

STATEMENT OF WORK

Texas Department of Transportation

Fort Worth to Austin High-Speed Rail

FY14 Grant Application Solicitation – Passenger Rail Corridor Investment Plan Projects

I. BACKGROUND

On July 11, 2014, the Federal Railroad Administration (FRA) issued a Noticed of Funding Availability (NOFA) in the Federal Register soliciting applications for Passenger Rail Corridor Investment Plan (PRCIP) projects. The appropriations authority to fund the PRCIP projects under this solicitation was provided by Congress under the FY14 Omnibus Appropriations Act.

In response to the NOFA, the Texas Department of Transportation (TxDOT) (the “Grantee”) submitted an application for Fort Worth to Austin High-Speed Rail PE/ NEPA (the “Project”). The FRA reviewed the Grantee’s application against the eligibility, evaluation, and selection criteria outlined in the NOFA. On the basis of this evaluation, the FRA selected TxDOT for an award, through a cooperative agreement between FRA and the Grantee, of \$8M for the Project.

The Fort Worth to Austin Passenger Rail Corridor Investment Plan application for federal funding continues the advancement of high-speed rail corridors in Texas currently under development between Houston and Dallas, Dallas to Fort Worth, and Oklahoma City to Fort Worth and would extend a high-speed rail corridor from North Texas to the state’s capital in Austin.

This application requests funding in order to provide sufficient information to support a future decision to fund and implement a major investment in a passenger rail corridor, and is comprised of two components:

1. An environmental review to satisfy National Environmental Policy Act (Project NEPA - EIS) requirements, in which the purpose and need of the improvements are defined and will evaluate route alternatives, termini of the alternatives, and level of service at the project level; determine the potential social, economic and environmental effects of the proposed route alternatives; and develop appropriate mitigation measures that can be used to offset effects of the project.
2. Preliminary Engineering – The preliminary engineering required to finalize the NEPA documentation component (project-level EIS).

Project NEPA for the Fort Worth to Austin High-Speed Rail PE/ NEPA Corridor will be conducted in the form of an Environmental Impact Statement (EIS). Together, the Project NEPA and Preliminary Engineering complete the PRCIP, which will provide sufficient information to support potential future funding and implementation decisions for major investment in the Fort Worth to Austin High-Speed Rail Corridor.

For the purposes of this Statement of Work (SOW), the term “Project” means the completion of the Project NEPA and Preliminary Engineering for the Fort Worth to Austin High-Speed Rail Corridor.

TxDOT is currently conducting the Oklahoma City – South Texas Corridor Investment Plan under the Texas Oklahoma Passenger Rail Study (TOPRS), which is looking at the feasibility of developing passenger rail service within that corridor. Early ridership estimates indicate that the

section from Dallas/Fort Worth to San Antonio via Austin is substantial enough to support true high-speed rail service in this corridor. TxDOT is also involved with the New Core Express Service under development by the Texas Central Railway (TCR) between Houston and Dallas, while concurrently conducting a complimentary PE/NEPA project to develop New Core Express Service from a TCR connection in Dallas to Fort Worth via Arlington. In addition to these two studies, TxDOT also conducted a Statewide Ridership Analysis that evaluated ridership potential for the Dallas/Fort Worth to Austin corridor, which showed the corridor could support high-speed rail service. Fort Worth to Austin High-Speed Rail along with plans in development to provide high-speed rail between Fort Worth and Dallas as well as between Dallas and Houston; and plans being evaluated for the Austin to Houston corridor, would provide high-speed rail connections amongst all of the major metropolitan regions in the state accessible by over 17 million people.

There are no direct flights between Austin and Fort Worth proper; however air travel between Austin and DFW Airport exists, at which point travel to Fort Worth is possible via alternate modes such as car rental as an example. Automobile travel between Austin and Fort Worth city-pair Central Business Districts is an approximate 3-hour drive. The Fort Worth to Austin corridor is currently served by the Amtrak Texas Eagle service that provides service from Los Angeles to Chicago with stops in Austin, Taylor, Temple, Fort Worth and Dallas along the study corridor, though the total trip time is nearly 7 hours between Austin and Dallas with one train daily in each direction. According to Amtrak's current timetable, if an individual desired to ride Amtrak between Austin and Fort Worth and return the same day, assuming on-time performance of the westbound and eastbound trains, this individual would have only 12 minutes of time to spend in Fort Worth. Traveling from Fort Worth to Austin would require an overnight stay in Austin for a return trip. Providing high-speed passenger rail service between these two cities would provide a fast, safe and economical travel option improving mobility and connectivity between Austin and Fort Worth.

II. OBJECTIVE

The objective of the Project is to produce a Project-Level EIS and commensurate Preliminary Engineering documents for the Fort Worth to Austin High-Speed Rail Corridor in compliance with *FRA's Procedures for Considering Environmental Impacts (64 Federal Register 28545 (May 26, 1999))* and the Council on Environmental Quality's (*CEQ*) NEPA implementing regulation (*40 CFR Part 1500 et seq.*).

III. PROJECT LOCATION

The Fort Worth to Austin High-Speed Rail Corridor PE/Project NEPA is a study of service to be located between Fort Worth, Texas and Austin, Texas, a distance of approximately 190 miles. Both Union Pacific Railroad (UPRR) and the BNSF Railway Company (BNSF) have mainline tracks between Austin and Fort Worth, while the Fort Worth and Western Railroad (FWRR) operates in the Fort Worth area. Amtrak's Texas Eagle, with route termini locations in Chicago and Los Angeles, provides intercity passenger rail service between the city-pairs with one train daily in each direction. In Fort Worth, the Trinity Rail Express (TRE) provides commuter rail service between Fort Worth and Dallas. To ensure that planning considers the interrelationships of the broader intercity passenger rail network, the following route(s) beyond the Fort Worth to Austin High-Speed Rail Corridor will be considered to the degree necessary to fully inform

Project NEPA environmental and Preliminary Engineering work for the Fort Worth to Austin High-Speed Rail Corridor:

1. Austin to Fort Worth via Temple, Waco and Hillsboro
2. Austin to Fort Worth via Temple, McGregor, and Cleburne
3. Austin to Fort Worth via Temple, Waco, Hillsboro and Arlington

IV. DESCRIPTION OF WORK

This SOW is divided into four major tasks. Task 1 includes project set-up. Task 2 includes NEPA scoping and the preparation of other technical information to identify and develop alternatives for the Project NEPA and Preliminary Engineering document. The deliverables resulting from this phase will be used in Task 3, the development of the Project NEPA document. Tasks 2 and 3 will often overlap, require close coordination, and be conducted through an iterative analytical process. Task 4 is the Preliminary Engineering component. The Grantee will perform the tasks in close coordination with FRA and all approvals by FRA must be in writing.

Task 1: Detailed Project Work Plan, Budget, and Schedule

For this initial task, the Grantee will prepare a Detailed Project Work Plan, Budget, and Schedule for Tasks 2, 3, and 4. The Project Work Plan will describe, in detail, the activities and steps necessary to complete the tasks outlined in the Statement of Work. The Grantee shall contact FRA and obtain preliminary direction regarding the appropriate environmental documentation. The Grantee will describe the Project NEPA EIS and Preliminary Engineering approach proposed and reflect this in the level of effort for related tasks. The Project Work Plan will also include information about the project management approach (including team organization, team decision-making, roles and responsibilities and interaction with FRA), as well as address quality assurance and quality control procedures. In addition, the work plan will include the project schedule (with grantee and agency review durations) and a detailed project budget. If the Grantee needs to secure an agreement with host a railroad to access the railroad's property and perform the preliminary engineering and/or NEPA work, the executed agreement should be included with the work plan. The work plan shall identify studies to be conducted as part of the Project NEPA evaluation process. The Detailed Project Work Plan, Budget, and Schedule will be reviewed and approved by the FRA, who will make the final decision regarding the class of action to be used in the NEPA process.

The Grantee acknowledges that work on subsequent tasks will not commence until the Detailed Project Work Plan, Budget, and Schedule has been completed, submitted to FRA, and the Grantee has received approval in writing from FRA. The FRA will not reimburse the Grantee for costs incurred in contravention of this requirement.

Task 1 Deliverables:

- Detailed Project Work Plan, Budget, and Schedule
- Project Agreements (if applicable)

Task 2: Alternative Alignment Identification and Evaluation

Work under this task will build upon the completed TOPRS Tier 1 NEPA and Service Development Plan product and include the following subtasks:

Subtask 2.1: Define Reasonable Alternative Alignments

The Grantee will perform conceptual engineering necessary to develop build alignment alternatives within the corridors advanced in the Tier 1 EIS, in addition to a future no-build alternative. This list of alignment alternatives shall provide the initial candidate pool of alternatives which will be narrowed to those brought into Task 3, the EIS process. The alternatives will be defined in sufficient detail to allow a high level comparison of likely performance, broad impacts, order of magnitude cost estimates, fatal flaw stakeholder and environmental analyses and other large scale differentiating factors. The alternatives will be established by FRA, the Grantee, scoping and work by others where applicable.

The Grantee will examine the ability of high-speed passenger rail service along the identified alternative alignments to meet travel demand and passenger expectations as defined in the TOPRS/ Tier 1 EIS.

Factors affecting the range of alternatives may include:

- Route;
- Capacity;
- Travel time;
- Potential operating speed;
- Available technologies;
- Service and operating plan;
- Locations of termini and intermediate stops;
- Station locations;
- Intermodal connections;
- National system connectivity;
- Joint development or re-development opportunities;
- Other PPP considerations;
- Environmental “fatal flaws”;
- Initial capital costs (high level estimates); and
- Life-cycle costs.

Subtask 2.1 Deliverables:

- Conceptual Engineering
- Draft report on Alternative Alignment Development
- Final report on Alternative Alignment Development

Subtask 2.2: Initial Travel Demand Forecasts

The Grantee will advance travel demand forecasts previously conducted for the TOPRS project and the TxDOT Statewide Ridership Study to reflect the characteristics of the identified alternative alignments. Travel forecasts will be generated for all alignments identified in Subtask 2.1 to support the environmental review and in optimizing forecasts for cash flow generation, economic analysis, and analysis of risk as part of the business plan development.

Subtask 2.2 Deliverables:

- Documentation summary of work conducted by FRA third party travel demand forecasting consultants.
- Preliminary ridership forecasts for a no-build and Subtask 2.1 alternatives to support the environmental review.

- Preliminary revenue and ridership forecasts in a form to be used for initial benefit cost analysis, cash flow modeling and incorporation into the business plan.
- A technical report summarizing the impacts of high-speed core express service upon the transportation system in the Fort Worth and Austin regions, based upon the analyses conducted using the recommended inter-city and MPO models.

Subtask 2.3: Intercity Passenger Rail Corridor Screening Plan

The Grantee will prepare a Technical Memorandum in which the corridor evaluation process is described and defined for screening the range of build alternatives analyzed.

Subtask 2.3 Deliverables:

- Draft Corridor Screening Plan/ Evaluation Methodology Report
- Final Corridor Screening Plan/ Evaluation Methodology Report

Subtask 2.4: Purpose and Need

The Grantee will develop a purpose and need statement for the project that establishes a reasonable range of rail alternatives to address inter-city mobility needs and other project goals in the Fort Worth to Austin corridor, and focuses the analysis on distinctions between the alternatives useful to stakeholders and to decision-makers' in their selection of an alternative. The purpose and need will describe the reasons for undertaking the high-speed passenger rail service between Fort Worth and Austin and define the needs the project must address. It will identify the evaluation criteria to be used to differentiate among project alternatives, and address feasibility, practicality, customer preferences and acceptance, economic issues, environmental impacts, costs, and other considerations stakeholders and decision-makers may establish.

Subtask 2.4 Deliverables:

- Draft Purpose and Need Statement
- Final Purpose and Need Statement

Subtask 2.5: Alternatives Analysis

The Grantee will identify and collect available information from prior work to refine the range of build alternatives to avoid or reduce impact on obvious cost, schedule, environmental and other constraints. The Grantee will focus on alternatives refinement that reduces the level of adverse impact and improve acceptance, including with potential investor/developers. The Grantee will identify and collect information that defines fully the No-Build Alternative and bring forward the promising Build Alternative Alignments.

The Grantee will review conceptual engineering, initiate efforts to collect additional data, and identify any obvious environmental sensitivities that have the potential to delay the schedule, increase the project costs, encounter strong public resistance, or present extraordinary engineering challenges and expenses. The Grantee's initial data collection effort will focus on having critical data necessary to screen the alternatives during the alternative screening process.

The Grantee will conduct additional data collection for key environmental for selected corridor portions where a constrained right-of-way and/or alternatives' operating speeds shall affect design options and impacts.

The Grantee will collect and review necessary reports and studies, and this Subtask will become the basis for the environmental setting and highlight early-on the potential environmental consequences that shall need to be addressed. Data collection will involve contacting local municipalities, as well as state and federal resource agencies (particularly those participating and cooperating agencies). Information to be compiled includes:

- Local general plans, specific plans, redevelopment plans, zoning maps, and design guidelines
- Parcel maps
- Geographic Information Systems (GIS) files from local jurisdictions or agencies
- Database queries for listed plant and wildlife species, sensitive habitats, and cultural resources
- Database queries for environmental contamination (principally hazardous materials and waste sites)
- Initial traffic data
- Project corridor development plans
- Other environmental studies and reports

Based on the background documents and GIS files initial review, the Grantee will conduct initial field surveys to verify the potential for environmental and engineering issues. Environmental issues shall include:

- Historic resources
- Sensitive biological resources and wildlife habitats
- Important farmlands (e.g., prime farmland soils)
- Major public parklands, wildlife refuges, or recreation areas
- Major waterways
- 100-year floodplains
- Dams and levees
- Cultural resources
- Potential environmental concerns with respect to hazardous waste and materials sites
- Public and/or sensitive facilities and institutions (churches, senior citizen homes, public housing, etc.)
- Sensitive land uses that could be affected by noise and vibration, air emissions, loss of visual character/quality, and impairment to Section 4(f) and 6(f) resources.
- Electromotive force (EMF)
- Utility corridors

The Grantee will conduct initial conditions surveys around grade separations to identify potential environmental issues, if any, and to record conditions that may limit the grade separation or other design options.

The Grantee will document and describe the environment potentially affected by the Build and No-Build alternatives. Descriptions will be incorporated into the Draft EIS in Task 3.

The Grantee will document for public, agency and stakeholder understanding the screening of the project alternatives done for the Build and No-Build alternatives being addressed in detail in the Draft and Final EIS.

Subtask 2.5 Deliverables:

- Revised alternative alignments (descriptions and plans), based on discussions with agencies and more detailed site information

- GIS mapping plan and assembly
- Draft existing condition descriptions (narratives and graphics) for incorporation into the environmental technical reports and Draft EIS.
- Draft and Final Alternatives Screening Report (narrative, tables, matrices, graphics)
- Draft and Final Alternatives Screening Report (narrative, tables, matrices, graphics)

Subtask 2.6: Planning

The Grantee will coordinate with the FRA and respective MPO’s and other applicable city/county planning staff on overall planning activities such as land use, zoning, zoning changes and requirements in prospective station areas, establish planning year horizons, develop “no-build” project definition, growth patterns, rail alignments and station designs to determine footprint, as appropriate. The Grantee conduct Context Sensitive Solutions (CSS) and Sustainability workshops within the Fort Worth to Austin corridor and will incorporate applicable Federal Highway Administration (FHWA) CSS components and established sustainability goals into the planning and design of alternatives.

The Grantee will coordinate station area planning/locations with project stakeholders, including affected cities to define impacts and mitigation for unavoidable adverse impacts (e.g. traffic and roadway improvements, where justified by direct adverse project impact). The Grantee, through a series of consultations with cities and review of existing city plans, shall determine the required footprint for passenger train stations and the surrounding land uses and zoning in the station areas.

Subtask 2.6 Deliverables:

- Summary report documenting FRA/MPO and planning coordination
- Context Sensitive Solutions workshop and summary report
- Sustainability workshop and summary report
- Technical memorandum outlining general station areas planning considerations and potential responsibilities
- Technical memorandum outlining site specific station area planning considerations and potential responsibilities

Subtask 2.7: Conceptual Engineering Design:

The Grantee will provide the level of conceptual engineering necessary to screen alternatives identified in Section III for consideration in the environmental work described in Task 3. The Grantee will coordinate this work with relevant transportation projects being studied or developed by third parties which may be applicable to this Project. The Grantee will provide the commensurate level of conceptual design to identify environmental impacts and establish initial potential construction costs. The Grantee will then advance the conceptual design for a preferred alternative in Task 4 – Preliminary Engineering. Conceptual engineering criteria will be established for the following:

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| • Design Criteria, Specifications, and Regulatory Compliance | • Track/Structures/Utilities |
| • Operating Speeds/Characteristics | • Hydraulics/Hydrology |
| • Profile/Alignment | • Systems/Communication |
| • Mainline Infrastructure | • Stations |
| | • Roadway Interface |

- Electric Traction
- Maintenance Facilities
- Right-of-Way
- Rolling Stock/Equipment
- Capital Cost Estimate

Subtask 2.7 Deliverables:

- Draft applicable conceptual-level design criteria and specifications.
- Final applicable conceptual-level design criteria and specifications.

Subtask 2.8: Business Planning

The Grantee will manage and/or support the development of several related business planning documents to inform the environmental evaluation process and the feasibility of building and operating high-speed passenger service between Fort Worth and Austin. Elements of the business plan could form the basis of an information package for potential private partners.

The Grantee will organize this subtask accordingly:

1. Draft/ Outline business plan to the extent relevant to support alternatives analysis shall include:
 - Agreed program goals
 - Implementation options and associated capital cost forecasts
 - Operating options and operating and maintenance cost forecasts
 - High level revenue and ridership forecasts
 - Benefit cost analysis
 - Procurement options
 - Funding options
 - Financing options, if applicable
2. Interim and Final Business Plan shall include:
 - Fully developed version of the sections above for the preferred alternative
 - Project-level risk analysis
 - Financial plan

Subtask 2.8 Deliverables:

- Draft and Final Business Plan

Subtask 2.9: Railroad Operations Analyses

The Grantee will coordinate with affected freight railroads regarding their participation for this project. This will include obtaining information describing existing rail alignment geometric characteristics, current operations and train frequency and forecasted growth. The Grantee will prepare project-specific Memoranda of Understanding or other support to obtain current railroad track charts, timetables, and train files (where applicable) to facilitate establishing baseline operating performance measurements and determine the infrastructure requirements to prevent adverse impacts from passenger rail operations to the existing freight rail network.

In the absence of receiving this information from the railroads, the Grantee will prepare an estimated train volume and operations analysis based on available Surface Transportation Board (STB) Waybill and Association of American Railroads (AAR) data, along with information

available from State such as train counts and average train speeds. The Grantee will request validation of this information from the railroads.

The Grantee will conduct initial project coordination meetings with each Class I railroad. Subsequent meetings shall be held throughout the project duration, in particular during the development, testing, and validation of the baseline Rail Traffic Controller (RTC) model. Subsequent coordination meetings shall be set during iterative testing of alternatives for passenger train movements.

The Grantee will establish freight railroad requirements applicable to the use of existing railroad right-of-way or shared trackage. The Grantee will also coordinate with Amtrak, the TRE, the Dallas Area Rapid Transit (DART), the Fort Worth Transportation Authority (the "T"), Capital Metropolitan Transportation Authority (CapMetro), the Lone Star Rail District (L-Star), the Texas Commission for High-Speed Rail in North Texas, and other agencies performing or promoting passenger rail operations so that proposed alternatives developed may be complimentary to planned/existing operations and are coordinated to provide a high level of connectivity.

Subtask 2.9 Deliverables:

- Technical memo summarizing data obtained from the freight railroads
- Technical memorandum summarizing affected freight railroad policy with regard to passenger rail operations, use of adjacent right-of-way, and shared trackage.
- Technical memorandum summarizing existing passenger service and proposed performance objectives/issues

Task 3: Project NEPA Document

The Grantee will complete a Project NEPA EIS document for the Fort Worth to Austin high-speed passenger rail project in close coordination with FRA, considering the various alternatives for implementing the proposed train service previously developed during the TOPRS project as well as the findings of Task 2 of this project and will conduct the requisite engineering as described in Task 4 for construction projects necessary to implement those service alternatives, and the potential environmental impacts that may be associated with those projects at a level of detail appropriate for the EIS.

The Grantee will prepare a Project NEPA EIS and focus on the likely environmental effects for the entire Fort Worth to Austin High-Speed Passenger Rail Program relating to the type of service being proposed for the identified range of reasonable alternatives. The analysis of impacts will be based upon the results of prior work conducted in the TOPRS project and the conceptual design prepared in Task 2. The Grantee will prepare the EIS as per CEQ guidance and in accordance with FRA's Procedures for Considering Environmental Impacts (64 Fed. Reg. 28545 (May 26, 1999)). The Grantee will propose a methodology for impact analysis and an annotated outline of the proposed EIS to FRA for review and comment prior to commencing the work. Any required documentation for compliance with other laws (historic preservation, clean water, etc.) will be identified and outlined. The Grantee will include impacts for the Fort Worth to Austin High-Speed Passenger Rail PE/NEPA Program associated with:

- Route alternatives
- Cities and stations served
- Train service levels
- Train technology

- Train operating speeds
- Ridership projections
- Major infrastructure components

Studies to be conducted as part of the NEPA evaluation process for this project may include the following. A final list will be determined in conjunction with FRA in the Detailed Project Work Plan, Budget, and Schedule:

- Air quality
- Water quality
- Noise and vibration
- Solid waste disposal
- Biological resources
- Ecological systems
- Impacts on waters of the U.S., including wetlands
- Impacts on endangered species or wildlife habitats
- Flood hazards and floodplain management
- Use of energy resources
- Use of other natural resources, such as water, minerals, or timber
- Aesthetic and design quality impacts
- Possible barriers to the elderly and handicapped
- Land use, existing and planned
- Environmental Justice
- Public health
- Public safety, including any impacts due to hazardous materials
- Recreational opportunities
- Historic, archeological, architectural, and cultural resources (Section 106)
- Use of Section 4(f)/6(f)-protected properties
- Socioeconomic impacts
- Transportation impacts
- Construction period impacts

The Grantee, in conjunction with FRA, will also identify strategies to avoid, minimize or mitigate identified impacts. This will include coordination with appropriate resource agencies (particularly those participating and cooperating agencies) throughout the NEPA process for impacts identified during the development of the Service NEPA document. Specific avoidance, minimization and mitigation strategies will be developed and included as necessary by resource area, based on the following approaches:

- Avoiding the impact altogether by not taking a certain action or parts of an action
- Minimizing impacts by limiting the degree or magnitude of the action and its implementation
- Rectifying the impact by repairing, rehabilitating, or restoring the affected environment
- Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action
- Compensating for the impact by replacing or providing substitute resources or environments

The Grantee will then prepare an Administrative Draft EIS for FRA review and comment. Modifications to the Administrative Draft EIS requested by FRA will be incorporated to produce a Draft EIS for circulation. If requested, the Grantee will prepare and submit to FRA a draft Notice of Availability (NOA) for the Draft EIS. The Grantee will distribute the Draft EIS to agencies and stakeholders, as outlined in the Agency and Stakeholder Involvement Plan and conduct the public comment process.

After the close of the public and agency comment period on the Draft EIS, the Grantee, in close coordination with FRA, will respond to comments and prepare the Final EIS. The Grantee will prepare an Administrative Final EIS for FRA review and comment. Modifications to the Administrative Final EIS requested by FRA will be incorporated to produce a Final EIS for

circulation. Upon request, the Grantee will prepare and submit to FRA a draft Notice of Availability (NOA) for the Final EIS. The Grantee will also distribute the Final EIS to agencies and stakeholders, as outlined in the Agency and Stakeholder Involvement Plan.

Additionally, the Grantee, in coordination with FRA, will identify the next steps required in the environmental process. The commitments agreed upon by the agencies throughout the NEPA process will be included in the Record of Decision (ROD), which the Grantee will submit to FRA for review and approval. If directed by FRA, a combined Final EIS and ROD may be issued. A constant line of communication between the Grantee and FRA will be maintained throughout the entire NEPA process.

Environmental Impact Statement Deliverables

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| <ul style="list-style-type: none">• Section 106 Documentation• Section 4(f)/6(f) Documentation (if applicable)• Clean Air Act Conformity Documentation (if applicable)• Endangered Species Act Documentation (if applicable)• Other environmental resource-related documentation, as applicable• Annotated Outline and Methodology Overview• Administrative Draft Environmental | <ul style="list-style-type: none">Impact Statement• Draft Environmental Impact Statement• Administrative Final Environmental Impact Statement• Final Environmental Impact Statement• Draft Notice(s) of Availability• Record of Decision |
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Task 4: Preliminary Engineering and Operations

Work under this Task be done in coordination with Task 3, and will refine the information and criteria established in Task 2 to be applicable for the preferred alternative.

Task 4.1: Preliminary Engineering

The Grantee will refine the conceptual engineering and capital cost and capital renewal estimates completed under Task 2 for the reasonable alternatives, to a level sufficient for final EIS analysis of the preferred build alternative. The additional engineering and cost estimation shall be used to increase the accuracy of the impact assessment for the preferred alternative, and help clarify the nature, extent and cost of mitigation for adverse impacts, including ROW acquisition. Also, comments on the draft EIS and ongoing coordination with stakeholders may show that some modification of the design of the preferred alternative as presented in the draft EIS should occur to reduce impact or achieve another benefit. Additional engineering is also required to continue coordination with a range of agencies and stakeholders pursuant to processes separate from NEPA, such as Section 106 of the National Historic Preservation Act, Section 7 of the Endangered Species Act and Section 404 of the Clean Water Act. The level of design modification and FEIS engineering of the preferred alternative shall be dictated by the comments received on the draft EIS and the requirements of agencies to satisfy processes apart from NEPA. Since the next step in project delivery could be PPP or another alternative project delivery mechanism, the FEIS engineering shall be applicable to the range of potential rail technologies.

The Grantee will build on the conceptual engineering developed in Task 2. The work involves advancing the design parameters of the preferred alternative, as determined by external stakeholder requirements and comments on the draft EIS, to support the final EIS and generate a more complete and refined capital cost estimate. The work follows the same outline provided in Task 2: Design Criteria and Regulatory Compliance, Mainline Infrastructure, Stations, Maintenance Facilities, Right-of-Way and Capital Cost Estimate.

The Grantee's detail approach for this task will include:

- i. Refine the design criteria
- ii. Refine the safety and regulatory requirements applicable to the preferred alternative
- iii. Further develop the required geotechnical investigation and testing plan for the preferred alternative
- iv. Modify and/or refine the alignment information developed in Task 2 for the preferred alternative addressed in the final EIS.
- v. Refine track structure work developed in Task 2
- vi. Refine the footprint and locations of traction power systems from Task 2
- vii. Refine the power transmission needs and substation locations from Task 2 for the preferred alternative alignment.
- viii. Identify train control and communications systems interfaces, including application of PTC for the preferred alternative, based on work from Task 2
- ix. For the preferred alternative, the Grantee will develop conceptual engineering requirements for a communication system that supports operations, business functions and passenger information requirements
- x. Further define the proposed rolling stock technologies and required clearances for the preferred alternative from Task 2. The analysis will accommodate the range of technologies potentially available.
- xi. Identify and refine provisions for at-grade crossing closures identified in Task 2 along the preferred alternative
- xii. Refine the structural (railroad bridge and roadway grade separations) information developed from Task 2
- xiii. Refine drainage structure sizing and locations for the preferred alternative
- xiv. Building upon work completed under Task 2, the Grantee will prepare conceptual layouts for rail stations associated with the preferred alternative, as required to refine station access planning, ROW requirements and cost estimate. Station footprint development shall commence upon receipt of site and existing condition surveys, and ridership and parking demands for each station site
- xv. From data provided from the operation analysis and other reviews of maintenance functions, the Grantee will prepare conceptual layouts for the subject buildings associated with the preferred alternative
- xvi. Based on information from Task 2, the Grantee will prepare conceptual design layout documents for rolling stock maintenance and lay-up facilities and accompanying rail storage yard facilities, and a listing of the basic maintenance equipment that will be required to service the selected type and quantity of rolling stock
- xvii. Based on information developed from Task 2, the Grantee will prepare conceptual layout documents for MOW and systems maintenance facilities

- xviii. Right –of-Way: based on the basic right-of-way limits information determined under Task 2, and the FEIS engineering described above, the Grantee will refine right-of-way information for the preferred alternative
- xix. The Grantee shall refine planning-grade capital cost estimate for construction, real estate, rolling stock, and maintenance and support facilities and equipment, for a period of 99 years, estimating the cost (in 2017 dollars) of track, systems, rolling stock, maintenance and support facilities and equipment, and structural renewals.

Task 4.1 Deliverables:

- Revised Design Summary Report including summaries of the following components:
 - a. Applicable regulatory and industry practice, including recommendations of where the design of the preferred alternative should be modified or refined to achieve compliance with existing and pending requirements
 - b. Special track work requirements, structures, track support systems and materials, and noise and vibration mitigation strategies
 - c. Inventory of existing major transportation structures
 - d. Requirements for traction power substations and OCS with common assumptions appropriate to the stage of system development, and including conceptual layouts for traction power substations as pertains to ROW requirements and EMI/EMF impacts
 - e. Requirements for potential power feeds for traction electrification
 - f. Proposed train control including application of PTC overlays and refined cost estimate and conceptual requirements for communications system interface, suitable for inclusion in bid documents for the prospective next phase of project delivery
 - g. Requirements for the required communication and passenger information system
 - h. Utility issues for the preferred alternative
 - i. Recommended rolling stock technology and clearance requirements, consistent with accommodating the range of technologies that could be employed
 - j. Locations and treatments of recommended grade crossing closures and traffic reroute
 - k. Required new railway bridges and grade separations required for the preferred alternative alignment
 - l. Drainage boundary/area information; FEMA floodplain maps/locations of potential structures within floodplain; flows for locations with drainage areas not in floodplain; lengths/WSELs for potential bridge structure sizing; sizes of culverts based on HY-8 modeling software; mitigation for unavoidable floodplain impacts and other concerns raised in comments on the draft EIS
 - m. Requirements for rolling stock maintenance and storage facilities and required rail storage yard, including a listing of the required maintenance equipment
 - n. Requirements for MOW and systems maintenance facilities
 - o. Requirements and typical layouts for stations
 - p. Refined cost estimate
- Final technical memoranda detailing capital costs and costs of renewal of capital items over a life of 99 years

- Draft and Final summary geotechnical report
- Updated GIS mapping of preferred alternative alignment
- Preliminary engineering plans showing horizontal and vertical alignments, including curvature and alignment coordinate data, typical sections, conceptual structural plans, preliminary utility relocations plans, right-of-way, and preliminary systems design (OCS and TPSS)
- Conceptual drawings for each of the station sites, including site plan, platform plan, concourse plan and a cross-section for clearing the footprint of these facilities under the FEIS
- Conceptual layouts and supporting space planning information for the referenced storage and maintenance building(s)
- Right-of-Way: refined GIS shape file containing parcels' outlines located immediately adjacent to the preferred alternative alignment right-of-way and including any additional corridor right-of way determined as required. Additional parcel mapping exhibits for proposed station locations and proposed sites for maintenance, administration and/or operations facilities.

Subtask 4.2: Business Planning Development

In conjunction with procurement planning, the Grantee will develop a detailed definition of the system roll out that reflects the current understanding of the Fort Worth to Austin High-Speed Passenger Rail Corridor as described in the EIS (e.g. station locations, alignment, footprint, and structure types etc.). This subtask shall drive the project implementation schedule and detailed capital costs estimates.

Additionally, in conjunction with the funding plan, the Grantee will provide a PPP strategy and procurement plan with the aim of maximizing the value from private involvement in the system.

The Grantee will also provide recommendations for passing or sharing risks with private partner(s) and conducting ad-hoc analyses of the potential costs of benefits of this approach (i.e. Value for Money analysis). The Grantee will support and provide recommendations for maximizing the value of the private partners' contribution to the project subject to the State's and FRA's overriding policy goals. The Grantee will also assess the potential related private partnerships in coordination with corridor MPO's and other appropriate agencies.

The Grantee will also develop a high level strategic document focusing on the key options for PPP or Comprehensive Development Agreement (CDA) procurement. With the limited capability of the ridership revenue to fund infrastructure in rail projects, the large scale of the costs of high-speed rail service construction and the potential involvement of freight railroads the procurement options will be very project/ alignment specific. The Grantee will conduct its initial analysis work to assist the alternatives analysis and develop realistic implementation and procurement scenarios for each alternative. The potential to integrate with or be interoperable with third party passenger service operators/ concessionaires shall be investigated and compared with PPPs for all or some of the system elements for the project (such as stations or construction and operation of the project infrastructure).

The final Business Plan prepared by the Grantee will include a detailed CDA or PPP procurement plan to minimize delays after the ROD is issued. The Grantee will also optimize

forecasts for operational cash flow generation, economic benefits, risk analysis, evaluating risk transfer under PPPs, evaluating alternatives, evaluating the impact of performance requirements and governance/fare policy. The business plan created will summarize the ridership and revenue forecasts as well as the assumptions and methodology.

Subtask 4.2 Deliverables:

- Final Business Plan which includes
 - Technical memorandum describing a final implementation strategy
 - Technical memorandum on preferred alternative procurement options analysis
 - CDA/PPP procurement plan
 - Technical memorandum describing ridership and revenue assumptions and methodology
 - Technical memorandum describing the Operations and Maintenance (O&M) cost forecast model, including an analysis on the alternatives and cost/revenue generation
 - Technical memorandum summarizing the financial model based revenue projections, O&M costs, and capital replacement costs, including a technical memorandum describing financial capacity modeling and financial risks
 - Technical memorandum describing the final benefit cost analysis and economic impact analysis

V. PROJECT SCHEDULE AND DELIVERABLES

The period of performance for all work will be approximately 45 months, from July 2015 to March 2019. The deliverables associated with this Grant/Cooperative Agreement are listed below and shown in Figure 1. The deliverables associated with this Grant/Cooperative Agreement are listed below. The Grantee must complete these deliverables to FRA's satisfaction in order to be authorized for funding reimbursement and for the Project to be considered complete.

#	Deliverable	Due Date:
Task 1: Detailed Work Plan, Budget, and Schedule		
1	Detailed Project Work Plan, Budget, and Schedule	September 2015
2	Project Agreements (if applicable)	
Task 2: Conceptual Design/Summary of Corridor Planning		
3	Conceptual Design & Initial Service Planning	May 2016
4	Summary of Corridor Planning	June 2016
5	Purpose and Need Statement Development	May 2016
6	Alternative Analysis Refinement	April 2017
Task 3: Project NEPA Document		
7	Publish NOI	March 2016
8	Annotated Outline and Methodology Overview	July 2016
9	Environmental Data Collection	November 2016
10	Environmental Documentation (Section 106, Section 4(f), Clean Air Act, Endangered Species Act, etc.)	June 2017
11	Administrative Draft Environmental Impact Statement	February 2018
12	Draft Environmental Impact Statement/ Notice of Availability	May 2018
13	Administrative Final Environmental Impact Statement	September 2018
14	Final Environmental Impact Statement/Notice of Availability	December 2018
15	Record of Decision	March 2019
16	Final Performance Report	June 2019
Task 4: Preliminary Engineering/Business Plan		
17	Preliminary Engineering - Alignment	June 2018
18	Business Plan Development	June 2019

VI. PROJECT ESTIMATE/BUDGET

The total estimated cost of the Project is \$10,000,000, for which the FRA grant will contribute up to 80% of the total cost, not to exceed \$8,000,000. Any additional expense required beyond that provided in this grant to complete the Project shall be borne by the Grantee.

Note: FRA will consider salvaged rail and materials as program income under 49 C.F.R. 18.25. The Grantee will apply the deductive method as described in 49 C.F.R. 18.25 unless otherwise instructed by FRA. The Grantee will report program income quarterly as part of the SF-425 Federal Financial Report.

Project Estimate by Task

Task Number	Task Name	Total Cost
1	Detailed Work Plan, Budget, and Schedule	\$ 75,000
2	Conceptual Design/Summary of Corridor Planning	\$ 3,375,000
3	Project NEPA Document	\$ 4,325,000
4	Preliminary Engineering/Business Planning (Final Alignment)	\$ 2,225,000
Total Project Cost		\$ 10,000,000

Project Estimate Contributions

Funding Source	Project Contribution Amount	Percentage of Total Project Cost
FRA Grant	\$ 8,000,000	80%
Grantee	\$ 2,000,000	20%
Total Project Cost	\$ 10,000,000	100%

The Grantee will prepare the detailed Project budget as outlined in Task 1 which, when approved by FRA, will constitute the Approved Project Budget. Revisions to the Approved Project Budget shall be made in compliance with Attachment 2, section 4 of the Cooperative Agreement.

VII. PROJECT COORDINATION

The Grantee shall perform all tasks required for the Project through a coordinated process, which will involve affected railroad owners, operators, and funding partners, including:

- Capital Area Metropolitan Planning Organization (CAMPO)
- North Central Texas Council of Governments (NCTCOG)

- Waco Metropolitan Planning Organization (Waco MPO)
- Killeen-Temple Metropolitan Planning Organization (KTMPO)
- Bryan/College Station Metropolitan Planning Organization (BCSMPO)
- BNSF Railway Company (BNSF)
- Union Pacific Railroad (UPRR)
- Fort Worth and Western Railroad (FWWR)
- Capital Metropolitan Transportation Authority (CapMetro)
- Trinity Rail Express (TRE)
- Fort Worth Transportation Authority (the “T”)
- Dallas Area Rapid Transit (DART)
- Texas Commission on High-Speed Rail (CHSR)
- Federal Railroad Administration (FRA)

VIII. PROJECT MANAGEMENT

The Grantee is responsible for facilitating the coordination of all activities necessary for implementation of the Project. Upon award of the Project, the Grantee will monitor and evaluate the Project’s progress through regular progress meetings scheduled throughout the Project’s duration. The Grantee will:

- Participate in a project kickoff meeting with FRA
- Complete necessary steps to hire a qualified consultant/contractor to perform required Project work
- Hold regularly scheduled Project meetings with FRA
- Inspect and approve work as it is completed
- Review and approve invoices as appropriate for completed work
- Perform Project close-out audit to ensure contractual compliance and issue close-out report
- Submit to FRA all required Project deliverables and documentation on-time and according to schedule, including periodic receipts and invoices
- Comply with all FRA Project reporting requirements, including, but not limited to:
 - a. Status of project by task breakdown and percent complete
 - b. Changes and reason for change in project’s scope, schedule and/or budget
 - c. Description of unanticipated problems and any resolution since the immediately preceding progress report
 - d. Summary of work scheduled for the next progress period
 - e. Updated Project schedule

Tools that will be used to manage and monitor the progress of this Project will be included in the overall Project Management structure. The following items will be set up and used to report progress:

- Detailed Work Plan: Listing of individual tasks identified for the execution of each phase of the work as identified in the Statement of Work of this application. The Work Plan will be monitored weekly, with work progress updates provided monthly.
- Detailed Schedule: A detailed project schedule will be developed to monitor progress of individual tasks and milestones. The schedule will be submitted concurrently with the Work Plan. The schedule will also be monitored weekly, with monthly updates provided (See Statement of Work for preliminary project schedule).
- Program Budget: A detailed Project Budget will be developed, monitored weekly and an update will be provided monthly. Project Billings and reimbursement from FRA will be processed monthly.
- Quality Control Program: A QA/QC plan for the execution of this work will be provided within 60 calendar days of initiation.
- Document Control: the SDP/ NEPA consultant will be responsible for Document Control and providing an information exchange/ document storage application.
- Communications and Outreach Program: the SDP/ NEPA consultant will develop a Outreach and Communications program and will be responsible for providing relevant progress information for the project that is required as part of NEPA.

Additional details regarding the project management approach for the Fort Worth to Austin PE/ High-Speed Rail NEPA project are contained in the *Project Implementation and Project Management* section of the Project Narrative submitted with this grant application.