 1.03
- 25% design quantities for structures

Assumptions:

- All existing undercrossings in the Clearfield segment, including at SR 193 / E 700, at W Center Street, at W 300 N, and at W 800 N are currently wide enough to span all proposed improvements, including track and access roads, and so no structural modifications to bridge superstructures, substructures, or abutments are anticipated.
- No structural calculations will be performed.

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- Retaining wall plan and profile sheets are excluded
- Wall curve data tables are excluded

5.05 Drainage Design

- Develop stormwater drainage design plan view and conveyance information, including proposed modifications to existing structures and proposed ditch modifications, along the proposed UFRC alignment.
- Prepare stormwater drainage design linework (x-refs) for inclusion in the 25% set. Drainage information will be shown on the track plan and profile sheets.
- Develop stormwater drainage designs and conveyance information for roadway and grade crossing locations. Grade crossing locations are listed in Task 5.03 above. Drainage information for grade crossings will be shown on the grade crossing sheets.
- Calculate 25% design quantities for drainage by appropriate bid items

Deliverables:

- Draft and final 25% drainage information for inclusion in the 25% Plan Set
- Written narrative of drainage design elements for the Design Report delivered under Task 1.03
- 25% design quantities

Assumptions:

- It is assumed that existing conveyance structures for rail and roadway infrastructure are sufficiently sized to handle existing and future drainage requirements. Catchment analysis, drainage volume analysis, flow analysis, and conveyance sizing is excluded.
- Proposed drainage profiles and inverts are excluded.

5.06 UFRC Railroad Signal Design

- Identify UFRC railroad signaling and design requirements
- Review existing UFRC signal design plans including signal control lines, cable plans, and details for equipment to determine impacts caused by proposed improvements
- Produce schematic UFRC signal design showing size and location of relocated ductbank (assuming current ductbank is owned by UTA and is shown in existing signal design plans)
- Coordinate with owner of existing fiber optic facility and show proposed location of relocated fiber optic line on ductbank schematic
- 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 civil/track plans at 25%)
- Coordinate with civil and track designers, UFRC and UPRR on proposed changes to existing UPRR or UFRC signal interconnect ductbank, wiring, timing, and/or equipment at grade crossings listed under Task 5.03 above.
- Coordinate with UTA and PMSC as required to determine any operational changes that are needed including adjustments to existing speed codes, cut section locations and crossing approaches 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 queues or traffic timing at grade crossings
- Estimate 25% system design quantities by appropriate bid items

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Deliverables:

- 25% estimated quantities for UFRC signal system modifications and fiber optic
- Written narrative describing modifications to train signal system for the Advanced Conceptual Design Report delivered under Task 1.03 . Narrative shall identify operational constraints and design exceptions identified during the advanced conceptual design.
- Modified UTA Single Line Diagrams detailing project concept

5.07 Utilities

- Update and manage an inventory of existing public and private utilities within the vicinity of the project. Prepare composite existing utility information for the corridor for inclusion on the Civil and Utility sheets prepared under Task 5.02 above.
- Attend 1 meeting with each utility owner, to be led by PMSC, to understand the characteristics of their existing infrastructure and parameters of potential mitigation measures, including “maintaining in place” or relocation
- Confirm anticipated utility relocation requirements. Develop linework and callouts for proposed utility relocations. Linework for utility relocations will be included on the Civil and Utility sheets prepared under Task 5.02 above.
- Coordinate with PMSC/UTA and civil, track, structures and other team disciplines to identify and mitigate conflicts between proposed infrastructure elements and existing and proposed utilities.
- Develop proposed utility quantities.

Deliverables:

- Updated composite existing utility information to be shown on Civil and Utility sheets
- Proposed utility relocations to be shown on Civil and Utility sheets
- 25% design quantities for utilities

Assumptions:

- Owner will provide an initial inventory of existing utilities assumed to have been developed during the conceptual phase.
- For purposes of estimating, it is assumed that there will be 6 meetings with utility owners with attendance of 1 contractor attendee at each.
- Potholing existing utilities is excluded

5.08 Right-of-Way and Survey Control

- Confirm right-of-way acquisition requirements and document ROW assumptions in the Design Report. Report will include requirements and/or assumptions on permanent acquisitions, permanent maintenance easements, permanent slope easements, and temporary construction easements.
- Develop linework to identify land acquisitions and easements. ROW linework will be shown on the track plan and profile drawings. Calculate right-of-way areas for acquisitions, permanent and temporary easements. Develop tables for ROW information that will show project ID number, tax lot ID, site address, Owner, type of easement or acquisition, and square footage of impact. ROW tables will be shown on the ROW and Survey Control Sheets.
- Develop ROW and Survey Control sheets. Sheets will include existing survey information, plan view of project area, and ROW tables.

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- Develop a ROW database in an Excel spreadsheet summarizing ROW tables shown on plans.
- Owner will Identify/inventory impacted structures (see assumptions below). Information regarding structures provided by Owner will be included on ROW sheets and the ROW Excel database.

Deliverables:

- ROW technical summary of requirements and assumptions for inclusion in Design Report
- ROW and Survey Control plans (1"=3000' full size) for inclusion in the 25% Plan set under Task 1.03
- ROW database in Excel, including square foot quantities by acquisition and easements.

Assumptions:

- UTA/PMSC will lead the coordination and interaction with property/real estate services, including property level cost estimates and ownership investigations
- UTA/PMSC will conduct outreach to property owners and Identify/inventory impacted structures and their current purposes
- Information on existing tax lot Id's, Owner names, and site addresses will be collected from existing Tax Assessor data. Information not available from Tax Assessor data will not be provided.
- No new survey will be performed. Survey information included on sheets will be that provided by Owner and is assumed to be the same survey information used in the Conceptual Design.

5.09 Not Used

Task 6: Union Pacific Outreach Support

- Developing content and deliverables to support meetings with UPRR and other regulatory authorities
- Develop supportive permitting documents in compliance with standard UPRR check list for the following permitting review submittals:
 - American Fork: Follow UPRR's permitting process through the 25% design level, including grade crossing sheets.
 - Lehi: Follow UPRR's permitting process through the 10% design level.
 - Woods Cross: Provide grade crossing sheets for diagnostic review.
 - Clearfield: Provide grade crossing sheets for diagnostic review.
- Participate in UPRR permit coordination meetings and negotiations as needed

Deliverables:

- Draft and final 10% UPRR permitting review plan set for the American Fork segment
- Draft and final 25% UPRR permitting review plan set for the American Fork segment
- Draft and final 10% UPRR permitting review plan set for Lehi segment
- Grade crossing plan sheets for diagnostic review for the Woods Cross segment delivered under task 4.03 above

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- Grade crossing plan sheets, check lists, and permitting documents for diagnostic review for the Clearfield segment. Grade crossing sheets delivered under task 5.03 above

Assumptions:

UTA and the PMSC will lead UPRR outreach and coordination, including negotiations, and the Parametrix team will support with technical products and analysis.

Task 7: Cost Estimating Support

7.01 American Fork Cost Estimate

- Develop cost estimates and integrated project schedule to reflect the current level of design
- Compiling, organizing quantities that are calculated as part of each discipline subtask
- Establishing bid/pay item breakdowns by specification
- Determining unit pricing (“bottoms up”)
- Organizing cost estimates in FTA SCC

7.02 Lehi Cost Estimate

- Develop cost estimates and integrated project schedule to reflect the current level of design
- Compiling, organizing quantities that are calculated as part of each discipline subtask
- Establishing bid/pay item breakdowns by specification
- Determining unit pricing (“bottoms up”)
- Organizing cost estimates in FTA SCC

7.03 Woods Cross Cost Estimate

- Develop cost estimates and integrated project schedule to reflect the current level of design
- Compiling, organizing quantities that are calculated as part of each discipline subtask
- Establishing bid/pay item breakdowns by specification
- Determining unit pricing (“bottoms up”)
- Organizing cost estimates in FTA SCC

7.04 Clearfield Cost Estimate

- Develop cost estimates and integrated project schedule to reflect the current level of design
- Compiling, organizing quantities that are calculated as part of each discipline subtask
- Establishing bid/pay item breakdowns by specification
- Determining unit pricing (“bottoms up”)
- Organizing cost estimates in FTA SCC

Deliverables:

- 25% Cost estimate in SCC format for American Fork segment
- 25% Cost estimate in SCC format for Lehi segment
- 25% Cost estimate in SCC format for Woods Cross segment
- 25% Cost estimate in SCC format for Clearfield segment

Task 8: Geotechnical Analysis

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Task Order 3 Advanced Conceptual Design and supporting services for American Fork, Lehi, Woods Cross and Clearfield Segments

8.01 Geotechnical Analysis

- Assemble and review geotechnical reports available for the original FrontRunner Project
- Coordinate with the structural engineering team to determine initial recommendations for retaining wall types
- Perform field investigations (borings) as noted in attached proposal from Terracon and as shown in attached KMZ files.
- Prepare geotechnical reports for each segment as noted in attached proposal from Terracon.

Deliverables:

- Geotechnical Reports for American Fork, Lehi, Woods Cross and Clearfield segments

Assumptions:

UTA and the PMSC will provide all necessary right-of-entry and access permits needed to perform field investigations.

Detailed geotechnical scope and assumptions are provided in Attachment 2.

Task 9: Wetland Delineation Report

TASK 9– FrontRunner Forward Doubletrack Projects Wetland Delineation and Reporting

This set of tasks covers the wetland delineation and reporting suitable for Corps of Engineering Wetland Delineation approvals and subsequent permitting processes for four projects involving adding segments of tracks to the FrontRunner commuter rail system. The wetland delineation reports are anticipated to be completed prior to December 31, 2022. This scope assumes UTA shall be responsible for obtaining rights of entry for any non-railroad properties within the potential areas to be surveyed, with Parametrix responsible for identifying properties and rights of access needed. UTA will provide support to allow surveys to be completed during daylight hours on weekdays or on consecutive days to allow consolidation of surveys. Parametrix will follow UTA and UPRR requirements for access to rail rights of way. Properties where rights of way are not available will be identified in the wetlands reports, identifying this limitation in the delineation of affected wetlands.

TASK 9.1- Clearfield to Roy Delineation and Reporting

Parametrix will delineate wetlands and other waters of the U.S. within the Clearfield to Roy study area. The delineation will use the methods specified in the Corps of Engineers Wetland Delineation Manual (Environmental Laboratory 1987) and the indicators described in the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West (Corps 2008). Wetlands, other waters, and sample plot locations will be flagged in the field and mapped by professional land survey crews. Survey data will be used by Parametrix wetland scientists to prepare GIS maps and figures.

The delineation and reporting task includes: data management; GIS development, and figure creation; and compilation of study results into the Wetland and Stream report (A single report will be prepared, with each rail section presented in a different chapter).

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Deliverables

Deliverables for this task include:

- GIS shp file with wetland/stream boundaries
- A figure showing wetland and stream locations and project impacts
- Wetland and Stream report chapter for this segment.

Assumptions

This area includes at least 3 wetlands, with limited information on the southern half of the alignment.

TASK 9.2- Centerville to Woods Cross Delineation and Reporting

Parametrix will delineate wetlands and other waters of the U.S. within the Centerville to Woods Cross study area. The delineation will use the methods specified in the Corps of Engineers Wetland Delineation Manual (Environmental Laboratory 1987) and the indicators described in the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West (Corps 2008). Wetlands, other waters, and sample plot locations will be flagged in the field and mapped by professional land survey crews. Survey data will be used by Parametrix wetland scientists to prepare GIS maps and figures.

The delineation and reporting task includes data management; GIS development and figure creation; and compilation of study results into the Wetland and Stream report (A single report will be prepared, with each rail section presented in a different chapter).

Deliverables

Deliverables for this task include:

- GIS shp file with wetland/stream boundaries
- A figure showing wetland and stream locations and project impacts
- Wetland and Stream report chapter for this segment.

Assumptions

Woods Cross has 2 smaller wetlands to delineate

TASK 9.3- Lehi Delineation and Reporting

Parametrix will delineate wetlands and other waters of the U.S. within the Lehi study area. The delineation will use the methods specified in the Corps of Engineers Wetland Delineation Manual (Environmental Laboratory 1987) and the indicators described in the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West (Corps 2008). Wetlands, other waters, and sample plot locations will be flagged in the field and mapped by professional land survey crews. Survey data will be used by Parametrix wetland scientists to prepare GIS maps and figures.

The delineation and reporting task includes data management; GIS development, and figure creation; and compilation of study results into the Wetland and Stream report (A single report will be prepared, with each rail section presented in a different chapter).

Deliverables

Deliverables for this task include:

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- GIS shp file with wetland/stream boundaries
- A figure showing wetland and stream locations and project impacts
- Wetland and Stream report chapter for this segment.

Assumptions

The Lehi section has the Jordan River and associated wetland. Likely requires a 2 mile walk in and out to access site.

TASK 9.4- American Fork Delineation and Reporting

Parametrix will delineate wetlands and other waters of the U.S. within the American Fork study area. The delineation will use the methods specified in the Corps of Engineers Wetland Delineation Manual (Environmental Laboratory 1987) and the indicators described in the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West (Corps 2008). Wetlands, other waters, and sample plot locations will be flagged in the field and mapped by professional land survey crews. Survey data will be provided to Parametrix wetland scientists to prepare GIS maps and figures.

The delineation and reporting task includes data management; GIS development, land surveys and mapping, and figure creation; and compilation of study results into the Wetland and Stream report (A single report will be prepared, with each rail section presented in a different chapter).

Deliverables

Deliverables for this task include:

- GIS shp file with wetland/stream boundaries
- A figure showing wetland and stream locations and project impacts
- Wetland and Stream report chapter for this segment.

Assumptions

The American Fork section has 7 wetland and stream features to delineate.

**Utah Transportation Authority
FRONTRUNNER ENVIRONMENTAL PROFESSIONAL SERVICES, CONTRACT 21-034961vw
30% Design**

Task	SubTask	Description	DEA													Pacific Rail				TriUnity				Terracon	
			Mark Dorn	Kevin Farley	Ken Holt	Mike Butler	Jeff McBride	Zach Bailey	Christine Ison	Tim Martin	Daniel Bernier	Jordan Becker	Bhava Wallace	Stephan Pearsall	Senior Railroad Technologist IV	Systems Engineer III	Engineer I	Andrew Kean	Tim Kamper	Duan Lee	Judy Taylor	Molly Nabeberg	Mike Peck	Project Manager	
Fully Burdened Rate with Fee of 10%:			\$369.27	\$253.21	\$116.47	\$140.53	\$205.82	\$99.01	\$280.58	\$185.23	\$109.35	\$157.99	\$115.63	\$177.23	\$190.79	\$148.01	\$82.95	\$187.20	\$157.50	\$196.20	\$193.27	\$159.39	\$256.96	\$140.00	
01	01	Design Management and Deliverables	80	24	0	0	0	0	24	40	260	0	112	0	0	0	0	0	0	0	0	0	0	0	
01	01	Task Order/Design Management	48	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
01	02	Quality Assurance/Quality Control	36	24	0	0	0	0	24	40	260	0	112	0	0	0	0	0	0	0	0	0	0	0	
01	03	Design Production	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
02	01	American Fork 30% Design	0	64	0	144	80	40	112	296	464	512	0	32	40	80	23	0	0	0	0	0	0	0	
02	01	Rail and Special Track / Segment Design Coordination	0	0	0	0	0	0	0	260	220	220	0	24	0	0	0	0	0	0	0	0	0	0	
02	02	Civil and Site Development Design	0	16	0	0	0	0	0	40	40	80	0	0	0	0	0	0	0	0	0	0	0	0	
02	03	At-Grade Crossings	0	16	0	120	0	0	0	40	40	0	0	16	0	0	0	0	0	0	0	0	0	0	
02	04	Structural Design	0	0	0	0	0	0	40	112	0	200	200	0	0	0	0	0	0	0	0	0	0	0	
02	05	Drainage Design	0	16	0	24	40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
02	06	Preliminary Railroad Signal Design	0	0	0	0	0	0	0	40	0	0	0	40	80	23	0	0	0	0	0	0	0	0	
02	07	Utilities	0	16	0	0	0	0	0	16	40	80	0	0	0	0	0	0	0	0	0	0	0	0	
02	08	Right-of-Way	0	0	0	0	0	0	0	0	24	32	0	0	0	0	0	0	0	0	0	0	0	0	
02	09	Lighting and Electrical	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
03	01	Lehi 30% Design	0	56	68	0	0	0	8	144	176	144	0	32	40	80	23	0	0	0	0	0	0	0	
03	01	Rail and Special Track / Segment Design Coordination	0	0	0	0	0	0	0	220	40	88	0	24	0	0	0	0	0	0	0	0	0	0	
03	02	Civil and Site Development Design	0	16	8	0	0	0	0	40	0	0	0	16	0	0	0	0	0	0	0	0	0	0	
03	03	At-Grade Crossings	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
03	04	Structural Design	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
03	05	Drainage Design	0	16	30	0	0	0	0	0	32	0	0	0	0	0	0	0	0	0	0	0	0	0	
03	06	Preliminary Railroad Signal Design	0	0	0	0	0	0	0	24	0	0	0	40	80	23	0	0	0	0	0	0	0	0	
03	07	Utilities	0	16	30	0	0	0	0	16	40	80	0	0	0	0	0	0	0	0	0	0	0	0	
03	08	Right-of-Way	0	0	0	0	0	0	0	0	24	24	0	0	0	0	0	0	0	0	0	0	0	0	
03	09	Lighting and Electrical	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
04	01	Woods Cross 30% Design	0	0	0	0	0	0	0	0	0	0	0	0	40	80	23	0	0	0	0	0	0	0	
04	01	Rail and Special Track / Segment Design Coordination	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
04	02	Civil and Site Development Design	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
04	03	At-Grade Crossings	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
04	04	Structural Design	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
04	05	Drainage Design	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
04	06	Preliminary Railroad Signal Design	0	0	0	0	0	0	0	0	0	0	0	40	80	23	0	0	0	0	0	0	0	0	
04	07	Utilities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
04	08	Right-of-Way	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
04	09	Lighting and Electrical	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
05	01	Clearfield 30% Design	0	0	0	0	0	0	0	0	0	0	0	0	40	80	23	0	0	0	0	0	0	0	
05	01	Rail and Special Track / Segment Design Coordination	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
05	02	Civil and Site Development Design	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
05	03	At-Grade Crossings	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
05	04	Structural Design	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
05	05	Drainage Design	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
05	06	Preliminary Railroad Signal Design	0	0	0	0	0	0	0	0	0	0	0	40	80	23	0	0	0	0	0	0	0	0	
05	07	Utilities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
05	08	Right-of-Way	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
05	09	Lighting and Electrical	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
06	01	Union Pacific Outreach Support	0	0	0	0	0	0	0	40	184	40	0	32	0	0	0	0	0	0	0	0	0	0	
07	01	Cost Estimating Support	0	0	0	0	0	0	0	0	0	0	0	0	0	150	190	100	100	100	150	80	0	0	
07	01	American Fork Cost Estimate	0	0	0	0	0	0	0	0	0	0	0	0	0	52	68	36	36	52	11	0	0	0	
07	02	Lehi Cost Estimate	0	0	0	0	0	0	0	0	0	0	0	0	0	21	26	14	14	21	4	0	0	0	
07	03	Woods Cross Cost Estimate	0	0	0	0	0	0	0	0	0	0	0	0	0	22	36	19	19	22	5	0	0	0	
07	04	Clearfield Cost Estimate	0	0	0	0	0	0	0	0	0	0	0	0	0	49	62	32	32	49	10	0	0	0	
08	01	Geotechnical Analysis	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,029	
08	01	American Fork	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	488	
08	02	Lehi	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	265	
08	03	Woods Cross	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	127	
08	04	Clearfield	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	188	
09	01	Wetland Delineation and Survey Report	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09	01	Clearfield	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
09	02	Woods Cross	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
09	03	Lehi	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
09	04	American Fork	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Labor Hour Totals:			80	144	68	144	80	40	144	520	1,084	696	112	96	160										