

Utah Transit Authority
 669 West 200 South
 Salt Lake City, Utah 84101
 Phone: (801) 741-8885
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CHANGE ORDER

No. 5

TITLE: Exercise Option to Refine LPA Conceptual Design and complete Environmental Document DATE: 5/26/2021
 PROJECT/CODE: MSP216 - Point of Mountain Transit Study This is a change order to CONTRACT No: 19-03038TP
 TO: Parametrix Consult, Inc.
 ATTN: Jeff Peacock

DESCRIPTION OF CHANGE: Brief scope, references to scope defining documents such as RFIs, submittals, specified drawings, exhibits, etc.

This is a change order to contract #19-03038TP for the Point of the Mountain (POM) Transit project. UTA desires to exercise the option for this work that was included in the original contract. The change order is for the consultant, Parametrix Consult, to refine the preferred alternative and conceptual design at key locations and complete the environmental document for the POM preferred alternative. Some of the key locations for refined design include elevated structures at Bangerter Highway, I-15, and SR-92; large utility relocations; and stormwater and station areas. This also includes a contract extension from 6/30/2021 to 6/30/2023 for this option.

Direction or Authorization to Proceed (DAP) previously executed: YES ___ NO X

It is mutually agreed upon, there is a schedule impact due to this Change order: YES X NO ___

The amount of any adjustment to time for Substantial Completion and/or Guaranteed Completion or Contract Price includes all known and stated impacts or amounts, direct, indirect and consequential, (as of the date of this Change Order) which may be incurred as a result of the event or matter giving rise to this Change Order. Should conditions arise subsequent to this Change Order that impact the Work under the Contract, including this Change Order, and justify a Change Order under the Contract, or should subsequent Change Orders impact the Work under this Change Order, UTA or the Contractor may initiate a Change Order per the General Provisions, to address such impacts as may arise.

Current Change Order		Contract		Schedule	
Lump Sum:	\$3,462,678	Original Contract Sum:	\$757,351	Final Completion Date Prior to This Change:	6/30/2021
Unit Cost:	-	Net Change by Previously Authorized Changes:	\$24,153	Contract Time Change This Change Order (Calendar Days):	730
Cost Plus:	-	Previous Project Total:	\$781,504	Final Completion Date as of This Change Order:	6/30/2023
Total:	\$3,462,678	Net Change This Change Order:	\$3,462,678		
		Current Project Total:	\$4,244,182		

ACCEPTED:

By: Jeff Peacock
 Date: 5.3.2021

Jeff Peacock
 CEO, Parametrix Consult, Inc.

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

By: _____
 Date: _____
 Manjeet Ranu
 Director of Capital Projects <\$50,000
 DocuSigned by:

By: _____
 Date: _____
 Mary DeLoretto
 Chief Service Dev Officer <\$100,000

By: _____
 Date: _____
 Vicki Woodward
 Procurement

By: Michael Bell
 Date: 5/27/2021
 Michael Bell
 Legal Review

By: _____
 Date: _____
 Carolyn M. Gonot
 Executive Director >\$100,000



Change Order Summary Worksheet
Previously Authorized Changes

Contract	19-03038TP PAR
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Change Order No	Date	Amount of CO	Running Contract Total	Subject
Original Contract			\$757,351	
1	10/18/2019	\$24,153	\$781,504	Additional Public Involvement Assistance
2	6/19/2020	\$0	\$781,504	No Cost Time extension
3	10/16/2020	\$0	\$781,504	No Cost Time Extension
4	3/19/2021	\$0	\$781,504	No Cost Time Extension
Total to Date		\$ 24,153		

SCOPE OF WORK

Utah Transit Authority Point of the Mountain Transit Project Stage 2

SUMMARY

The Point of the Mountain Transit Project began with an Alternatives Analysis initiated in 2019 by the Utah Transit Authority (UTA) and a coalition of governments and stakeholders, including Mountainland Association of Governments (MAG), Utah Department of Transportation (UDOT), Wasatch Front Regional Council (WFRC), Bluffdale City, Draper City, Lehi City, Sandy City, Salt Lake County, South Jordan City, and Utah County (the Project Partners). The transit study (alternatives analysis) developed and evaluated options for providing expanded high-capacity transit service in the Point of the Mountain area in southern Salt Lake County and northern Utah County. The transit study was to help the Project Partners identify a Preferred Alternative to address transportation problems in this area, focused on urban growth and economic development centers.

In late 2020, the Project Partners identified a Preferred Alternative defining the transit alignment (corridor and locations to be served) and the transit mode (bus rapid transit [BRT]) based on the best solution for meeting the project's purpose and need. The Preferred Alternative is to develop a gold standard BRT system from FrontRunner Draper Station to Lehi Traverse Mountain Station, with an option to extend south across SR 92 to South Triumph Station and terminate at the FrontRunner Lehi Station. With the planning and alternatives analysis process completed, the Preferred Alternative is now initiating its project development process (referred to as Stage 2), to complete Conceptual Engineering (CE), environmental documentation and approval, with an option to conduct Preliminary Engineering (PE).

Parametrix, Inc., the Consultant for this project, shall work with UTA and UDOT, along with the Project Partners to complete the project activities. UTA will continue to serve as the lead agency for the project.

The project activities to be completed under this contract have progressed under two stages, the second phase of which is being defined in two parts:

- Stage 1: Alternatives Analysis (AA), as defined previously in a separate Scope of Work, which identified the Preferred Alternative.
- Stage 2A: Environmental Analysis/Documentation; Conceptual Engineering; and Funding, Implementation, and Operations Planning for the Preferred Alternative.
- Stage 2B: Optional tasks of Preliminary Engineering and station area planning, which is not funded in the initial Stage 2 budget.

With the completion of Stage 1, UTA has recommended an assumption of a federal nexus for the project due to potential federal grant opportunities as well as crossing the Interstate 15 (I-15) right-of-way. The Federal Transit Administration (FTA) is presumed to be the lead federal agency for environmental documentation prepared pursuant to the National Environmental Policy Act (NEPA), and FTA's approval will be required prior to federal actions related to transportation improvements. The level of NEPA documentation required for the project will

SCOPE OF WORK (continued)

reflect the project's potential to result in significant impacts as well as to qualify for certain exclusions from detailed study, and will be determined through consultations and project initiation with FTA during Stage 2 of the Project.

The following stipulation shall apply:

- Work will not be undertaken on any Stage or Task until a Notice to Proceed is provided by UTA for that Stage or Task.
- The Consultant shall provide the necessary professional engineers, planners, scientists, architects, CADD operators, surveyors, and other staff and professional and technical skills, materials, supplies, and other services, other than those specifically provided by UTA, required to successfully complete this Scope of Work.

The Preferred Alternative alignment and station areas to be further developed in Stage 2 are depicted and described in Attachment A. This scope of work assumes the project would extend from FrontRunner Draper Station to FrontRunner Lehi Station, with up to 10 stations, including 3 stations with potential new transit centers and park and ride facilities, with minor modifications aside from BRT stations at the two FrontRunner stations.

Major tasks to be performed under this Contract Amendment for Stage 2 will include the following items:

- **Task 1: Project Management and Quality Management Program**
- **Task 2: Preferred Alternative Refinements and Conceptual Engineering**
- **Task 3: Environmental Analysis and Documentation**
- **Task 4: Communications and Outreach**
- **Task 5: Traffic and Transportation Analysis**
- **Task 6: Funding, Implementation, and Operations**
- **Task 7: Preliminary Engineering (optional task)**
- **Task 8: Station Area Planning (optional task)**

The following describes Task 1 through Task 6 work to be performed for Stage 2 under this Contract Amendment. A high-level summary of Tasks 7 and 8 is also provided for reference and will be developed in greater detail and funded through an additional Contract Amendment, as applicable.

Task 1: Project Management

The Consultant will provide overall direction and control for this task. The Consultant project manager will be responsible for team coordination, implementation of quality-control measures, project reporting to UTA, project documentation, and overall performance of the project. The subtasks for this activity include the following:

Subtask 1.1 Project Management Activities

This subtask includes general project management activities including monthly invoicing and status reports, including schedule status, coordination with subconsultants and subconsultant contract management.

The Consultant shall submit monthly invoices to UTA for payment which shall identify the following:

SCOPE OF WORK (continued)

- Hourly rates, hours, direct costs incurred by the Consultant in performance of the contract during the preceding month and cumulative to date, current project issues/challenges, status of project/schedule, problems encountered, and decisions/actions pending.
- A summary of work performed including any milestones and deliverables.
- A record of the total scope of work completed (cost to date), and percentage of scope of work remaining (cost remaining).
- Supporting documentation for costs contained in the invoice will be submitted with each invoice.

The information described above shall also apply to all sub-consultants on the project.

Deliverables

- Monthly progress reports with invoices
- Schedule and budget, to be updated monthly throughout Stage 2

Subtask 1.2 Team Meetings

Consultant will conduct weekly project team meetings, including preparation of meeting materials, agendas, and minutes, as necessary throughout Stage 2.

Assumptions:

- One-hour weekly meetings to occur through the submittal of environmental documentation to FTA for approval, and the completion of Conceptual Engineering (anticipated by June 2022), with up to three staff attending dependent on meeting content.

Deliverables

- Team meeting materials, including agendas and minutes.

Subtask 1.3 Project Management Plan

This subtask includes the preparation of a Project Management Plan including a refined work scope, monthly schedule, monthly budget, project controls, and invoicing and reporting procedures. The Project Management Plan will be focused on the Stage 2 work program.

Deliverables

- Draft and Final Project Management Plan

Subtask 1.4 Quality Management Plan

This subtask includes the preparation of a Quality Management Plan, including a program for quality assurance/quality control (QA/QC) for Stage 2 deliverables.

Deliverables

- Draft and Final Quality Management Plan

Subtask 1.5 Administrative Record

This subtask includes the maintenance of an ongoing Administrative Record, consistent with NEPA requirements.

Deliverables

- Complete project files in modifiable electronic format

Subtask 1.6 Risk Assessment

An initial risk assessment workshop will be held with the Consultant and UTA staff to identify areas of risk and processes for tracking and managing risk throughout the process. A risk matrix will be developed by the Consultant in coordination with UTA. The matrix will be maintained and updated throughout Stage 2. Additional risk related workshops will be held throughout Stage 2, as needed.

Assumptions:

- Risk assessment workshop will be held at project onset and up to two additional risk related workshops would occur throughout Stage 2.

Deliverables

- Risk Matrix, to be updated throughout Stage 2

Task 2: Preferred Alternative Refinements and Conceptual Engineering

Task 2 includes Preferred Alternative Refinements and Conceptual Engineering design. The purpose of this Task is to coordinate with local agencies and the public on potential refinements and more detailed design definitions for the Preferred Alternative, confirming the definition of the project to be used for environmental review, Task 3.

Preferred Alternative refinements will refine the corridor at two main areas, with input from UDOT and project partners. The two main areas include The Point area (state prison site redevelopment area) where there are two major highways to cross, and the extension south from South Triumph Station to FrontRunner Lehi Station. These areas are described in greater detail under Task 2.4.

The focus of this conceptual engineering step is the project footprint and the major features affecting project scope, environmental impacts, costs, and the approval requirements of other agencies. The primary disciplines affecting footprint are civil and structural, but concept design would also consider large utility relocations, stormwater, traffic/access, and station features. The conceptual engineering products would be supported by documentation of the coordination with other agencies and the acceptability of the proposed conceptual design. For example, the documentation for UDOT would include highway/transit compatibility planning memos that identify existing and future improvements along I-15, Bangerter Highway, and any interchanges that may be affected. These coordinated documents would be reviewed by partners with a request for a statement of their acceptability. Additional information on the conceptual engineering step is provided under Task 2.5.

SCOPE OF WORK (continued)

Conceptual engineering supports the entry to preliminary engineering¹, which is an optional task as defined in Task 7, below.

Subtask 2.1 Engineering Task Management

The Consultant will manage the work associated with performance of engineering tasks for the project. Engineering subtask management will include the following activities:

- Coordinate activities among the engineering team leads, environmental resource leads, and UTA.
- Attend regular project team meetings, as needed, and manage relevant action items to keep the project on schedule.
- Coordinate and attend regular project design team meetings.
- Attend environmental team meetings, as needed.
- Prepare for and attend client and agency meetings.
- Investigate and coordinate design considerations with the environmental team.
- Report engineering budget, schedule, and progress toward completion each month.

The Consultant will institute specific procedures for the quality control checking of engineering work in accordance with prescribed QA/QC procedures documented in the Quality Management Plan.

Assumptions

- Engineering Lead or designee will attend weekly project team meetings, as needed, during the Stage 2A phase of work for conceptual engineering. In addition to engineering specific team meetings, the engineer lead will also coordinate and attend other task/issue coordination meetings (i.e., public involvement/communications coordination, or coordination on transit-oriented development, or other related projects by UTA) during this phase.

Deliverables

- Engineering team meeting agendas and action items for each meeting.

Subtask 2.2 Agency/Stakeholder Coordination

During Stage 2A, the Consultant will assist UTA with interagency and stakeholder coordination activities related to the conceptual engineering definition of the project. The Consultant will prepare for and attend agency and stakeholder meetings occasionally on an on-call basis to assist in the identification and resolution of issues raised by stakeholder and agency representatives. This scope of work provides for a pooled resource to be applied at the direction of UTA, and at UTA's direction and with an authorization for preliminary engineering, this subtask would be extended to cover coordination for preliminary engineering (Task 7) in Stage 2B.

¹ Preliminary engineering expands upon the conceptual engineering footprint, adding discipline specific details to the design. The main purpose of preliminary engineering is to start the property acquisition in conjunction with a detailed construction estimate to baseline the project costs.

Assumptions:

The engineering resource pool for agency and stakeholder coordination meetings through the completion of the conceptual engineering task (Stage 2A) assumes an average of two staff attending a bi-monthly coordination meetings, with two hours of management or staff time for preparation and reporting for each meeting. This task also assumes technical staff attending agency coordination meetings to serve as a technical resource for the project team.

Deliverables

- Agency coordination meeting agendas and action items for each meeting, as applicable, through Stage 2A for conceptual engineering.

Subtask 2.3 Survey Base Map

This subtask focuses on developing the survey base map necessary to advance the project concept refinements and engineering by identifying existing surface features, topography, and underground utilities. The base map will include ground survey and aerial mapping of physical improvements along the project corridor including roads, driveways, culverts, surface and subsurface utilities, and other major features. GIS and as-built information will also be used to help supplement parts of the base map, including right of way and utilities. A photogrammetric aerial survey will be performed to acquire imagery for planimetric and surface data along rights-of-way and residential properties. The aerial survey will include the full length of the corridor from FrontRunner Draper to 500' south of the proposed South Triumph Station and to FrontRunner Lehi Station. Ground survey will consist of locating existing road monumentation, setting control, locating surface and subsurface utilities in specific locations, and acquiring additional data/detail where needed. Three areas have been identified for ground survey to supplement the aerial photogrammetry: 1) Bangerter Highway crossing and transmission lines near the Point, 2) I-15 crossing, and 3) SR-92 crossing.

Assumptions

- Excludes setting property corners.
- Parametrix shall rely on Salt Lake/Utah County GIS databases for rights-of-way and property boundary information. Parametrix will not resolve property boundaries or corners.
- Underground utilities will be marked within public rights-of-way only in areas identified for supplemental ground survey.
- Provide survey base map of existing conditions utilizing the following:
 - Aerial photogrammetry.
 - Standard survey methods.
 - Aerial survey will be conducted by a subconsultant (via airplane.)
 - Parametrix survey will perform measure downs of existing stormwater and sanitary sewer facilities to determine and/or confirm pipe size, material, and invert elevations.
 - Survey project management and quality assurance and quality control (QA/QC) for survey will be provided as part of this phase. Deliverables shall be reviewed in-house to ensure quality and accuracy of any deliverable.
 - GIS and as-built utility information will be used to supplement parts of the base map.

SCOPE OF WORK (continued)

- Acquisition of any easements and/or agreements which allow property access are to be obtained by others at no cost to Parametrix.

Deliverables

- Project basemap in AutoCAD 2020 file format to include property and right-of-way lines, existing features within the mapping area, topography, and ortho imagery. Found property corners will be indicated as such.

Subtask 2.4 Preferred Alternative Refinements and Screening

This subtask provides a focus on an initial three-month screening and evaluation step to refine the Preferred Alternative conceptual design for areas with multiple parties or agencies with jurisdiction, where further definition of localized project scope choices could affect project costs and implementation requirements, and/or where the Stage 1 work did not explore multiple potential design options in a given area.

Area One: The task will include the evaluation and screening of Preferred Alternative design refinement options at the crossing of the two major highways, and for the related connecting alignment that includes stations and alignments within the Point. The refinement is anticipated to include developing and evaluating up to eight Preferred Alternative design refinement options in Area One, including a potential trail along the alignment, at the following highway crossings, and the connecting alignment between these points, with an option to connect to a potential future FrontRunner station serving the Point:

- FrontRunner Draper to Bangerter Highway to Point Stations, including:
 - Over Bangerter highway
 - Under Bangerter highway including interchange reconfiguration
 - At-grade via S 600 W/Bangerter highway
- A potential section connecting from a future potential FrontRunner Point Station to Point BRT Stations
- Point Stations to I-15 to Highline Station, including:
 - Over I-15
 - Under I-15
 - At-grade via W 14600 South and Highland Drive

Area Two: Preferred Alternative refinement south from South Triumph Station to FrontRunner Lehi, including one additional station (for a total of three) in this area. Refinements in this area will include confirming BRT treatments and alignment, station locations/layouts, potential transit center concepts, and developing other conditions and project design and planning information such as station area development assessment and station/circulation concepts that were not previously evaluated in depth during Point of the Mountain Stage 1 at the same detail as the “Common Ground” segment and its Level 2 evaluation. Up to three Preferred Alternative design refinement options will be evaluated under this Task for area 2.

For both areas, evaluation of the Preferred Alternative refinement options would include:

- Identifying the challenges/issues to be resolved by a refined Preferred Alternative design and related goals and objectives for UTA, and stakeholders including UDOT, the Point of the Mountain State Land Authority (POMSLA), the City of Draper, Lehi City, and development interests.
- Identifying criteria and related measures to be used in evaluating refinement concepts.

SCOPE OF WORK (continued)

- Identifying key decisions, including the key decision/consensus points in the evaluation process and the parties to be involved in the review and approval of each decision.
- Defining the screening and evaluation process to the extent it varies by the corridor location.
- Identifying participants, stakeholders, and the potential need for outreach to agencies and the public.
- Confirming the details of decision-making processes, including UTA's internal review and approval needs. A summary of the screening and evaluation of design options will be included in a technical memorandum and reviewed in coordination with UTA and local partners.

The refinements and screening step will include agency coordination such that the refined project definition is documented with a record of coordination with local jurisdictions, POMSLA and UDOT.

Assumptions

- Potential screening measures, such as travel time, environmental impacts, operations etc., would be limited to up to 10 measures per refinement concept, and would use information that would be collected as part of the engineering, environmental, land use planning and transportation disciplines, similar to those applied during screening for the alternatives analysis but more localized. They would include factors such as engineering complexity/feasibility, cost, operations, transportation effects, environmental effects (historic, noise, ecosystems, floodplains), community effects/compatibility, development compatibility, urban design/access connectivity, construction issues, and similar factors.
- Potential refinement concept evaluation measures would be more detailed and qualitative than screening measures, would cover a similar range of disciplinary issues, and would be estimated in ranges and predictive of the anticipated findings of more detailed design and environmental analysis.
- Use of AutoCAD version 2020 for design work.
- A potential FrontRunner Point station would be a separate project from the Point of the Mountain project, and this scope does not address siting, design, operations, funding, environmental or implementation issues for the FrontRunner station itself, but rather is focused on the BRT connection to the station.

Deliverables

- Draft and Final Preferred Alternative Refinement Technical Memorandum: Screening, Concept Definition and Evaluation Framework, Criteria and Methodologies

Subtask 2.5 Conceptual Engineering

This subtask is identified separately to focus on the process and products that will be used to integrate design, transportation, environmental, and public outreach efforts leading to a concept design that would be the basis for the environmental review, the baseline for any subsequent preliminary engineering efforts, and the primary definition of the proposed project action for progressive documentation of coordination/approval strategies with stakeholders and agencies with jurisdiction. This subtask would incorporate the definition of the refinement from Subtask 2.4, confirming the project design definition covering the project between the FrontRunner Draper Station and the South Triumph Station in Lehi, and a connection to FrontRunner Lehi Station from the South Triumph Station. This subtask may consider an alternative corridor starting point at a potential FrontRunner Point Station located south of Draper's current station. This new starting point will be evaluated at a high level, early on in the conceptual engineering subtask to determine compatibility with future land development and future of

SCOPE OF WORK (continued)

FrontRunner plans. This subtask creates the design in coordination with the environmental and transportation analysis products identified in Tasks 3 and 5. This subtask is anticipated to include the following:

- **Geotechnical:** Preliminary geotechnical information based on existing surficial geological descriptions and up to 1 geotechnical boring at each structural crossing location Bangerter Highway, I-15, and SR-92. The intent of the scope of work is to collect subsurface data and develop geotechnical findings and recommendations along the preferred alignment to provide sufficient data for a Conceptual Engineering level of design.
- **Structures:** Preliminary structural definition of crossing structure, column placement, and feasibility at Bangerter Highway, I-15, and SR-92. The CE plans shall show the limits of the retained fill/cut, in addition to bridge limits and general column layout. The subsequent phase of engineering will further refine the structural design in Task 7. This phase of work will focus on structural feasibility in context to existing conditions (i.e., column placement in UDOT shoulders, etc. versus long span structure).
- **Civil:** This will provide plan and profile level definition of the transitway, stations, and related facilities and improvements. This would include identifying the location of bus priority treatments throughout the corridor, as well as roadway improvements or modifications to existing highways, streets, trails, and intersections - along with assumptions in areas without existing infrastructure or development. Work will be focused on determining the general limits of the project footprint of the civil improvements based on survey information and draft design criteria. Non-motorized improvements or tie-ins to existing facilities will be identified, but details of these facilities will not be defined until Task 7, Preliminary Engineering. Typical sections will be defined for the purpose of agreement with local jurisdictions and UDOT.
- **Stations:** General station programming to define general footprint, including platform locations and heights, bus bays, park and ride, and other defined amenities such as operator facilities. Estimated bus loading and layover zones for each station will be prepared based on UTA provided information. Bus zone needs will be incorporated into the conceptual and preliminary designs of the stations. Existing FrontRunner stations area assumed to not require any modification beyond a raised station platform. A conceptual BRT station design will be included in the sheet set, in addition to potential transit centers at up to three stations.
- **Traffic:** Location of traffic controls, including the potential for signal/gate crossings, to inform discussions with other agencies with jurisdiction and to define traffic analysis needs. Work in this phase will incorporate potential channelization and crossing modifications and traffic control for safe and effective traffic operations that supports rapid and reliable transit trips. The conceptual engineering plans shall identify all crossing locations, the priority/preemptions assumptions, traffic control measures proposed, as well as all channelization or other modifications proposed.
- **Utilities:** Identification of major utility conflicts that could influence the project footprint based on material provided by utility providers and in conjunction with Task 2.3 Base mapping Survey.
- **Stormwater:** At this phase of work, the stormwater component will focus on identifying the applicable requirements and extent of approximate areas needed for facilities.
- **Right-of-Way:** Properties will be identified as impacted by the project footprint with assumed temporary construction easements and permanent acquisitions, primarily to inform environmental review and provide an initial assessment of right-of-way costs and issues, including acquisitions and relocations. During this conceptual engineering step, right-of-way information will be primarily based off County GIS databases and property maps. It is assumed that property within the Point will be dedicated to UTA. The Consultant will work with UTA to understand any property limitation within the UTA rail corridor, but title/deed or other legal property restrictions would not be conducted as part of this Task.

SCOPE OF WORK (continued)

- **Architecture:** Identify conceptual BRT station layout and provide station typology. Work with UTA to determine general station layout to identify space requirements at this phase of work. Further refinement and site details to be completed during Task 7, preliminary engineering.
- **Design Criteria:** Consultant will develop a project specific Design Criteria document to provide technical guidance and consistency for both conceptual and preliminary engineering design. The Design Criteria will identify applicable design criteria, codes, etc., and including the civil roadway, trail design, traffic engineering and maintenance, structures, drainage and utilities.
- **Compatibility with UDOT existing and planned facilities:** In coordination with UDOT and to supplement the civil conceptual plan set, the Consultant will develop a summary memo identifying space requirements for existing and planned UDOT facilities adjacent to project. This document will include a drawing illustrating a forward compatibility line to provide a general interagency understanding regarding where UTA facilities are proposed to be constructed in proximity to UDOT facilities while not restricting future plans and build out of UDOT facilities.
- **Compatibility with existing and planned roadway and non-motorized facilities:** In coordination with local jurisdictions and POMSLA, and to supplement the civil conceptual plan set, develop a summary memo identifying where either roadway or non-motorized improvements are envisioned or existing, including in the areas immediately adjacent the UTA owned rail corridor. This forward compatibility helps ensure that sufficient space is maintained for these connections within the transit corridor.
- **Development Interests:** In conjunction with UTA's local agency coordination efforts, develop a summary memo documenting major adjacent development interests/plans as available, and characterizing developer/jurisdictional comments regarding the conceptual engineering concepts, requirements and constraints, and the potential effects or restrictions for adjacent site developers. Five developments have been identified near station locations along the corridor including; the Point, Highline, Gravel Pit, North Lehi and South Triumph Station sites.
- **Basis of Design Report:** Prepare conceptual Basis of Design report which shall provide a written understanding of the conceptual design steps which will lead to preliminary engineering (Task 7), including reference to technical decisions to be made during the course of project development. Significant engineering issues and potential design solutions will be highlighted. Compatibility memos and the development memo would be attachments to this report in its final version.
- **Develop rough order of magnitude preliminary cost ranges**

Assumptions

- In coordination with UTA, consultant will provide anticipated bus layover park and ride needs at station to define station programming.
- UTA will lead and the consultant will prepare for and support agency and stakeholder coordination.
- Any agreements which allow property access are to be obtained by others at no cost to Parametrix.
- UTA will provide input on use of electrical vehicles and any associated charging station locations.
- Use of AutoCAD version 2020 for design work.
- Cost estimate will utilize current and built BRT infrastructure project costs to generate rough order of magnitude costs based on the concept refinement cost. Similar methodology will be used as what was provided in Stage 1.

SCOPE OF WORK (continued)

- A potential FrontRunner Point station would be a separate project from the Point of the Mountain project, and this scope does not address siting, design, operations, funding, environmental or implementation issues for the FrontRunner station itself, but rather is focused on the BRT connection to the station.

Deliverables

- Draft project design criteria
- Draft and Final Conceptual Basis of Design Report
- Draft and Final conceptual plan/profile and cross section sheets to define project footprint and general facility characteristics to support environmental review and agency/stakeholder coordination. Sheet set includes the following:
 - Up to 4 general sheets
 - Up to 20 conceptual plan and profile sheets
 - 1 typical gate crossing plan
 - 1 typical BRT station plan
 - Up to 5 typical cross sections for BRT guideway
 - Up to 3 bridge elevation plans
 - Plans show compatibility limits, UTA rail corridor right-of-way, project footprint, rough channelization limits, best known development plans adjacent to stations
- Draft and Final UDOT Compatibility Memo
- Draft and Final Roadway and Non-motorized Compatibility Memo
- Draft and Final Development Summary Memo
- Draft and Final rough order of magnitude cost ranges

Subtask 2.6 Operations and Maintenance Base Analysis**Subtask 2.6.1 Conceptual Operations Plan and Operation and Maintenance Base Siting Requirements**

The Consultant shall support UTA in defining the maintenance and operations (O&M) facility requirements for meeting the BRT project's operating requirements. The additional fleet will result in the need for new operations and maintenance capacity. The Consultant will assess the location and site development feasibility assessment for a facility with the capacity to meet the fleet operations needs of this project, and with the potential for expansion to meet future ridership growth needs or potential extensions. At a conceptual level, the Consultant shall assist UTA in developing and confirming the following:

- Identification of additional fleet needs to operate the Point of the Mountain Project, including spares.
- Definition of maintenance base size and functional requirements for this project, with the presumption that the BRT line would be served by a fleet of battery-electric vehicles, and that the facility would be a satellite for maintenance, storage and charging, of this fleet with major maintenance, body shop and other functions carried out at UTA major bases.

SCOPE OF WORK (continued)

- The degree to which the facility requirements should have the potential to accommodate other potential extensions or bus facility operations and maintenance needs due to growth in this subarea of UTA's business unit, or adjacent business units, beyond the Point of the Mountain Project. This information or context, as available, is to be provided by UTA for the purposes of determining expandability requirements beyond the needs of the Point of the Mountain Project, but would not entail the Consultant conducting detailed operations assessments or planning of other line or system facility needs beyond the Point of the Mountain Project.
- Review of layover space and operator facility/comfort requirements at terminal stations
- General requirements for related to electrical bus technology choices being considered by UTA and the related maintenance and operations facility requirements for this Project, including facility assumptions such as bus charging facilities that may be needed within this corridor or within the base.
- Existing Operations and Maintenance Facility Standards, Plans or Other Documentation as available, providing context for the requirements for this facility.

Deliverables:

- Draft Technical Memorandum: Conceptual Operations Plan and Operation and Maintenance Base Siting Requirements. Note that Memo will be finalized with completion of subtask 2.6.2.

Subtask 2.6.2 Base Alternatives Screening and Concept Design

Based on the Operations and Base Site Requirements, and UTA's direction on the general location, size, function and potential expandability of the O&M as it relates to this project and other potential regional needs, up to 4 sites will be identified based on preliminary siting criteria. Input from the project and stakeholders and the public on potential sites will also be collected in conjunction with the outreach and involvement for concept refinements for the Preferred Alternative. One of the site options to be considered could potentially involve a hybrid of existing maintenance facility site expansion with a project charging base. This would allow a comparison of cost and operational tradeoffs between a satellite standalone facility near the project to a potentially more distant facility that could enjoy economies of scale from UTA's larger system or from multiple projects. This subtask will include the following:

- In conjunction with the development of a project description, the Consultant will coordinate with UTA to identify up to four sites with the potential to meet O&M facility requirements, including two or more sites on sites already owned by UTA or other public agencies.
- A two-level screening assessment of potential sites, narrowing to two or one for a level 2 assessment and conceptual design, with potential inclusion in the environmental document. Level one shall be based on general site requirements and related footprints and the above criteria. The efforts for the level 2 screening assessment of options will include the development and evaluation of up to two sites and yard schemes for each site, including site envelopes for future expansion.
- Summary of findings, including materials suitable for inclusion in FTA project initiation materials for Task 3, and for agency and public information, including conceptual site drawings.
- Conceptual site drawings and basis of design.

To support the feasibility assessment of the sites, the following information (or similar, to be determined jointly with UTA) will be developed to support evaluations:

Physical & Environmental Setting

SCOPE OF WORK (continued)

Jurisdiction
Property Ownership
No. of Parcels
Parcel size (acres)
Existing Land Use (by parcel) and potential displacements and relocations, if any
Adjacent Land Uses
Hazardous Materials Conditions
Zoning on an adjacent parcels
Demographic conditions, including for Environmental Justice Populations
Critical Areas including Streams, Wetlands, or Floodplains
Drainage
Parks or Trails
Noise-Sensitive Uses
Historic or Archaeological Properties
Topography
Priority Habitat Areas
System & Facility Siting and Operations
Ability to Meet Vehicle Storage and Circulation Needs
Site Expandability
System Operating Costs (level 2 only)
Site/Facility Development Costs, including Property Acquisition (level 2 Only)
Efficiency of Operations (level 2 only)
Site Access Constraints/Traffic (level 2 only)

Assumptions

- In coordination with UTA, the consultant will develop information on vehicle capacity and fleet size requirements and operations and maintenance capacity needs for the Point of the Mountain Project, incorporating headway and ridership projections, and travel time/layover assumptions, based on the Task 2.6.1 findings. UTA shall confirm the acceptability of this assessment for the purposes of identifying and evaluating potential sites and developing site concepts to be conducted in Task 2.6.2.
- UTA shall confirm the electric vehicle specifications to be assumed (and manufacturer if already known by the agency) to address the potential for an all-electric fleet and potential requirements for electrification/charging infrastructure at the base and along the corridor. UTA shall provide available information on electric bus charging pilot programs conducted to date and available information from the manufacturer or potential manufacturers of buses or charging infrastructure.
- UTA will provide existing base configurations, if expansions of existing bases are to be considered as potential alternatives.
- UTA will coordinate with consultant in providing future bus service expansion plans and information regarding other BRT system needs or improvements beyond the Point of the Mountain Transit Project.
- If joint development projects are to be considered within an integrated facility, the definition of the other facilities and their siting and design requirements would be provided by others (i.e., if a parking facility or TOD-style base is proposed for inclusion at the Point, others would be responsible for its development.
- Analysis of alternative private siting and service delivery options, such as a private vendor to modify existing private facilities or operate the facility, is not included.

SCOPE OF WORK (continued)

- Detailed building or architectural drawings are not included, but building types, footprints, layout and circulation will be shown to support the feasibility assessment and initial environmental review to support environmental scoping and consultations with FTA and project partners.

Deliverables

- Final Technical Memorandum: Conceptual Operations Plan and Operation and Maintenance Base Siting Requirements
- Technical Memorandum: Operations and Maintenance Base Site Evaluation and Screening
- Draft and Final conceptual plan/profile sheets to define project footprint and general facility characteristics to support environmental review and agency/stakeholder coordination.

Task 3: Environmental Analysis and Documentation

The Environmental Analysis and Documentation task is designed to support project readiness in seeking federal funds. This task covers the environmental review and documentation of the project consistent with NEPA. It is anticipated that an Environmental Assessment (EA) or potentially a DCE (Documented Categorical Exclusion) is the appropriate environmental review for this project. However, a final assessment of the level of documentation required will be made after review of the conceptual engineering definition and coordination with UDOT, local agencies and FTA, prior to the initiation of detailed environmental analysis and documentation.

All disciplines will be covered in the environmental document but the emphasis shall be on topics that, in conjunction with UTA and FTA, are determined to have a higher potential for impacts based on the project action. Based on our understanding of the project definition and environmental context of the area, the following disciplines are anticipated to require in-depth analysis and applicable supporting documentation: Transportation, Noise and Vibration, and Cultural and Historic Resources (Section 106). Subtasks associated with Task 3 include:

Subtask 3.1 Environmental Task Management

The Consultant will manage the work associated with performance of environmental tasks for the project. Environmental subtask management will include the following activities:

- Coordinate activities among the engineering team leads, environmental resource leads, and UTA
- Attend regular project team meetings as needed and manage relevant action items to keep the project on schedule.
- Coordinate and attend regular project environmental team meetings.
- Attend design team meetings, as needed.
- Prepare for and attend client and agency meetings.
- Facilitate and transfer project team information to geographic information systems, analysts, graphic artists, and editors.
- Investigate and coordinate environmental issues that might inform and shape design considerations.
- Report environmental budget, schedule, and progress toward completion on a monthly basis.

The Consultant will institute specific procedures for the quality control checking of environmental work in accordance with prescribed QA/QC procedures documented in the Quality Management Plan.

SCOPE OF WORK (continued)

Assumptions

- Environmental Lead or designee will attend project team meetings, as needed for Subtask 1.2.
- Environmental Lead and key resource leads will attend interdisciplinary environmental team meetings, up to 12 meetings.

Deliverables

- Environmental team meeting agendas and action items for each meeting.

Subtask 3.2 Cooperating/Participating Agency Coordination

The Consultant will assist UTA on agency coordination activities related to Section 106, Section 4(f), Endangered Species Act compliance, and other state and federal permits and approvals. One of the major points of Agency coordination is anticipated to be with the State Historic Preservation Officer (SHPO), with the Consultant providing draft materials in conjunction with UTA and FTA. FTA is assumed to be the lead agency and will consult directly with the SHPO. Agency briefing meetings, including an initial project definition and approvals meeting, are assumed for other parties with potential jurisdiction, including the U.S. Fish and Wildlife Service (USFWS) and others as needed to share project information, but no formal consultations are assumed. Resource analysts will be available as needed with 1-week advanced notice to support agency coordination (i.e., archaeologists, historians, biologists, traffic and noise analysts, and other resource experts). This task includes invitations to cooperating agencies and a pooled resource to be applied at the direction of UTA for participating and cooperating agencies.

Assumptions:

The resource pool for agency coordination meetings assumes an average of two staff attending an assumed up to 10 meetings of approximately two hours in duration each, with two hours of management or staff time for preparation and reporting for each meeting. This task also assumes technical staff attending agency coordination meetings to serve as a technical resource for the project team.

Deliverables

- Agency coordination meeting materials, agendas and summaries/action items for each meeting, as applicable
- Draft approvals and permits listing for the proposed project

Subtask 3.3 NEPA Environmental Analysis and Documentation

To initiate this task, the Consultant will develop a project initiation package, including the purpose and need, a proposed project description, preliminary assessment of potential impacts, and supporting information, based on a brief summary of the results of the alternatives analysis, for use in consultation with FTA and UTA to determine the appropriate class of environmental document. For the purposes of the project initiation package, the purpose and need developed from Stage 1 will be reviewed and revised prior to inclusion in the package. The Point of the Mountain Transit Study Final Report would be made available to FTA for their review as supporting documentation in the Class of Action determination, but major revisions to that document or its conclusions are not anticipated. Clarifications and additional information to support the identification of the Preferred Alternative, if further information is requested by FTA, would be incorporated within the environmental documentation.

SCOPE OF WORK (continued)

The NEPA environmental analysis will address all elements of the environment, and will include analysis of affected environment, impacts (operational and construction), indirect and cumulative effects, and mitigation. Environmental analysis will be based on the project footprint and associated areas of disturbance determined from Preferred Alternative refinements and conceptual engineering (Subtasks 2.4 and 2.5). The environmental document will include:

- **Technical Methodologies.** The Consultant will develop technical methodologies and proposed study areas, building on methods used for previous UTA BRT projects with federal involvement, and incorporating relevant FTA requirements and standard operating procedures as appropriate. The methods will be developed in parallel to the preliminary assessment of impacts for UTA/FTA and the initiation package, and will propose the level of supporting documentation to be developed for each topic, based on the initial impact assessment findings.
- **Acquisitions and Relocations** – This section will identify 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** – An air quality analysis will be performed to evaluate operational and construction impacts from the proposed project. The air quality analysis will compare and present the air quality impacts of the project, relative to No Build and address potential mitigation measures for impacts, if needed. It is assumed that the project will need to demonstrate conformity with the SIP for Salt Lake and Utah Counties.
- **Biological and Ecosystem** – This section will assess the potential for biological or ecosystem impacts, which planning to date show would be limited. The effort will also develop documentation 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. The project is expected to have no effect on listed threatened or endangered species or ecosystems in the project study area. A contingency task is included with this scope if it is decided that a No Effect Document is needed to satisfy FTA's ESA compliance requirements.
- **Community and Social** – This section will examine the potential for the project's potential environmental impacts (applying the results of other topics areas such as noise, visual, transportation, and displacements) that may affect community cohesion, quality of life, and barriers to social interaction.
- **Economic** – the economic section will characterize the potential for adverse economic impacts based on displacements to properties or businesses, or the removal of tax generating properties for tax rolls. Based on planning information to date, the extent of full parcel property acquisitions would be limited and therefore direct economic impacts would also be limited. Future economic development potential is expected to be positive and would be referenced but not analyzed in detail.
- **Energy** – The energy section will discuss the long-term energy requirements of the project and construction related impacts, placed within the context of the regional transportation system's energy consumption. Consideration of use of electric vehicles will be discussed here, as applicable.
- **Environmental Justice** – This section will analyze the presence of minority and low-income populations (business owners, land owners, and residents) within about a quarter-mile of the study area. Based on findings from the Point of the Mountain Transit Study, acquisitions and displacements are unlikely, and most of the areas immediately adjacent to the alignment do not have minority or low-income populations. However, this section will also discuss outreach efforts targeted specifically at minority or low-income populations, as applicable.
- **Geology and Soils** – This section will describe geology and soil conditions in the project study area and any anticipated effects on slope and soil stability that would occur from the project.
- **Hazardous Materials** – This section will address potential environmental impacts related to known hazardous materials sites within 500 feet from the edge of the project alignment, focusing on the

SCOPE OF WORK (continued)

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 could be conducted during preliminary engineering, but is not included in this scope because property acquisition requirements remain preliminary. Completed Environmental Site Assessments may be a condition of FTA's NEPA approval under FTA's standard operating procedure 19, Consideration of Contaminated Properties, including Brownfields.

- **Historic and Cultural Resources** – This section will support UTA's/FTA's initiation process to complete the Section 106 process within the project's overall timeline leading to NEPA approval, and support for UTA's coordination with FTA, State Historic Preservation Officer (SHPO), Tribes and other consulting parties. 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 in 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, prepared by Certus Environmental with support from the Consultant, and described in greater detail below and provided as an attachment.
- **Land Use** – Information will be provided 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 to support indirect and cumulative effects analysis, with outreach to developers, POMSLA and cities conducted in coordination with Task 2.
- **Noise and Vibration** – This section will analyze if the project will have the potential to increase noise or vibration based on FTA noise and vibration methodology and applicable UDOT standards and will be based on a Noise and Vibration Technical Memorandum prepared by subconsultant CSA Acoustics. More description of Technical Memoranda is described detail below and provided as an attachment.
- **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)**. Based on previous research, no Section 4(f)/6(f) recreation or nature preserves qualifying as Section 4(f) resources are known to be in the study area or would potentially be affected by the project. The existing rail corridor owned by UTA, which has sections used as for non motorized trail purposes, is presumed to be primarily a transportation facility, which would require documentation by UTA as the owner. There is the potential that the prison site has buildings or elements that could be qualifying resources. This section would produce a technical memo/environmental appendix describing the project area in more detail and including the coordination, documentation and analysis of the survey of potential resources. This scope assumes no use resulting in an adverse effect to a Section 4(f) resource would occur, although de minimis findings or temporary occupancy exceptions may be involved. A contingency task is included with this scope in the event that a potential use with an adverse effect to a Section 4(f) property is involved, and a more complex Section 4(f) evaluation is needed.
- **Safety and Security** – This section will examine the potential for the project's potential environmental impacts on safety and security.
- **Transportation** – This section will be developed in Task 5.4, below.
- **Visual and Aesthetics** – This section will summarize impacts and potential mitigation, with a supporting memo to document the more detailed basis for the findings. The methodology used in this assessment

SCOPE OF WORK (continued)

will be based upon the Federal Highway Administration (FHWA) visual impact assessment methodology. The selection of key observation points (KOPs) to be used in the assessment will be done in conjunction with UTA and input from affected cities. Up to eight locations for visual simulations would be developed in support of this assessment, with one simulation from the perspective of a representative viewer developed for each location to support the impact assessment. Features for planned communities or other pending developments/landscape changes by others would not be simulated but would be indicated with annotations. Other materials from cities or development interests, as available, would also be included in supporting documentation.

- **Water Resources** – This section will discuss water resources, including groundwater, water quality, streams, wetlands, and floodplains.
 - **Water Resources, including groundwater:** This section will describe existing drainage, groundwater, flooding, and water quality conditions in the study area. This task will also include measures to manage and treat stormwater runoff, in accordance with applicable local, state, and 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.
 - **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. However, a contingency task is included with this scope in the event that a resource is identified and a physical impact to wetlands, streams, or other natural feature is possible, requiring detailed delineations, mappings, additional analysis and mitigation, including related NEPA/Section 404 consultations with other agencies.
 - **Floodplains:** This section will discuss if the proposed project is within the Federal Emergency Management Agency (FEMA) mapped 100-year floodplains. Planning information indicates that no portion of the proposed project is within a FEMA 100-year floodplain, but this will be documented. A contingency task is included with this scope in the event that the project involves fill or alteration of mapped floodplains and further mappings, coordination, analysis and mitigation is needed.
- **Utilities** – The section will describe existing major utilities and potential conflicts, including irrigation or water canals.
- **Construction** -- This section will describe the construction plan and 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, visually quality and aesthetic, safety and security issues, and disruptions to traffic, utilities, and access to property.
- **Cumulative and Indirect Impacts** -- This section will identify other interrelated, indirect or cumulative actions within the study area, and discuss cumulative and indirect impacts related to the project action.

SCOPE OF WORK (continued)

- **Mitigation** – Mitigation will be described within each resources section. This section will provide a summary mitigation table.
- **Preliminary list of permits** – This will include preparation of a preliminary list of environmental and other permits likely needed for construction and operation of the project.
- **Public Involvement** – This section will describe public outreach efforts undertaken for the project, including public meetings. It will also indicate any substantial concerns expressed by the agencies or the public regarding the project and how comments were considered in the project.
- **Environmental Assessment Public Comment and Response.** In conjunction with Task 4, Communications and Outreach, the Consultant will develop a document that collates, summarizes and responds to substantive comments on environmental effects.
- **Draft Finding of No Significant Impact.** To support FTA’s potential findings for the project, the Consultant will develop a draft Finding, including a project description, mappings, findings and mitigation commitments. An initial outline will be developed for review and comment by UTA and FTA prior to the development of this document.

It is anticipated that there will be many environmental elements that will not require the preparation of a technical report to support the environmental analysis. For these elements, the NEPA document section discussion will be sufficient to present the relevant findings, although background or source documents to file would be maintained.

Technical Reports/Memorandums

For some environmental elements, a more detailed analysis and/or discussion of impacts will be necessary beyond the environmental documentation findings section or their appendices. For these, it is anticipated that technical memoranda or technical reports will be prepared in support of the findings in the environmental document. Technical memorandum would include detailed technical information covering affected environment, impacts, and mitigation; these documents would be available for cooperating and participating agency review and would be finalized to be suitable for publication and citation in the environmental document. In this task, the Consultant team will also develop draft and final technical methodology memoranda for UTA review for these environmental elements. It is assumed technical reports or memoranda will be developed for the following environmental elements:

- Transportation (this work to be covered in Task 5.4)
- Hazardous Materials
- Visual and Aesthetics
- Noise and Vibration
- Historic and Cultural
- Section 4(f) Evaluation
- Water Resources, including wetland and stream survey and mapping memo

This task also includes the documentation effort and provides for document setup, style, nomenclature and format conventions, and the preparation and production of the environmental document through its rounds of review, preparing for its public release, including coordination of printing for distribution.

Working with UTA and FTA, this task will confirm the document’s format and style requirements. It also supports efforts to prepare an annotated outline and cover, cover sheet, table of contents, fact sheet, introduction & background section, appendices, glossary, and any other standard elements not described elsewhere in this scope of work.

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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, including the completion of methods.
- Actions by others, including the removal of buildings within the Prison Site or any other alteration of landscapes or facilities, would be defined as separate projects and not a consequence of the proposed project.
- Applicable UTA Environmental Study Report Requirements would be addressed within the NEPA document and related processes
- Publication printing and distribution costs for the materials to be released will be UTA's responsibility.
- Parametrix will be responsible for maintaining the administrative record.
- Public outreach and comment response is covered under Task 4.1.

Deliverables

Prepare and edit four (4) drafts with iterations and one (1) final NEPA document (and referenced documents such as technical reports), including engineering drawings with basic project design) and summary documents, as follows:

- Project initiation package, including purpose and need, project description, and initial evaluation of effects
- Draft and Final Methodologies Memorandum
- Early annotated outlines of all products below, including draft and final outline of environmental document to be reviewed with UTA and by FTA.
- Draft and Final Noise and Vibration Technical Memorandum, including methodology.
- Draft and Final Historic and Cultural Resources Technical Memorandum, including methodology.
- Hazardous Materials Technical Memorandum
- Visual and Aesthetics Technical Memorandum
- Section 4(f) Evaluation
- Water Resources Technical Memorandum, including wetland and stream reconnaissance and mappings
- 1st Round NEPA Document for UTA review; Round 1B to consist of redline and comment response for UTA approval, leading to a clean version for FTA review.
- 2nd Round NEPA Document for an initial FTA administrative review; FTA environmental staff comments will be responded to in a redline version (version 2A) and a clean version (version 2B) will be prepared for FTA's second administrative review. A final version (version 2C) responding to FTA's second administrative review will be prepared and submitted to Cooperating agencies for review.
- 3rd Round NEPA Document for cooperating agency review. Cooperating agency comments will be incorporated, as applicable, into the 4th Round version.
- 4th Round NEPA Document for FTA/UTA review, provided in tracked change. Last FTA/UTA comments would be incorporated into a clean version 4A for FTA to conduct its legal review.
- 5th Round Final (signature-ready) NEPA Document as proposed for publication and for FTA approval and signature, including a draft federal register notice and public notice.
- Final Printer proof and electronic/web versions of all documents for public release and printed version (up to 75 hard copies and 50 CDs) and limited technical report copies (up to 15 of each and included on the CD) for distribution. The number for printing will be determined in conjunction with UTA staff.
- Environmental Assessment Public Comment Summary and Response Appendix
- Draft Finding of No Significant Impact

Subtask 3.4 Supplemental Environmental Analysis or Expanded Documentation

This supplemental task is identified to provide resources that would allow UTA to direct the Consultant to provide additional environmental support, assuming the scope of updated analysis would otherwise be similar to what is described above for the environmental document. It also would support documentation or analysis services for efforts such as environmental documentation to allow approvals needed for geotechnical drillings, archaeological investigations, wetlands reconnaissance, or other activities or analysis that may be conducted or required as part of the project's engineering, and environmental review and investigations. Other supplemental work could include the development of DCE's for activities within UDOT right-of-way, wetlands and stream delineations, Phase I or II Environmental Site Assessments for specific properties potentially to be acquired, and supporting ESA effects letters, additional Section 106 compliance documentation and procedures, including archaeological investigations, Section 404 consultations, and other environmental documentation that may be required by UTA, FTA, UDOT or FHWA. The specific products, procedures, and budget targets will be directed in writing by UTA, subject to the budget resource limits allocated to the supplemental task.

Subtask 3.5 GIS, Graphics, Simulations

Prepare maps, illustrations and renderings, photographs and other graphics supporting the project development, environmental documentation (includes mapping of right-of-way and other environmental resources), technical documents, public outreach and supporting the conceptual engineering tasks. Some GIS data collection and analysis efforts are also included in individual analysis tasks above, and this task is related to the creation of graphics and illustrations for publication. Data will be overlaid on maps, aerial photographs, and still photographs. This scope assumes up to 8 locations for 8 static visual simulations, perspective drawings, and/or renderings focused on impacts assessment, with an additional allowance for 4 simulations or renderings to support or illustrate project features. The Consultant will provide graphic services to support UTA with the graphics necessary to gain endorsement from stakeholders. For graphics and templates to be used for the NEPA document and supporting technical documents, the Consultant will prepare base graphics for UTA and FTA review and approval as part of the early review to confirm preferences by reviewing staff and ensure overall consistency of style.

Deliverables

Maps, illustrations and renderings, etc. to support project development, environmental documents (includes mapping of right-of-way and other environmental resources), technical documents, public outreach, and support of conceptual engineering tasks.

Task 4: Communications and Outreach

Consultant will provide support to UTA for the task as described below. The UTA Public Relations and Marketing Department and the Community Engagement Department will be responsible for leading this task. A joint UTA/Consultant workshop will be held at the onset of Stage 2 to further define these tasks, anticipated materials, and clearly define responsible parties for implementation.

Subtask 4.1 Agency, Stakeholder, and Public Outreach

UTA will lead this task with support for materials and project information from the Consultant. This task includes producing a Public Involvement Plan (PIP), ongoing outreach and general project coordination with agency and partner staff, public outreach activities, and documentation of outreach activities.

SCOPE OF WORK (continued)

The PIP will focus on continued engagement with major stakeholders and agency partners throughout Stage 2, culminating in the release of an Environmental Assessment and a public comment period. The PIP will identify project partners and stakeholders and activities to provide ongoing engagement. The PIP will also include a plan to engage the public and conduct public outreach pursuant to NEPA regulations for obtaining comments on the environmental document.

This task will reconvene the Steering Committee and TAC groups formed during Stage 1. It is anticipated that up to four meetings will be held with each group. The anticipated meeting points will be defined during development of the PIP in discussion with UTA.

This task will also incorporate general agency, stakeholder, and public outreach activities, including meetings and information developed through other tasks. This task will include coordinating up to two public meetings for Stage 2 of the project; one prior to the start of environmental analysis/documentation (to be held virtually), and one to solicit feedback on the draft environmental document (to be held publicly and virtually, condition dependent). This task will also provide documentation summarizing engagement activities, including public feedback throughout Stage 2. The record of formal public comments on the NEPA Environmental document and responses is included in Task 3.

Assumptions:

- UTA will lead development of activities for general agency and stakeholder engagement.
- Anticipated outreach activities with stakeholders and agency partners will be defined in the PIP, and Consultant will provide up to two staff for up to 16 meetings.
- Consultant will lead Steering Committee and TAC meetings, assume up to four meetings with each group.
- Consultant will develop content and schedule elements for public outreach activities and comment as it relates to NEPA documentation and processes, with support from UTA and guidance from FTA.

Deliverables

- Public Involvement Plan, to be developed by UTA in coordination with Consultant.
- Materials for up to two Public Meetings, technical content to be developed by Consultant in coordination with UTA.
- Materials and agendas for Steering Committee and TAC meetings, led by Consultant.
- Stage 2 Public Involvement Summary, to be developed by UTA in coordination with Consultant.
- Appendix to support NEPA documentation, led by Consultant.

Subtask 4.2 Communications

UTA will lead this task with support from the Consultant. UTA's social media channels will also be utilized to link public and stakeholders to the project website for project information. UTA, with support from the Consultant, will develop project information summaries, issue press releases, and public notices as necessary, as well as project updates on www.rideuta.com. UTA will also disseminate content for sharing/distribution by partner agencies and stakeholders, as needed.

Assumptions:

- Consultant will provide technical content to UTA.

- UTA responsible for all social media activities, website content updates.
- Up to four project updates during Stage 2.

Deliverables:

- Develop project status updates materials, as needed. Assume up to four updates with content produced by the Consultant in coordination with UTA.
- Develop, maintain, and update content for project information on the UTA website. Led by UTA with support from the Consultant.
- Develop content for other communication channels. Led by UTA with support from the Consultant.

Task 5: Traffic and Transportation Analysis

This task will include the traffic and transportation analyses, travel demand modeling, and documentation required to support conceptual engineering development (Task 2) and environmental analysis and documentation (Task 3). This task includes:

Subtask 5.1 Data Collection and Initial Refinement Concept Evaluation

Data will be collected for the following types of movements, times, and locations:

- AM/PM Intersections Turning Movement Counts
 - Vista Station Boulevard/FrontRunner Boulevard
 - Vista Station Boulevard/13490 South
 - Porter Rockwell Boulevard/14600 South
 - 14600 South/Pony Express Road
 - 14600 South/I-15
 - Highland Drive/Minuteman Drive
 - Highland Drive/Corporate Way
 - 600 West/Bangerter Highway Interchange
 - Digital Drive/Triumph Boulevard
 - Thanksgiving Way/Triumph Boulevard
 - Ashton Boulevard/Triumph Boulevard
 - Ashton Boulevard/Executive Parkway
- 48-hr Roadway Counts
 - Minuteman Drive in the vicinity of the gravel pits

This subtask will also include projected measures of impact/performance at these locations to support Preferred Alternative refinement to be conducted in Task 2.4.

Subtask 5.2 Traffic Modeling

VISSIM transportation models will be developed and run for the following conditions at Bangerter Highway crossing in Draper, I-15 Crossing in Draper, South Triumph Station access to Triumph Blvd, with an allowance for one additional location affecting an intersecting street or facility, based on agency coordination and methods development:

- Existing Conditions
- Forecast Year 2050 No Build
 - Qualitative measures of Refinement Options performance will be evaluated using No Build as the basis for up to three refinement options at up to three locations: Bangerter Highway crossing in Draper, I-15 Crossing in Draper, South Triumph Station access to Triumph Blvd.
- Forecast Year 2050 Build
 - Detailed analysis and simulations conducted for the Preferred Alternative as defined in the Conceptual Engineering plan set developed in Task 2.5.

In coordination with UTA, UDOT, and the local agencies, the Consultant will identify projects to be included in the forecast year simulations, including transit service integration considerations. This work will include coordination with UTA and partner agency staff. The traffic analysis will be coordinated with stakeholder agencies with regard to analytical approach, design standards, and relevant protocols. Based on the findings from this task, mitigation measures will be identified.

Subtask 5.3 Travel Demand Modeling

This subtask will include ridership forecasting and modeling coordination with WFRC, MAG, UTA, and UDOT as applicable.

Model runs will be provided for current year, opening year, and 2050 using WFRC/MAG Travel Demand Model and FTA Simplified Trips on Project Software (STOPS) models.

The WFRC/MAG model version that will be used for this work will be determined in coordination with WFRC/MAG and the project team. Underlying highway and transit network assumptions will be developed for both No Build and Build conditions for alternatives that will be run through the model.

Consultant will develop a base year ridership forecasting model for the Point of the Mountain corridor using the FTA (STOPS). The STOPS model is simplified implementation of conventional 4-step travel demand modeling procedures that relies on underlying Census data (CTPP) along with local transit service levels, ridership data and demographic information to develop transit ridership estimates. While the model was developed using detailed surveys and data from 15 metropolitan areas around the US, UTA has used its 2019 on-board survey to develop data specific to the region to calibrate and validate against local conditions. For the purposes of the Point of the Mountain project this initial base calibrated model set will be refined to focus the model specifically along the project corridor. Consultant will work with UTA transit staff to obtain the data needed to develop inputs for the STOPS model, such as current station boardings and route ridership, current schedules, and current transit performance metrics. UTA has already done work to format several pieces of data necessary for an incremental implementation of STOPS and this will be the starting point for Point of the Mountain forecasting efforts.

Consultant will coordinate with the project team to develop routing and station location alternatives that will be tested using both the WFRC/MAG model and the calibrated STOPS model. Scenario testing will include a

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reflection of background transit network changes that are needed to support the project as well as project specific assumptions such as station locations, routing, travel times and frequencies. Travel times will be developed for each alternative using current operating characteristics in the corridor along with estimates of travel time improvements related to stop spacing, signal/intersection treatments (if they exist for the project/alternative) and dwell times at stations.

Consultant shall complete the following items in support of transit ridership forecasts:

- 1) Consultant will assemble, review and document, the necessary input data for STOPS implementation for POM alternatives:

Source	Items	Description
Utah Transit Authority Staff	Current-year General Transit Feed Specification (GTFS) files	calendar.txt, frequencies.txt, routes.txt, stop_times.txt, stops.txt, trips.txt, pnr.txt etc.
	Current-year stop/station boarding counts for existing services	Daily (average weekday) boarding counts for existing stops/stations for all transit services included in the model
	Current-year route level transit ridership	Average weekday total daily ridership by route
	Historical route level ridership	Average weekday and annual total ridership by route – this will be used to help arrive at an annualization rate for transit service for use in FTA templates
	On-board Survey Data	UTA has a 2019 on-board survey that has been formatted for use in the STOPS model.
	Regionwide unlinked transit ridership (boardings)	Total transit boardings (unlinked trips) for the study region
WFRC/MAG Travel Demand Model	TAZ shape file with population/employment data by year	GIS shape file(s) of regional model TAZs with current year, opening year and horizon year population/employment included for each TAZ
	Zone-to-zone highway impedances and distances	Peak skims and distances from travel demand model (current year, opening year and horizon year)
Project Staff and Consultant Team	Project routing, station/stop locations	Routing along with stop/station x,y coordinates (decimal degrees) Indicator of whether stop/station location is at grade or grade separated and if park and ride access is available
	Service plan with detail sufficient to construct a schedule	Operating hours and frequencies for peak/off peak, travel speeds, distance between stations
	Transit changes associated with alternatives	Any changes in headway, routing, or other operational item that would change the transit network as part of the project This is needed for current-year and any horizon year that may be considered as part of the analysis – FTA only requires current-year for submittals

SCOPE OF WORK (continued)

- 2) Consultant will implement the existing conditions STOPS model, using the data collected in Step 1. It is believed that UTA already has an existing condition STOPS model in place so this task will include confirmation of all inputs/parameters, revisions to districts specific to the Point of the Mountain corridor and a re-run of the existing base year model to reach a calibrated base that includes Point of the Mountain district definitions. Consultant will adjust model as needed to arrive at a base/calibration condition for use in build model runs.
- 3) Consultant will coordinate with UTA and the project team to develop No Build transit assumptions for any year that will be run through the WFRC/MAG model and STOPS model. At this time, it is assumed this will be done for current year, opening year, and horizon year (2050). These No Build transit assumptions will be coded into formats needed for the WFRC/MAG model and in GTFS format for use in the STOPS model.
- 4) Consultant will coordinate with UTA and the project team to develop Build transit assumptions for any year that will be run through the WFRC/MAG model and STOPS model. At this time, it is assumed this will be done for current year, opening year, and horizon year (2050). These Build transit assumptions will be coded into formats needed for the WFRC/MAG model and in GTFS format for use in the STOPS model.
- 5) Consultant will develop project level travel times based on assumptions provided for routing/stations/operating characteristics (e.g. exclusive or mixed traffic right-of-way, signal preemption, dwell time, etc). These times will be incorporated into formats needed for the WFRC/MAG model and in Build GTFS coding for each alternative that will be run through the STOPS model.
- 6) Consultant will complete WFRC/MAG model and STOPS model runs for the project for a current-year scenario to inform how well the project would perform minus any demographic and transit changes in a horizon year. Looking at the project in this way is a current requirement of FTA for project submittals and allows for the evaluation of the project without other variables that may not be as certain in the forecasts (demographic changes, transit service plans etc.).
- 7) Consultant will complete WFRC/MAG model and STOPS model runs for the project for horizon-year scenarios to assess the transit ridership potential for each alternative resulting from both service changes and growth in households/population and employment.
- 8) Consultant will develop outputs from the WFRC/MAG model and STOPS model to support analysis of ridership impacts for each alternative.
- 9) Documentation: Consultant will document the implementation of the WFRC/MAG model and STOPS model, key inputs, alternatives coded into the model and forecast results.

Assumptions:

- Ridership forecasting will be led by Consultant.
- UTA already has on-board survey data formatted for use in an incremental implementation of the STOPS model and will provide that for use in this effort.

Deliverables:

- Existing conditions/base year calibrated STOPS model that has been adapted for use in the Point of the Mountain corridor.
- Current year STOPS model with both No Build and Build conditions for Point of the Mountain corridor.
- Opening year STOPS model with both No Build and Build conditions for the Point of the Mountain corridor.
- Horizon year (2050) STOPS model with both No Build and Build conditions for Point of the Mountain corridor.
- Ridership results from WFRC/MAG model for current year, opening year, and horizon year.

- Ridership Memo documenting forecasting methodology and ridership results.

Subtask 5.4 Technical Memorandum

This task will provide for the preparation of a Transportation Technical Memorandum analyzing the effects of the project Build and No Build conditions for the following transportation elements:

- Highway, arterials, and local street operations
- Transit operations
- General access and circulation near stations
- Nonmotorized facilities
- Parking
- Safety (all modes)
- Transportation impacts due to construction

Deliverables:

- Draft and Final Transportation Technical Memorandum methodology for UTA and agency review.
- Draft and Final annotated outline of Technical Memorandum for UTA review.
- First round Draft Transportation Technical Memorandum for UTA review.
- Second round Draft Transportation Technical Memorandum for agency review.
- Final Transportation Technical Memorandum.

Subtask 5.5 Transportation Section of Environmental Document

This subtask covers the preparation of the transportation section that will support the environmental review. The transportation section of the environmental review document will describe the affected environment, impacts, and proposed mitigation measures.

Assumptions

- The Transportation Technical Memorandum will be background documentation referenced in the environmental review

Deliverables

- Transportation section of the environmental document

Task 6: Funding, Implementation, and Operations

This task will include activities associated with project development, funding, implementation, and operations for Stage 2.

Subtask 6.1 Project Development Planning

This subtask provides UTA with an assessment of how the current Point of the Mountain project would rate as a Small Starts Project as well as recommendations, when needed, about how individual rating criteria could be improved in order to make the project more competitive.

As the agency discusses its path forward to funding it is important consider the various components of the Small Starts process, more specifically the milestone schedule and timing of information and funding commitments. To better understand the possible path forward into Small Starts the consultant team will develop a project specific Small Starts Milestone schedule accounting for adoption of the Preferred Alternative, NEPA, funding commitments and development of rating materials. Once an initial concept is created the project team can make changes to key dates and see how those changes affect the milestones in the Small Starts schedule. This tool can be used for both internal funding conversations as well as FTA briefings on future projects that may be seeking federal funds.

Deliverables:

- Snap shot of preferred alternative Small Starts ratings as well as recommendations, as needed, for how each rating could be improved
- High level Small Starts milestone schedule with durations and key inputs (e.g. information, funding requirements, etc.)
- Draft rating and draft timelines

Subtask 6.2 Funding and Implementation

Once updated costs have been produced as part of Task 2, a Funding and Implementation Plan will be developed. This plan will identify funding sources (including existing sources, new revenue options, potential legislative efforts, etc.), expected revenues (from ridership/fare collection, increases in property tax, and other revenue streams), implementation strategies, and a draft timeline for project delivery. The Consultant will facilitate development of a funding strategy for the Project by the Partners including funding of additional design required for subsequent phases of the Project.

Subtask 6.3 Operations Planning

The Consultant will also work with UTA to develop an operation plan for the transit system, which shall identify the operational entity, propose a business model, and recommend ways that the system may integrate or achieve economies of scale with the existing regional transit system. The operation plan will include cost estimates for operations and maintenance of the transit system associated with the project and its impact to the funding of existing and other planned transit projects.

Deliverables:

- Funding and Implementation Memorandum
- Operations Memorandum

Task 7: Preliminary Engineering (Optional)

This is an optional task to be funded through a separate Contract Amendment or Change Order, as needed. Activities are provided here for overall context of next steps after CE is completed.

Preliminary Engineering (PE) will consist of an interdisciplinary effort comprising civil engineering and architecture, etc., supported by land surveying, geotechnical investigations, and specific recommendations for discipline specifics. These integrated activities will support and assist the cost estimators, construction planners, and public involvement and community outreach teams in their respective efforts to define, develop, and advance the Point of the Mountain Project. This PE design will advance the preferred alternative through approximately 30 percent design. The PE Design documents will serve as a baseline for final design team and any applications to the FTA for approval to enter engineering.

Subtask 7.1 Preliminary Engineering Task Management

The Consultant will oversee, facilitate, and coordinate the technical efforts to develop and produce the PE deliverables and other documents described below, coordinate with UTA, UDOT, FHWA, FTA and local jurisdictions, and provide senior reviews for the engineering and architectural work products in accordance with the UTA design guidelines.

Subtask 7.2 Preliminary Engineering Phases and Submittals

The PE Draft phase will include development of the preliminary engineering design documents. Significant design issues, including comments on CE design submittals, are identified and resolved and the design details necessary to quantify the work developed. Work will include a draft version, comment period and a final submittal.

Subtask 7.3 Preliminary Engineering Design Criteria

Consultant will develop a project specific Preliminary Engineering Design Criteria (Design Criteria) document to provide technical guidance and consistency for the PE Design. This is an expansion upon the draft design criteria developed during Task 2.5. The Design Criteria will identify applicable design criteria, codes, etc., for civil roadway, trail design, traffic engineering and maintenance, structures, and utilities.

Subtask 7.4 Basis of Design Report

The Consultant will update the CE Basis of Design Report to reflect the preliminary engineering design. The Basis of Design Report will provide information such as:

- A written understanding of the preliminary design progression, including reference to technical decisions made during the course of the work.
- Descriptions of significant engineering issues encountered, potential design solutions considered and include recommendations for the final designer.
- The project Design Criteria that cite applicable agency (UTA, UDOT and other jurisdictions) design standards and criteria.
- Identifications of potential design variances or deviations, and reference specific technical memoranda and design reports prepared separately during the performance of the scope of work.
- A preliminary list of design variances identified during the development of PE design phase.

Subtask 7.4 Data Collection and Review

The Consultant will collect available information as below:

- Base map information within the project boundary area (supplementing Task 2.3)

SCOPE OF WORK (continued)

- As-built plans of roadways, utilities, facilities, structures, etc.
- Existing and planned underground and above ground utility information. (supplementing Task 2.3)
- Available existing signal, illumination, and intelligent transportation system (ITS) as-built drawings.
- Traffic-related field data. This includes intersection signal poles, mast arms, traffic signal cabinets, illumination poles and major guide signs with structured base. Other traffic signs within the right-of-way will be verified as an adjunct to supplemental topographic surveying or field reviews for design by the Consultant.

Additional data collection and review efforts related with each discipline are listed under each discipline sections below.

Subtask 7.5 Ground Survey Data Collection

The Consultant will provide surveying services to support the engineering design efforts as described below. This work will supplement the survey base map from Task 2.3. The field survey data will be processed, and base map files created in AutoCAD. The Consultant shall set vertical and horizontal control. Additional ground survey data collection will occur during this subtask to supplement the Task 2.3 ground and lidar survey information.

Subtask 7.6 Roadways and Trails

The Consultant will perform civil engineering to support roadway and surface improvements within public rights-of-way to a Preliminary Engineering level of design completion. The design will be closely coordinated with the determination of the preferred roadway alignment throughout the project corridor. The Consultant will perform roadway and surface Improvement designs, including trails, based on information collected from the “Data Collection and Review” task. Design of affected street elements will adhere to the Design Criteria and match existing conditions to the maximum reasonable extent.

The Consultant will communicate with UTA staff regarding existing and proposed capital improvement projects from host jurisdictions along the alignment, evaluate potential impacts or schedule conflicts and provide recommendations to mitigate. The information will be identified in plans and/or Basis of Design Report, as appropriate.

Local jurisdictions require permits for any construction activity that disrupts traffic, restricts access or modifies any infrastructure within the right-of-way or for any private use of the public right-of-way. The Consultant will compile a list of required permits based on the various activities proposed in affected jurisdictions. The information will be identified in plans and/or Basis of Design Report, as appropriate.

Subtask 7.7 Traffic Engineering

The Consultant will perform traffic engineering including traffic maintenance to a PE level of design completion. Work will include development of signal design summary memorandum, intersection/channelization plans, traffic signal plans, preliminary illumination plans and maintenance of traffic/closure/detour route plans. ITS and supplemental gate and signal information related to intersections will be defined.

Subtask 7.8 Right-of-Way

The Consultant will prepare Preliminary Right-of-Way Plans, which will show right-of-way impacts, easement requirements and construction staging areas relative to right-of-way and parcel boundaries. Due to the

anticipated project schedule and required time for property acquisition it is assumed that at 30 percent design submittal the Consultant will have completed PE level right-of-way plans, ALTA survey, and exhibits for acquisition of temporary and permanent property rights.

Subtask 7.9 Geotechnical

The Consultant will perform geotechnical engineering services along the BRT alignment in support of the FEIS and PE. The scope of geotechnical work will generally consist of collection of existing information, subsurface borings and excavations, testing and laboratory analyses that will be documented in reports of existing conditions data along with design considerations developed from evaluation of the subsurface conditions. The intent of the scope of work is to collect subsurface data and develop geotechnical findings and recommendations along the preferred alignment sufficient for a PE level of design completion agreed upon with UTA.

Subtask 7.10 Structures

The Consultant will prepare structural engineering plans and related documents to support a Preliminary Engineering design level of completion for new structures, modifications of existing structures, and seismic retrofits proposed along the preferred BRT alignment.

The Consultant will perform work required to complete a TS&L Study for the Elevated Guideway Structures listed as typical elevated structures and long span structures below. The study will include structural analyses, identification and evaluation of long-term maintenance requirements, cost estimates and comparison of construction durations for up to two structural alternatives.

The elevated guideway superstructure types to be analyzed include concrete box girders as the preferred structural option. Bent types to be considered will include single column bents as well as straddle bents. Foundations will consider drilled shafts and spread footings as appropriate.

Comparison of structural alternatives will consider potential for construction contract packaging (different contractor's means and methods), aesthetics, visual continuity, and cost.

Bridge plan and elevation will be created for up to two alternatives of typical elevated guideway types.

Subtask 7.11 Drainage

The Consultant will prepare drainage engineering plans and related documents to generally support a PE design level of completion for new drainage facilities and modifications of existing facilities proposed along the preferred BRT alignment, including relevant site explorations, modeling, and technical analyses. Drainage requirements for the proposed BRT guideway, stations and roadways affected by the project will be determined per the Design Criteria and will consider the design requirements within each of the agencies along the corridor.

Subtask 7.12 Utilities

The utilities engineering consists of assessing utility impacts due to the proposed transit project, preparing plans for the relocation of existing lines and installation of new facilities to a PE design level of completion. Base maps will be overlaid with proposed facilities to identify utility conflicts. Proposed relocation alignments for impacted utilities will be shown on composite utility drawings. The disposition or relocation of affected public "wet" utilities (water, sanitary, etc.), private "dry" utilities (power, gas, telecommunications, etc.), and new service requirements

for light rail facilities, will be determined in coordination with the respective utility owner/agencies and shown on the composite utility drawings.

Subtask 7.13 Architecture and Urban Design

The Consultant will advance the station designs, urban design, the site urban and landscape design along the length of the preferred alignment that were developed during the DEIS/Conceptual Engineering phase, including support of preliminary civil engineering, and site design program elements. Work will include BRT branding of stations and typology of stations.

Site Design will define the location of site program elements, site circulation, and station layout. Station access points will accommodate multi-modal transportation and facilities such as kiss-and-ride, paratransit, bus connections, and bike and pedestrian access. Along with zoning code requirements for property setbacks, required landscaping, building height restrictions, etc., Site Design will also address transitional conditions with anticipated adjacent work by others.

Subtask 7.14 Streetscape, Urban Design and Landscaping

The Consultant will consider streetscape, urban design, and landscaping along the entire alignment. The Consultant will update the assumptions in the Conceptual Engineering Update phase and coordinate relationships with other corridor elements. Consultant will define the recommended extent and type of landscaping in coordination with UTA and the authorities having jurisdiction in the Preliminary Engineering. Consultant will also develop a method of identifying and describing types of landscaping and illustrating their locations for the purposes of quantifying and cost estimating the extent of landscape areas. Additional elements of streetscape and urban design will be identified and captured for inclusion in the cost estimate. The Consultant will evaluate and coordinate urban design integration of systems elements including but not limited to walls, retained cut and fill, stormwater strategies, and existing tree and vegetation conditions.

Subtask 7.15 Communications

The Consultant shall design the Communications systems based on UTA Bus Rapid Transit Design Criteria, Chapter 14. Compatibility with existing system configurations, architecture and equipment shall be of paramount consideration for the preliminary design. The Communication Basis of Design report will confirm the feasibility of the expansion of the systems and itemize any identified unresolved issues or effects of any alternatives under discussion.

Subtask 7.16 Video Simulations

Using the existing digital terrain model (DTM) and topography, create a video simulation/animation to reflect the preliminary design features included in the Preliminary Design for the Preferred Alternative. The simulation/animation and DTM are not intended to be used for construction or replace, amend or modify the Preliminary Design drawings prepared by the Consultant. Video simulations are intended to support public outreach.

Subtask 7.17 Sustainability and Low Impact Development

The Consultant will develop a sustainability technical memorandum with supporting documentation detailing three to five potential measures, beyond those required, that would provide the greatest benefit in terms of system access, community connectivity and resource conservation.

Potential low impact development (LID) measures adjacent to the corridor will be investigated and may include, but are not limited to, grassy strips, bio-filtration swales, rain gardens, permeable pavement, engineered soils and runoff dispersal. Quantitative reductions in stormwater runoff will be estimated for each LID measure and stormwater facilities development will take into account the resultant reductions in stormwater flow. Pollutant reductions will also be considered.

Subtask 7.18 Cost Estimate

Baseline cost opinions of probable cost will be prepared for submittal at the preliminary engineering draft and preliminary final level plans (i.e. for each design phase). In addition, up to five (5) alternatives during the CE phase could be provided. The Cost Estimate Reports will be prepared to a level of detail commensurate with the level of design definition and as defined by the Association for the Advancement of Cost Engineering International (AACE) unless otherwise directed.

Subtask 7.19 Constructability Review

A Constructability Review of the engineering plans, costs, and construction schedule will be conducted immediately following the Draft PE design submittal. The Constructability Review will identify and review construction issues and their impacts on specific elements of the design. One review session will be conducted for the alignment.

Task 8: Station Area Planning (Optional)

This is an optional task to be funded through a separate Contract Amendment, as needed. Activities are provided here for overall context of next steps after CE is completed. The purpose of this task will be to coordinate and advance the planning and design of station areas to support UTA and project partners in synergizing the transit land use connection and facilitating cohesive urban design along the corridor. Subtasks for this task are likely to include:

Subtask 8.1 Corridor and Station Area Community Conditions Review

The intent of this subtask is to assemble information on the physical, economic, and social character of communities within the corridor and station areas. In addition to physical and environmental features, the database will include sensitive physical and social features, existing and proposed future land use conditions, non-motorized and motorized access sheds, and demographics.

Subtask 8.2 Station Area Planning

Station area planning efforts will be coordinated with planners, architects, structural engineers, and station planners and will include:

- Grading concepts
- Parking, access, and vehicle circulation needs
- Transit facility design requirements
- Prototypical station designs
- Pedestrian and bicycle facilities and circulation needs
- Detention/retention and stormwater management requirements

- Utility/service needs

Subtask 8.3 Station Urban Design Concepts

Urban design concepts will focus on the station and supporting facility layout and demonstrate how station facilities can be integrated into the surrounding urban context, within the ½ mile walkshed from the station. Design concepts will seek to balance and optimize land use and transit oriented development, station access, and local transit integration as outcomes of good urban design.

Subtask 8.4 Future Land Use and Transit Oriented Development

The Consultant will refine and advance the analysis of real estate development propensity for station locations. The development propensity work in this phase will provide additional details on the potential for Transit Oriented Development (TOD) to occur around stations. The Consultant will coordinate with UTA TOD staff and other UTA staff working on the Point of the Mountain TOD Analysis and Implementation Plan.

Subtask 8.5 Multimodal Station Access

The Consultant will conduct analysis and coordinate with affected cities, UTA, and other relevant agencies in the corridor to develop transit, pedestrian, bicycle, and curb space usage plans for the Preferred Alternative.

Subtask 8.5 Station Design Stakeholder Engagement

The Consultant will support UTA in conducting station area design workshops/charrettes and agency meetings at varying scales. The Consultant will be responsible for the organizational aspects of these events including preparation of graphics, staffing, and documentation. This task covers technical staff participation at these events.

Not-to-Exceed Amounts: All amounts for both labor hours and cost/price shown in the Budget – Attachment B are not-to-exceed (NTE) amounts. The Consultant will be reimbursed for hours and cost incurred up to the NTE amount provided milestone deliverables are provided in a satisfactory manner and claimed costs are allowable.

Invoicing and Payments: Consultant may invoice on a monthly basis for verifiable and allowable hours and costs expended during the preceding month provided that associated deliverables which are due have been delivered in accordance with the Project Schedule contained in Schedule – Attachment C and are acceptable to UTA.

Attachment A – Project Description

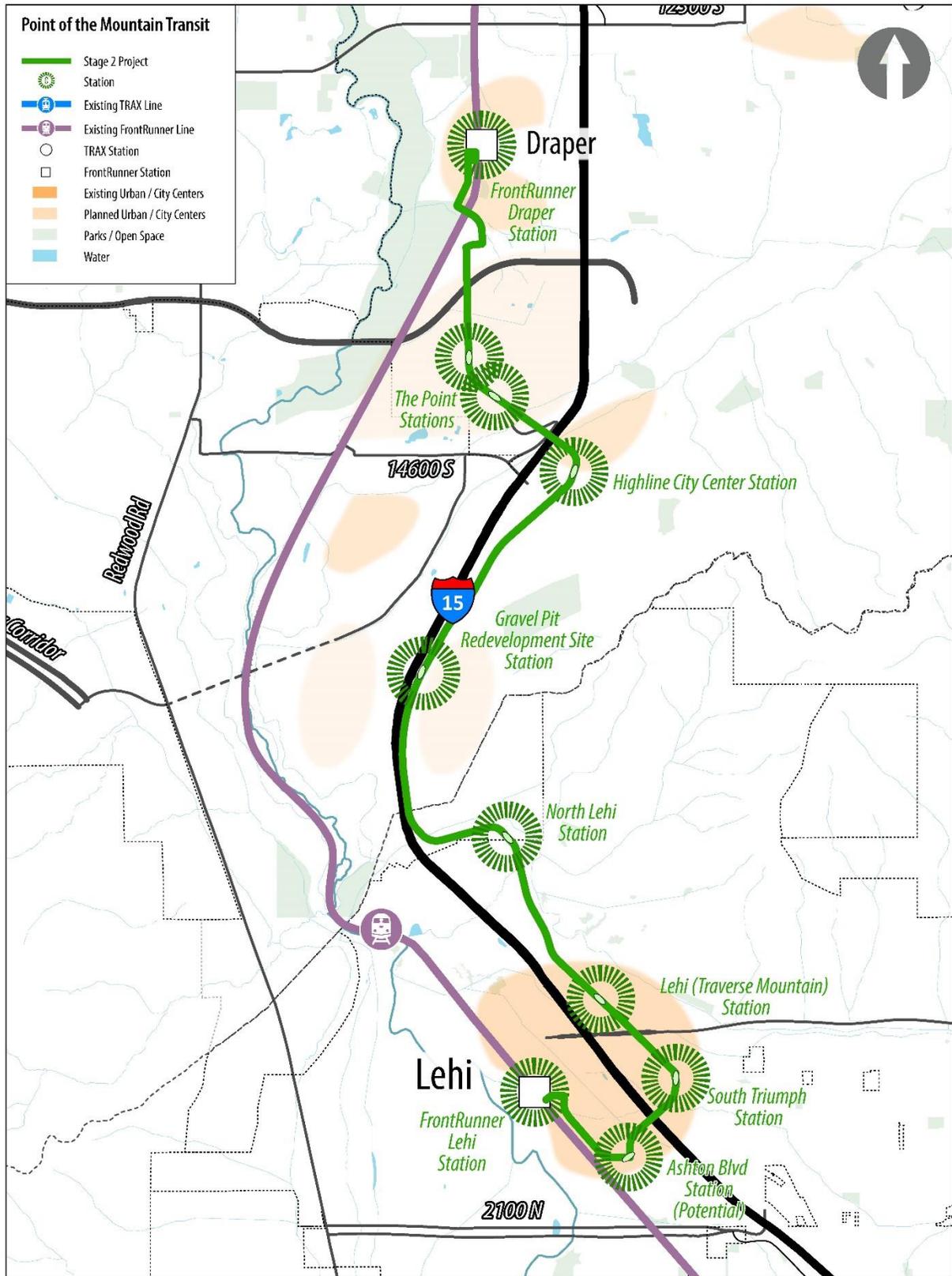


Figure 1. Project Description

Attachment A – Project Description

Stage 2 Funding -- Project Description

This project description covers engineering activities related to Stage 2A funding. This 8.4-mile alignment would operate as BRT, starting on the north end at the existing FrontRunner Draper Station and terminating south of SR-92 in Lehi at the South Triumph Station (Figure 1). From the Draper FrontRunner Station, the alignment utilizes the existing station located west of the tracks. The alignment would follow the existing roadway network in mixed use traffic along Vista Station Boulevard, before transitioning to business access and transit only lanes. It would follow 600 West, until turning southeast to elevate over Bangerter Highway and associated on/off ramps, and back to grade prior to the transmission lines. The alignment travels southeast across The Point site, serving two stations, and then transitioning to retained fill and an elevated structure to cross over I-15 to access the Highline City Center Station within the existing UTA owned right-of-way. From here, the alignment continues south, following the UTA right-of-way serving two additional stations (North Lehi and Lehi/Traverse Mountain) and crossing SR-92 on an elevated structure. After returning to grade, the alignment continues along the UTA right-of-way to the South Triumph Station. From the South Triumph Station, the alignment accesses Triumph Boulevard likely utilizing the local roadway network. The alignment turns west on Triumph Boulevard, crossing I-15, and turning north onto Ashton Boulevard. The alignment continues along Ashton, potentially serving an additional station, before terminating at FrontRunner Lehi.

The alignment has ten stations:

- FrontRunner Draper
- The Point Station #1
- The Point Station #2
- Highline City Center
- Gravel Pit Redevelopment Site
- North Lehi
- Lehi (Traverse Mountain)
- South Triumph
- Ashton Boulevard
- FrontRunner Lehi

Project partners expressed a strong desire for the Preferred Alternative to offer “gold standard” BRT transit service with the following key features:

- Nearly 90% exclusive guideway for transit to operate outside of traffic. Additional features such as gated crossings, level boarding vehicles, and high frequency service would also be considered to help maximize speed and reliability.
- A guideway with an attractive urban design and distinctive, high-quality station areas that feature off-bus payment, real-time travel information and wayfinding, amenities to enhance passenger comfort and safety, and consistent branding.
- More flexibility to accommodate stations that fit within existing and planned development, including the potential for two stations at “The Point.”

Attachment B - Budget Point of the Mountain Stage 2A Estimate Summary**Labor Summary**

Task	Hours	Subtotal
1. Project Management	1,386	\$ 286,294.93
2. Preferred Alternative Refinements and Conceptual Engineering	9,238	\$ 1,530,582.04
3. Environmental Analysis and Documentation	5,142	\$ 811,062.98
4. Communications and Outreach	1,036	\$ 158,656.88
5. Traffic and Transportation Analysis	1,888	\$ 303,316.44
6. Funding, Implementation, and Operations	610	\$ 132,070.56
7. Preliminary Engineering (optional - not estimated)		
8. Station Area Planning (optional - not estimated)		
Total Labor	19,300	\$ 3,221,983.83
Total Direct Expenses		\$ 81,014.80
Escalation		\$ 159,679.00
Stage 2 Total		\$ 3,462,677.63

Attachment B - Budget

Firm	Certus Environmental Services		19-03038TP - Point of Mountain Alternatives Analysis - Stage 2A			
Employee			Archaeologist	Administrative		
Role			Historian	Clerical	Direct Expense(s)	Totals
		Composite Rate	\$113.93	\$47.74		
Tasks and Subtasks					Hours	Budget
Task 1 - PROJECT MANAGEMENT			0	0		0 \$ -
Task 2 - CONCEPT REFINEMENTS AND CONCEPTUAL ENGINEERING			120	120		240 \$ 19,400
2.6	Conceptual Operations and Maintenance Base Analysis		120	120		240 \$ 19,400
Task 3 - ENVIRONMENTAL ANALYSIS AND DOCUMENTATION			88	24		112 \$ 11,172
3.2	Agency Coordination		8	8		16 \$ 1,293
3.3	NEPA Environmental Analysis and Documentation		80	16		96 \$ 9,878
Task 4 - COMMUNICATIONS AND OUTREACH			0	0		0 \$ -
Task 5 - TRAFFIC AND TRANSPORTATION ANALYSIS			0	0		0 \$ -
Task 6 - FUNDING, IMPLEMENTATION, AND RISK ASSESSMENT			0	0		0 \$ -
			208	144		352 \$ 30,572
Total Labor Budget			\$ 23,697	\$ 6,875		\$ 30,572
Direct Expenses					\$ 181	
	Travel Expenses				\$ 101	
	GPS Unit				\$ 50	
	Digital Camera				\$ 30	
Total Cost			\$ 23,697	\$ 6,875	\$ 181	\$ 30,753

Attachment B - Budget

Firm	CSA Acoustics		19-03038TP - Point of Mountain Alternatives Analysis - Stage 2A			
Employee			Meister, Lance			
Role			Principal Associate	Associate	Direct Expense(s)	Totals
	Composite Rate		\$157.22	\$103.05		
Tasks and Subtasks					Hours	Budget
Task 1 - PROJECT MANAGEMENT			0	0	0	\$ -
Task 2 - CONCEPT REFINEMENTS AND CONCEPTUAL ENGINEERING			120	300	420	\$ 49,781
2.6	Conceptual Operations and Maintenance Base Analysis		120	300	420	\$ 49,781
Task 3 - ENVIRONMENTAL ANALYSIS AND DOCUMENTATION			52	100	152	\$ 18,480
3.3	NEPA Environmental Analysis and Documentation		44	76	120	\$ 14,749
3.5	GIS, Graphics and Simulations		8	24	32	\$ 3,731
Task 4 - COMMUNICATIONS AND OUTREACH			0	0	0	\$ -
Task 5 - TRAFFIC AND TRANSPORTATION ANALYSIS			0	0	0	\$ -
Task 6 - FUNDING, IMPLEMENTATION, AND RISK ASSESSMENT			0	0	0	\$ -
			172	400	572	\$ 68,262
Total Labor Budget			\$ 27,042	\$ 41,220		\$ 68,262
Direct Expenses					\$ 50	
	Travel Expenses				\$ 50	
	GPS Unit					
	Digital Camera					
Total Cost			\$ 27,042	\$ 41,220	\$ 50	\$ 68,312

Attachment B - Budget

Firm	Krebs		19-03038TP - Point of Mountain Alternatives Analysis - Stage 2A		
Employee	Krebs, Rick				
Role	Lead Cost Estimator	Direct Expense(s)	Totals		
	Composite Rate	\$228.00			
Tasks and Subtasks				Hours	Budget
Task 1 - PROJECT MANAGEMENT			0	0	\$ -
Task 2 - CONCEPT REFINEMENTS AND CONCEPTUAL ENGINEERING			80	80	\$ 18,240
2.5	Conceptual Engineering	80		80	\$ 18,240
Task 3 - ENVIRONMENTAL ANALYSIS AND DOCUMENTATION			0	0	\$ -
Task 4 - COMMUNICATIONS AND OUTREACH			0	0	\$ -
Task 5 - TRAFFIC AND TRANSPORTATION ANALYSIS			0	0	\$ -
Task 6 - FUNDING, IMPLEMENTATION, AND RISK ASSESSMENT			0	0	\$ -
			80	80	\$ 18,240
Total Labor Budget			\$ 18,240		\$ 18,240
Direct Expenses				\$ -	
Total Cost			\$ 18,240	\$ -	\$ 18,240

Attachment B - Budget

Firm	Terracon Consultants		19-03038TP - Point of Mountain Alternatives Analysis - Stage 2A			
Employee	Chesnut, Rick		Molthen, Charles			
Role	Sr. Principal		Department Manager	Direct Expense(s)	Totals	
	Composite Rate		\$218.54	\$147.88		
Tasks and Subtasks				Hours	Budget	
Task 1 - PROJECT MANAGEMENT				0	0	\$ -
Task 2 - CONCEPT REFINEMENTS AND CONCEPTUAL ENGINEERING				92	320	\$ 67,427
2.4	Concept Refinements and Screening		60	80	140	\$ 24,943
2.5	Conceptual Engineering		16	120	136	\$ 21,242
2.6	Conceptual Operations and Maintenance Base Analysis		16	120	136	\$ 21,242
Task 3 - ENVIRONMENTAL ANALYSIS AND DOCUMENTATION				0	0	\$ -
Task 4 - COMMUNICATIONS AND OUTREACH				0	0	\$ -
Task 5 - TRAFFIC AND TRANSPORTATION ANALYSIS				0	0	\$ -
Task 6 - FUNDING, IMPLEMENTATION, AND RISK ASSESSMENT				0	0	\$ -
				92	320	412 \$ 67,427
Total Labor Budget				\$ 20,106	\$ 47,322	\$ 67,428
Direct Expenses						\$ -
Total Cost				\$ 20,106	\$ 47,322	\$ - \$ 67,428

Attachment B - Budget

Firm	Zions Financial		19-03038TP - Point of Mountain Alternatives Analysis - Stage 2A		
Employee	Becker, Benj				
Role	Vice President		Direct Expense(s)	Totals	
	Composite Rate		\$205.00		
	Tasks and Subtasks		Hours	Budget	
Task 1 - PROJECT MANAGEMENT					
Task 2 - CONCEPT REFINEMENTS AND CONCEPTUAL ENGINEERING					
Task 3 - ENVIRONMENTAL ANALYSIS AND DOCUMENTATION					
Task 4 - COMMUNICATIONS AND OUTREACH					
Task 5 - TRAFFIC AND TRANSPORTATION ANALYSIS					
Task 6 - FUNDING, IMPLEMENTATION, AND RISK ASSESSMENT					
6.1	Funding and Implementation		120		\$ 24,600
			120		\$ 24,600
Total Labor Budget			\$ 24,600		\$ 24,600
Direct Expenses					
Total Cost					
			\$ 24,600	\$ -	\$ 24,600

ID	Task Name	Duration	Start	Finish	Predecessors	Qtr 2, 2021		Qtr 3, 2021			Qtr 4, 2021			Qtr 1, 2022			Qtr 2, 2022			Qtr 3, 2022			Qtr 4, 2022			Qtr 1, 2023			Qtr 2, 2023	
						Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr
1	Point of the Mountain Transit Schedule																													
2	Task 1 Project Management	100 wks	Mon 5/31/21	Fri 4/28/23																										
3	1.1 Project Management Activities (ongoing)	100 wks	Mon 5/31/21	Fri 4/28/23																										
4	1.2 Team Meetings (ongoing)	100 wks	Mon 5/31/21	Fri 4/28/23																										
5	1.3 Project Management Plan	8 wks	Mon 5/31/21	Fri 7/23/21																										
9	1.4 Quality Management Plan	8 wks	Mon 5/31/21	Fri 7/23/21																										
13	1.5 Administrative Record (ongoing)	0 wks	Mon 5/31/21	Mon 5/31/21																										
14	1.6 Risk Assessment	29 wks	Mon 5/31/21	Fri 12/17/21																										
19	Task 2 Concept Refinements and Conceptual Engineering	41 wks	Mon 5/31/21	Fri 3/11/22																										
20	2.1 Engineering Task Management (ongoing)	32 wks	Mon 5/31/21	Fri 1/7/22																										
21	2.2 Agency/Stakeholder Coordination (ongoing)	32 wks	Mon 5/31/21	Fri 1/7/22																										
22	2.3 Survey Base Mapping	4 wks	Mon 5/31/21	Fri 6/25/21																										
23	2.4 Concept Refinements and Screening	18 wks	Mon 6/28/21	Fri 10/29/21																										
31	2.5 Conceptual Engineering (CE)	37 wks	Mon 6/28/21	Fri 3/11/22																										
60	2.6 Operations and Maintenance Base Analysis	35 wks	Mon 5/31/21	Fri 1/28/22																										
87	Task 3 Environmental Analysis and Documentation	92 wks	Mon 7/26/21	Fri 4/28/23	24																									
88	3.1 Environmental Task Management																													

Project: POM Stage 2 Schedule
Date: Fri 4/23/21

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

Attachment C - Schedule

Fri 4/23/21

ID	Task Name	Duration	Start	Finish	Predecessors	Qtr 2, 2021		Qtr 3, 2021			Qtr 4, 2021			Qtr 1, 2022			Qtr 2, 2022			Qtr 3, 2022			Qtr 4, 2022			Qtr 1, 2023			Qtr 2, 2023	
						Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr
89	3.2 Agency Coordination																													
90	3.3 NEPA Environmental Analysis and Documentation	92 wks	Mon 7/26/21	Fri 4/28/23	24																									
151	3.4 Supp Environmental Analysis/Expanded Documentation	79 wks	Wed 10/20/21	Tue 4/25/23	91																									
152	3.5 GIS, Graphics and Simulations (ongoing)	91 wks	Mon 7/26/21	Fri 4/21/23	22																									
153	Task 4 Communications and Outreach	100 wks	Mon 5/31/21	Fri 4/28/23																										
154	4.1 Agency, Stakeholder and Public Outreach (TENTATIVE)	100 wks	Mon 5/31/21	Fri 4/28/23																										
166	4.2 Communications (TENTATIVE)	96 wks	Mon 6/28/21	Fri 4/28/23																										
172	Task 5 Traffic and Transportation Analysis		Mon 5/3/21																											
173	5.1 Data Collection	4 wks	Mon 7/26/21	Fri 8/20/21	24																									
174	5.2 Traffic Modeling	18 wks	Mon 7/26/21	Fri 11/26/21																										
178	5.3 Travel Demand Modeling	22 wks	Mon 11/1/21	Fri 4/1/22																										
185	5.3 Technical Memorandum	26 wks	Mon 10/4/21	Fri 4/1/22																										
198	5.4 Transportation Section of Environmental Document	4 wks	Mon 3/28/22	Fri 4/22/22																										
201	Task 6 Funding, Implementation, and Operations	64 wks	Mon 5/31/21	Fri 8/19/22																										
202	6.1 Project Development Planning	20 wks	Mon 11/1/21	Fri 3/18/22																										
205	6.2 Funding and Implementation	58 wks	Mon 5/31/21	Fri 7/8/22																										
213	6.3 Operations Planning	20 wks	Mon 4/4/22	Fri 8/19/22																										

Project: POM Stage 2 Schedule
Date: Fri 4/23/21

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



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Salt Lake City, UT 84103
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Historic/Cultural Scope of Services and Cost Outline

Project Name: Point of the Mountain Common Ground Transit Alt.

Date: February 22, 2021

Client Name: Parametrix

Project Understanding

Parametrix is assisting the Utah Transit Authority (UTA) in conceptualizing and evaluating a potential new transit system near the Point of the Mountain in Salt Lake and Utah counties. Prior screening efforts have identified a preferred alternative referred to as the Common Ground alternative. UTA is preparing to advance this alternative for further evaluation under applicable regulation. Because UTA may seek federal funding for future phases of the project, including construction, they desire the pending evaluation to meet the standard of federal environmental review regulations, including the National Environmental Policy Act (NEPA) and the National Historic Preservation Act (NHPA). Parametrix has requested a proposal from Certus Environmental Solutions (Certus) to assist them and UTA in fulfilling the requirements of the NHPA and its implementing regulations at 36 CFR 800. The scope of work and cost outline anticipated for Certus are outlined below.

At present, the Common Ground alternative extends from an existing FrontRunner station in Draper to a proposed new station location in Lehi known as the Traverse Mountain Station. This corridor measures approximately 8.5 miles long based on digital files provided to Certus. Eight station locations are currently proposed to be located along the route, including the existing Draper FrontRunner Station. For the purpose of the cultural resource analysis that would be conducted by Certus, the scope and cost outline set forth below assumes that the area to be assessed for cultural resources will not extend more than 15 meters (50 feet) beyond the edge of existing pavement on both sides of existing roads within which the new transit system would operate and would not exceed 30 meters (100 feet) in total width where new transit system would operate on newly constructed routes. Certus also assumes that select locations along the proposed project corridor where the transit system would cross existing facilities, such as I-15, and new structures/bridges may be built would require a slightly larger cultural resource assessment area to accommodate structure location shifts, work spaces, etc.

Scope of Work

❖ **Task 1, Subcontract Administration & Meetings:** Under this task, Certus will

- Manage daily schedule and budget for the assigned tasks
- Maintain open communication with Parametrix, and as directed, and other parties, regarding task status and progress
- Attend project meetings, including up to two (2) internal team meetings.

Task 1 Deliverables
Monthly or milestone invoices
Progress reports (upon request)



Task 1 Assumptions

- The duration of Certus's involvement in will be no more than 9 months from notice-to-proceed.
- Certus will be required to attend up to two (2) team meetings in the Salt Lake Valley; meetings will average 3 hours in length, including travel time.
- Invoicing will occur on a monthly basis or at select milestones; formal progress reports beyond concise emails will not be required from Certus.

- ❖ **Task 2, Updated File Search:** Under this task, Certus will conduct an updated review of Utah SHPO project, site, and structures records to identify any changes to previously reported and/or known cultural resources in the assessment area since the prior file review conducted by Certus as part of the screening phase of this project.

Task 2 Deliverables
File search results (included in Task 4 technical report)

Task 2 Assumptions

- Only one alignment will be reviewed.
- The file search area will extend no more than ½-mile beyond the edge of the cultural resources survey area.
- File search results will not need to be plotted on maps for the technical report.

- ❖ **Task 3, Fieldwork:** Certus will conduct a field survey for cultural resources within the identified limits of the survey area, as described above. The inventory will account for both archaeological resources and historic structures.

Task 3 Deliverables
Field notes (upon request)
Preliminary results GIS shapefiles

Task 3 Assumptions

- No written fieldwork authorization will be required prior to survey.
- The survey area will be no larger than described in the Project Understanding section, above.
- A 45-year age cutoff will be used to identify resources that are historical.
- No more than three (3) archaeological sites, either previously documented or newly located, will be present in the survey area and require new or updated documentation.
- No more than five (5) historical buildings or structures will be present in the survey area and will require documentation.
- Fieldwork can be completed in a single field session; multiple revisits of the survey area will not be required due to forces outside Certus's control after the initial survey is complete.
- No subsurface testing will be required.
- Snow cover will not exceed 20-percent of the survey area.
- Parametrix or other party will assist in arranging access to properties along the project corridor for the purpose of the field survey.



- ❖ **Task 4, Reporting:** Certus will prepare a single technical report summarizing the results of the file search and literature reviews and the field inventory. The report will also provide recommendations for the finding of effect. The contents of the reports will be prepared in compliance with Utah SHPO and UTA guidelines.

Task 4 Deliverables
Draft and final technical report and supporting documentation (digital format)

Task 4 Assumptions

- Draft and final deliverables will be provided to JUB and UTA in electronic format only.
- Any archaeological sites will be documented on Utah Archaeology Site Forms while historical structures will be documented on e106 Historic Site Forms.
- Final deliverables will be provided in digital format according to the Utah SHPO e106 guidelines as they existed at the time of this proposal.

- ❖ **Task 5, Section 106 Support:** Certus will assist UTA (and FTA) in completing the Section 106 process by identifying consulting parties, drafting consultation and consulting party invitation letters, and drafting the Determination of Eligibility/Finding of Effect (DOE/FOE) document.

Task 5 Deliverables
Consulting party list
Draft SHPO initiation of consultation letter
Draft consulting party invitation letters
Draft and final DOE/FOE letter text

Task 5 Assumptions

- All deliverables will be provided in digital format only.
- All letters will be finalized and sent out by UTA or FTA; Certus will not be responsible for mailing of letters.
- Parametrix or other party will assist Certus by providing project description and purpose and need text as well as design and cultural resource impact figures to accompany the Section 106 letters and DOE/FOE.



Scope of Work – Optional Task – Lehi Extension

Depending on funding availability, UTA may desire Certus to extend the cultural resource assessment from the South Triumph Hospital station (i.e., the southern terminus for the assessment corridor discussed above) to the Lehi FrontRunner station. The scope of work and cost estimate that follow address this potential extension and are based on the assumption that the assessment of this extension would occur at the same time as the primary assessment noted above in terms of field inventory and reporting. Under this assumption, there would be no additional costs or scope under Tasks 1, 2, and 5 above. It is also assumed that the width of the survey corridor for the extension will be the same as for the primary inspection corridor.

- ❖ **Task 3, Fieldwork:** Certus will conduct a field survey for cultural resources within the identified limits of the extension survey area, as described above. The inventory will account for both archaeological resources and historic structures.

Task 3 Deliverables
Field notes (upon request)
Preliminary results GIS shapefiles

Task 3 Assumptions

- No written fieldwork authorization will be required prior to survey.
- The survey area will be no larger than described in the intro text, above.
- A 45-year age cutoff will be used to identify resources that are historical.
- No more than two (2) archaeological sites and no historical buildings/structures will be present in the survey area.
- Fieldwork will be combined with the inventory for the primary corridor described above; a separate field trip to inspect the extension corridor will not be required.
- No subsurface testing will be required.
- Snow cover will not exceed 20-percent of the survey area.
- Parametrix or other party will assist in arranging access to properties along the project corridor for the purpose of the field survey.

- ❖ **Task 4, Reporting:** Certus will incorporate the results of the field survey for the extension area into the technical report prepared for the primary project corridor.

Task 4 Deliverables
UASF site form updates for 42UT946 and 42UT974, GIS data, and tabular data spreadsheet (digital format only)

Task 4 Assumptions

- Updated site forms for the Fox Ditch (42UT974) and Utah Lake Distributing Canal (42UT46) will be required.

CSA Noise and Vibration Scope of Work

CSA's approach for the project will be to conduct a general noise impact assessment for the project. We are not planning to conduct a vibration assessment, since BRT operations typically do not create high enough vibration levels to warrant an assessment. The FTA methodology contains a screening procedure for vibration from rubber-tired vehicles, which will be utilized for the project. The tasks in the noise impact assessment will include:

Task 1. Project kickoff and data needs request for information. Gather project information, including any engineering plans, BRT operations, speeds, and other project information.

Task 2. Noise and vibration measurements and land use survey. Conduct a land use survey to determine the noise sensitive land uses along the proposed corridor. This will include both a desktop exercise using GIS and Google Earth, and a windshield survey to document sensitive locations. Perform existing noise measurements throughout the corridor. The exact number of measurement locations will depend on the land use survey, but we anticipate approximately 3-4 noise measurements. CSA will analyze the data for use in the assessment.

Task 3. Conduct a noise impact assessment for the project. The assessment will be carried out at all sensitive receptors near the proposed alignment. At locations where impacts are projected (if any), mitigation options will be identified, with input from the project team.

Task 4. Prepare an environmental section for the document. The environmental section will contain information on noise basics, impact criteria, methodology for conducting the assessment, results of the assessment and any potential noise mitigation measures required. CSA will respond to comments from the project team on the section and prepare a final set of documents for the project.