

REQUEST FOR PROPOSAL
Design Manager Services for
Colorado Blvd. Bus Rapid Transit (BRT)
NEPA and Preliminary Design

PROJECT LOCATION: Colorado Blvd. (E Evans Ave - E 40th Ave)

PROJECT CODE: 25871

August 11, 2023

Colorado Department of Transportation
2829 W. Howard Place, Denver, CO 80204
Denver, CO 80204

Section 1 – Project Information and Background

1.1 Introduction

The Colorado Department of Transportation (CDOT) is seeking professional consultant services (Consultant) to assist in the completion of a streamlined Alternatives Analysis, National Environmental Policy Act (NEPA) documentation, and Preliminary Design tasks to prepare and advance the Colorado Blvd. Bus Rapid Transit (BRT) Project (the Project) into the Federal Transit Administration (FTA) Project Development Phase. The scope of this project will include finalizing the BRT alignment based on previous planning-level efforts, vehicle operations analysis, and station area needs based on preferred vehicle capacity. BRT corridor design shall include:

- Analysis for at least 4 alternatives including No Action, Enhanced Bus Service, Side-running BRT, and Center-running BRT
- Enhanced ADA-compatible stations/stops (bus bulbs, new shelters, ticketing, and real-time information, branding, etc.)
- Transit signal priority along the entire length of the corridor
- Bi-directional headways during weekdays with 10 minute or better service on weekdays and 15 minute or better service on weekends.
- Substantial pedestrian, bicycle, and sidewalk improvements along the corridor

In support of the project, recommendations for infrastructure to support the stations, ancillary parking needs, and corridor multimodal safety improvements will also be analyzed. Tasks include, but are not limited to,

- Completion of the FTA NEPA process and approvals; level of NEPA clearance to be determined by the FTA
- Support for the State’s goal of obtaining an FTA Small Starts Capital Investment Grant (CIG)
- Identification of other potential funding opportunities
- Finalization of BRT alignment in the project area
- Development of Preliminary Engineering plans (at least 30% design level) within the NEPA cleared sections for the Preferred Alternative defined by the Colorado Blvd. Corridor Study and tasks identified in this scope of work
- Implementation of public involvement and outreach requirements as further described below

The Project will build upon previous work including corridor studies, traffic modeling, and BRT and multimodal planning. Respondents may presume that CDOT has conducted initial coordination with the appropriate partner agencies regarding general project definition and likely NEPA class of action. Specific agency roles in completing this project and contributions of funding will be determined during early project scoping.

The Consultant shall review all previous work related to the corridor including but not limited to:

- [2022 CDOT 10-Year Plan \(September 2022\)](#)
- [DRCOG 2050 Regional Transportation Plan \(September 2022\)](#)

- [RTD Regional BRT Feasibility Study \(2019\)](#)
- [Denver Moves: Transit Plan \(January 2019\)](#)
- [DOTI Bus Priority Network Study \(December 2022\)](#)
- [Denver Moves Cherry Creek \(2023\)](#)
- [Colorado Blvd. Corridor Study \(ongoing\)](#)

This draft scope of work serves as a guideline of the tasks necessary for project success. It is expected that Consultant proposals will expand upon this scope and develop strategies based on their experience, expertise, and evaluation of the CDOT's needs. The final scope will be developed in collaboration with the selected Consultant team.

1.2 Project Background

Nationally, BRT is a successful mode to increase the number of people moved through a corridor, diversify transportation options for riders, reduce congestion caused by single occupancy vehicles, and reduce greenhouse gas emissions associated with personal vehicles. Colorado Blvd. serves as an arterial highway in CDOT Region 1 and has been identified as a target corridor to implement efficient BRT service. The Colorado Blvd. corridor links the Regional Transportation District (RTD) A-line, the planned Colfax BRT, and the RTD E and H lines. The northern boundary of this corridor for core BRT service is E 40th Ave. at the 40th and Colorado Station. The southern boundary is the Colorado Station at Evans and Colorado Blvd. Additional service may be expanded north to the I-25 and Vasquez Blvd. interchange and/or south to US 285/Hampden Ave. if ridership projections warrant consideration.

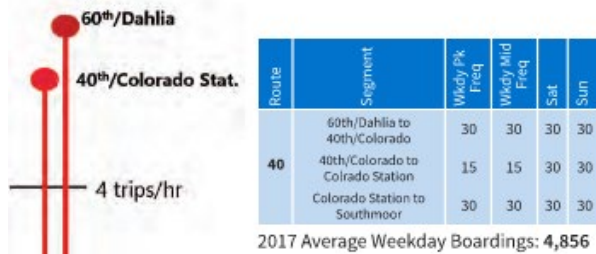
Colorado Blvd. has been identified as a BRT corridor through the MPO planning process in DRCOG's 2050 Regional Transportation Plan to be implemented by 2030. It has also been identified as a High-Capacity Transit Corridor through Denver Moves: Transit Phase 1 and a Tier 4 corridor through RTD's Regional BRT Network Feasibility Study. Route 40 is among Denver's most delayed bus routes; according to the Bus Priority Network Study, Route 40 experiences significant passenger-delay along the Colorado corridor.

The corridor falls within the Denver Regional Council of Governments (DRCOG) Metropolitan Planning Organization's (MPO) planning area. This area is also served by RTD, which is the area's local public transit agency. Residential, commercial, and industrial growth along and around the corridor has increased the need for enhanced regional mobility. CDOT intends to complete a planning process that includes an environmental clearance document fulfilling all requirements under the National Environmental Policy Act (NEPA), and at least 30% engineering design.

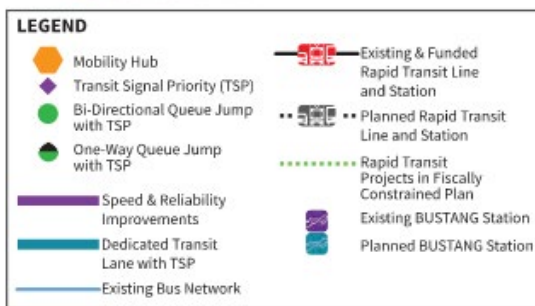
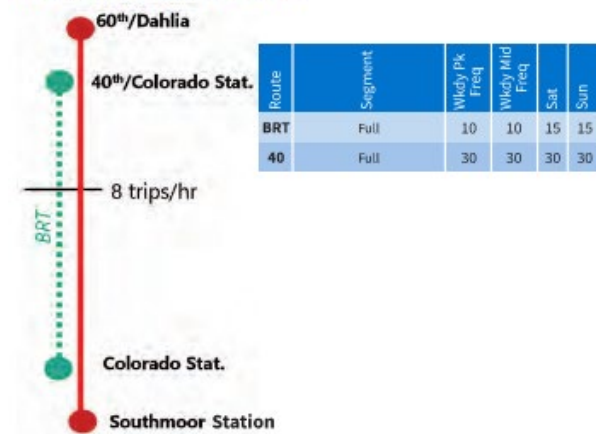
RTD completed a high-level analysis in 2020 to evaluate the feasibility of BRT along Colorado Blvd. The study included a 4-tier evaluation method on multiple corridors and stakeholder/public engagement. Colorado Blvd. was one of 8 corridors to reach tier 4 analysis (see graphic below). CDOT will make schematic information developed during these past efforts available to bidders.

RTD's Regional BRT Network Feasibility Study (2020)

Existing Peak Service Plan



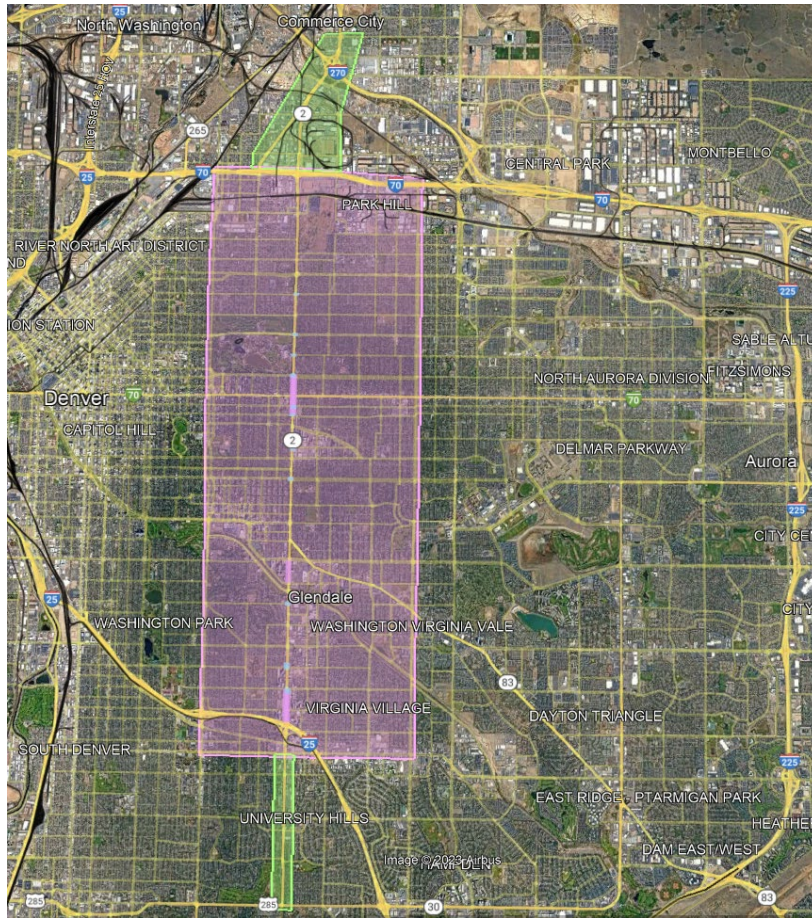
Proposed Peak Service Plan



1.3 Project Area and Limits

The project area is defined approximately as Colorado Blvd. from I-70 to I-25/E Evans Ave. This area is generally defined by the pink boundary in the graphic below created by I-70 to the North, E Evans to the south, University/York/Josephine to the West, and Monaco to the East. This project will also consider how BRT might connect south to Hampden and north to the I-270/Vasquez Blvd. interchange (green boundary). Project analysis may extend beyond the project area with anticipated impacts outside of the general limits. It may be determined that appropriate NEPA clearances are phased over time within this project area depending on available construction budgets. However, the intent is to make certain that phased projects are compatible with an overall corridor plan. The project area falls within the jurisdictions of the City of Glendale, City and County of Denver, and Arapahoe County. At this time, all the capital investments anticipated for the Colorado Blvd. BRT Project are solely along the Colorado Blvd. corridor; these are the project limits for this scope of work.

Outside of this area, it is assumed that transit service and transportation operations will continue to operate in a similar manner. The graphic below provides a map of the corridor that delineates the project area (pink) with potential project expansion areas (green).



1.4 Project Milestones and Proposed Schedule

As further outlined in Task 2.3: Work Plan and Schedule, the Consultant shall provide a detailed schedule based on an agreed upon approach and scope between CDOT and the Consultant. The schedule will be adjusted based on project needs, but CDOT desires that preliminary design and NEPA documents be completed within 24 months of NTP. The project should identify early action items as appropriate.

1.5 Project Goals

This project is intended to develop designs for the following improvements:

- Improved Mobility
- Improved Safety
- Higher level-of-service for BRT operations
- BRT Stations

- Supporting ITS infrastructure to enable safe and effective BRT operations, which possibly includes but not limited to signal improvements, connected vehicles technology, vehicle to infrastructure technology, and station area public information

1.6 Deliverables Overview

Each of the following tasks describes the presently presumed required deliverables. The actual list of deliverables will be included in the final scope developed with the selected Consultant, as noted in 1.1. In addition to these deliverables, the Consultant will provide CDOT all GIS, design, and technical data files created during the project.

1.7 Consultant Responsibility and Duties

The Consultant is responsible for:

- Project Management
- Data Collection and Analysis
- Project Coordination
- Preliminary/Final Design Coordination with CDOT Design Team
- Right of Way/Survey
- Design-build procurement process (if needed)
- Public and stakeholder Relations and outreach
- All other efforts and deliverables as indicated in this contract

1.8 Personnel Qualifications

The Consultant PM must be approved by the CDOT Contract Administrator.

Certain tasks must be done by Licensed Professional Engineers (PE) and Professional Land Surveyors (PLS) who are registered with the Colorado State Board of Registration for Professional Engineers and Land Surveyors. National Institute for Certification in Engineering Technology (NICET) or other certifications may be required for project inspectors and testers.

All tasks assigned to the Consultant must be conducted by a qualified person on the Consultant team. The qualified person is a professional with the necessary education, certifications (including registrations and licenses), skills, experience, qualities, or attributes to complete a particular task.

It is the intent of CDOT that all key personnel be engaged to perform their specialty for all services required by this contract, and that the Consultant's key personnel be retained for the life of this contract to the extent practicable and to the extent that such services maximize the quality of work hereunder.

If the Consultant or a subconsultant decides to replace any of its key personnel, the Consultant shall notify the CDOT Project Manager in writing of the desired change. No such changes shall be made until at least two qualified replacement candidates are recommended by the Consultant and a replacement is approved in writing

by the CDOT Project Manager. The CDOT Project Manager's approval shall not be unreasonably withheld. Failure of the Consultant to comply with the requirements of this provision may be the basis for CDOT's termination of this contract. The Project Manager shall respond to the Consultant's written notice regarding replacement of key personnel within fifteen working days after the CDOT Project Manager receives the list of proposed changes. If the CDOT Project Manager or its designated representative does not respond within that time, the listed changes shall be deemed to be approved.

If, during the term of the contract, the CDOT Project Manager determines that the performance of approved key personnel is not acceptable, the Consultant will be notified and given the time which the CDOT Project Manager considers reasonable to correct such performance. Thereafter he/she may require the Consultant to reassign or replace such key personnel. If the CDOT Project Manager notifies the Consultant that certain of their key personnel or the key personnel of a subconsultant should be replaced, the Consultant shall use its best efforts to replace such key personnel within a reasonable time, but not to exceed thirty calendar days from the date of the CDOT Project Manager's notice.

1.9 Computer Software Information

The Consultant shall utilize the most recent CDOT adopted software (if applicable). The primary software used by CDOT is as follows:

- Earthwork - OpenRoads Designer – Bentley Systems
- Drafting/CADD - OpenRoads Designer – Bentley Systems with CDOT's formatting configurations and standards.
- Survey/Photogrammetry - CDOT TMOSS, OpenRoads Designer – Bentley Systems, allowable systems in the CDOT Survey Manual
- Bridge - CDOT Staff Bridge software shall be used in either design or design check, refer to the CDOT Bridge Design Manual
- Estimating - Transport (an AASHTO sponsored software) as used by CDOT
- LIMS
- ProjectWise (a/k/a ProjectWise Explorer or ProjectWise Cloud)
- Specifications - Microsoft Word
- Scheduling - Microsoft Project or Primavera
- Water Quality Data – ArcView
- 3D graphic imaging - As approved
- B2GNow System for DBE/ESB tracking and prompt payment

The data format for submitting design computer files shall be compatible with the latest version of the adopted CDOT software as of Notice to Proceed for the contract. The Consultant shall immediately notify the CDOT/PM if the firm is unable to produce the desired format for any reason and cease work until the problem is resolved.

Section 2 – Project Management and Coordination

2.1 CDOT Contacts

The Consultant shall utilize the following project administration contacts for the Project:

- A. The Contract Administrator for this project is:
Ryan Noles
Bus Rapid Transit Program Manager
CDOT Region 1 Traffic & Safety
2829 W. Howard Place, Denver, CO 80204
Ryan.Noles@state.co.us
- B. Day-to-day administration of the contract will be delegated to CDOT Project Manager
Gerardo Hidalgo, PE
Colorado Blvd. BRT Project Manager
CDOT Region 1 Traffic & Safety
2829 W. Howard Place, Denver, CO 80204
gerardo.hidalgo@state.co.us

2.2 Project Management Plan

The Consultant shall prepare a Project Management Plan (PMP) and Schedule for the NEPA and Preliminary Engineering project phase outlined in this scope of work. The PMP shall be used to manage NEPA documentation and preliminary design development, leading up to entry in the FTA Capital Investment Grant (CIG) Project Development process. The PMP will support overall project needs, external and internal committees/support teams, communication protocol, and materials and technical assistance.

Additionally, the Consultant shall create a second PMP according to [FTA CIG Guidelines](#) for project phases initiated during official FTA Project Development. This PMP shall include a Real Estate Acquisition Management Plan (RAMP) and Management Capacity and Capability (MCC) review at appropriate dates in the project schedule. This PMP shall be a deliverable in [Section 6 – FTA CIG Definition and Grant Application](#).

2.3 Schedule

Building from the proposed schedule in Task 1.4, the Consultant shall create a schedule based on the scope requirements and milestones. The schedule may be refined during the project. CDOT assumes 24 months to complete the Project defined in this scope of work. Any substantial impacts to the proposed schedule due to design refinements, change in class of action or approach or other risk factors should be identified by the Consultant and reflected in a revised schedule. The schedule will include the following:

- All project activities and deliverables
- Three Deliverable delivery dates and associated City (and partner agencies) review periods. Assume a 2-week review period for each major submittal package and 3-week review period for final project documents

- Timeline outlining amount of time required to complete each task
- Progression of work to at least 30% design
- Outreach/engagement activities (e.g., virtual engagement, open house meetings, small group/stakeholder meetings, public notices, public comment periods, etc.)
- Third Party agreement development and negotiation process
- FTA signature approval of the NEPA document and decision document
- Other steps required to apply for entry into the FTA Project Development Phase

2.4 Communication Plan

The Consultant shall prepare a communications plan to identify key roles, triggers, and methods of communication with stakeholders, agencies, jurisdictions, and the public. The communication plan shall outline an efficient procedure, timing, methods, and triggers to communicate relevant project information about issues, status, and decisions. The communication plan shall also specify the creation of an online hub where information can be shared across agencies. The plan shall include a list of team members, stakeholders, and contact information. Communication methods shall be a combination of meetings, emails, phone calls, conference calls, a project webpage, and an online communication hub. The communication plan shall continually be evaluated and adjusted to maximize performance.

2.5 Coordination Support

Ensuring unity of effort between CDOT and jurisdictional partners is critical to project success. The Consultant shall recommend and then guide and support a process through which these entities will work to create the formal intergovernmental agreements (IGAs) and other agreements/documents necessary to support the funding, construction, and operation of this project. The Consultant shall follow procedures related to IGAs as detailed in [FTA Oversight Procedure 39 \(OP39\)](#).

Consideration for coordination with state and federal resource agencies includes the following agencies: U.S. Fish and Wildlife Service, Colorado State Historic Preservation Officer, U.S. Army Corps of Engineers, Colorado Parks and Wildlife, Colorado Energy Office, and Colorado Department of Public Health and Environment. These agencies need to be included in the project management plan appropriately.

2.6 Project Sponsorship

The Consultant will work with CDOT to develop an approach for facilitation and determination of a project sponsor for FTA Project Development Phase entry. It is presently assumed that CDOT is the project sponsor.

2.7 Committees and Project Teams

The Consultant shall work with CDOT to establish the Project teams and committees:

- **Technical Working Group(s):** The Consultant shall work with CDOT to establish technical and advisory committees based on the working group membership of the initial phase of the Colorado BRT project, to provide input during the project. The technical committee will include, at a

minimum, Arapahoe County, City and County of Denver, City of Glendale, DRCOG, and RTD. Due to the operational connections in/through/near other jurisdictions, the TWG may include up to three other jurisdictions.

- **Stakeholder Committee(s):** The Consultant shall work with CDOT to establish Stakeholder Committee(s) as part of the Project's outreach approach. These committee(s) will be developed based on the committee/task force memberships used in the initial phases of the Colorado BRT studies.
- **Project Management Team:** CDOT will identify a Project Management Team (PMT) composed of various CDOT representatives. Other agency representatives will be included as necessary. Role of the PMT is to provide project-level management and decision-making, advise the Project Leadership Team and make recommendations on key issues, technical components, etc. CDOT Project Manager will provide updates to CDOT Executive Leadership throughout this phase of the project.
- **Project Leadership Team:** CDOT will identify a Project Leadership Team (PLT) composed of CDOT, DRCOG, FTA, RTD, and Local Agency Leadership to make final decisions on key issues, technical components, process changes, comprehensive corridor communications and decisions at milestones recommended by the PMT.
- **Executive Oversight Committee:** CDOT will identify an Executive Oversight Committee (EOC) composed of CDOT, DRCOG, FTA, RTD, and key Local Agency Executive Leaders to provide policy guidance, approve investment priorities, and resolve issues elevated from PLT.

2.8 Project Oversight

CDOT is the managing agency for this project and will be reviewing and approving all task deliverables as described in this scope. FTA is the lead funding agency for the project and will review all deliverables in accordance with FTA rules and regulations. The CDOT PMT, in collaboration with the Consultant, will coordinate with other projects, including those related to the roadway, railroad, and drainage improvements adjacent to or overlapping the area. CDOT will closely coordinate with RTD, which will be involved throughout the project. Local, regional, and state agency coordination and involvement will be required as well.

2.9 Quality Assurance/Quality Control

Within one month from Notice to Proceed, the Consultant shall submit a Quality Management Plan (QMP) that follows the FTA guidelines for ensuring deliverables are void of technical and format-related errors. The Quality Management Plan shall cover all quality assurance/quality control activities which will be implemented for all work during this Project. The Consultant may submit an existing Quality Management Plan and modify as needed to meet project requirements. The Quality Management Plan should include, at a minimum:

- Project description and goals
- Project scope of work
- Project team organizational chart
- Names and responsibilities of Project Manager, Quality Assurance Manager, and major discipline Task Manager
- Document control system description
- Description of plan-checking process, AutoCAD, and computer file maintenance

- Data Management Plan
- Auditing frequency

2.10 Project Reports and Invoicing

The Consultant shall provide CDOT Project Manager with monthly progress reports and invoices.

Task 2.0 Deliverables

- Project Management Plan (include RAMP and MCC)
- Project Schedule
- Communication Plan
- Quality Management Plan
- Meeting Minutes
- Progress reports and invoicing

Section 3 – Public Information/Engagement

3.1 Public Involvement Plan

The Consultant shall develop a Public Involvement Plan as one of the first tasks, within 60 days of NTP. This plan will include an approach to communicate and respond to the unique characteristics and needs of the residents, businesses, and transit users within the Project area. Innovative outreach approaches are encouraged beyond the project website, meetings, and mailings. Special consideration should be given to reaching different demographic communities, especially those more difficult to reach through traditional public involvement methods. The plan shall include an Equity, Diversity, and Inclusion (EDI) strategy to engage under-represented members of the public.

The public involvement efforts should respond to the needs and requirements of the NEPA and Section 106 processes, and CIG project definition. The Consultant shall also develop an outreach strategy for related needs of CDOT, and its partners that reflects the ways in which this project helps achieve the goals of the region.

3.2 Outreach Materials

The Consultant shall prepare all graphics and materials associated with outreach throughout the project. The Consultant shall coordinate with CDOT Project Manager and CDOT's Communication Staff to disseminate announcements.

The Consultant shall provide content and graphics to post on the project's website. All public documents developed by the Consultant and team, including those posted on the project website, will be ADA compliant and meet the accessibility requirements. All content and graphics will be developed and disseminated according to the EDI strategy. Reference [FTA Circular C 4710.1](#) for more information.

The Consultant shall provide language translation/interpretation services (Spanish and other languages as determined through project scoping) for both written materials and for translation during public meetings

and other outreach. The Consultant may be required to provide technology to set up and conduct “virtual” public involvement/engagement meetings.

Task 3.0 Deliverables

- Public Involvement Plan (draft and final and updated as needed)
- Website content and periodic updates
- Outreach and presentation materials (electronic and printed) in English and Spanish at a minimum, (other languages may be deemed appropriate) and ADA-compliant
- Public involvement report (public comments received, and responses provided, etc.) in a format acceptable for NEPA documentation purposes
- Public meeting notes
- Renderings, video, or other promotional materials, as requested.
- Communication templates
 - Project logo for branded materials
 - Letterheads
 - Exhibits
 - Mailers
 - Website
 - Emails
 - Public event sandwich boards and booth designs

Section 4 – Environmental Work Task Description

4.1 Environmental Scoping Task

The Consultant shall conduct all applicable [FTA Environmental Standard Operating Procedures \(SOPs\)](#) as necessary throughout the project. It is anticipated that the level of detail for this NEPA document will be appropriate for an anticipated Categorical Exclusion or EA-Environmental Assessment and Decision Document. The NEPA class of action determination will be made in coordination with, and approved by, FTA. The Consultant shall develop an [Annotated Outline](#) to guide development of the environmental document if the class of action is determined to be an EA; the outline will be reviewed by the CDOT Program Manager and FTA staff for acceptance. For a Categorical Exclusion class of action, the FTA Region 8 Categorical Exclusion worksheet shall serve as the NEPA document, and the associated instructions shall be followed. See Section 5 for more information about NEPA.

An early environmental coordination/scoping task will occur as directed by the CDOT Project Manager. An environmental scoping meeting should be held with the Environmental Project Manager, resource specialists such as the Regional Water Quality Specialist/Water Pollution Control Manager, or appropriate members of the Environmental Programs Branch (EPB), C/PM, and staff from Right-of-Way, Maintenance, Hydraulics, Department of Transportation Development (DTD) and Region Traffic, Property Management, FTA, and Utilities, as appropriate. The initial coordination/scoping task will identify which resources are present or not likely to be present in the project area. Review of FHWA environmental guidance and/or coordination with staff will be conducted as necessary.

This task will include a meeting with CDOT and the local agency representatives to discuss the initial work efforts of the project. Traffic modeling usually dictates the alternative evaluation process. Determine if macroscale, mesoscale, and/or microscale modeling is required for the project.

4.2 Extent of Study Required for Resources

Determine the extent of study required for each resource area. The extent of study can be defined in four categories: 1) complete analysis required; 2) short analysis to define resources/impacts; 3) no analysis required; or 4) analysis already completed (for example, by a recent previous study).

A. Project Study Area Limits/Logical Termini

Preliminary project study area limits are established in Section 1 of this Scope of Work document. Perform necessary research and data collection to propose a study area boundary for environmental resources and logical termini for use in scoping. In coordination with the CDOT/PM, prepare a recommendation to the FTA for approval of the logical termini, if applicable. Prepare a memorandum with analysis to support the logical termini.

B. Project File

Maintain a Project File, set up similarly to the established process for a NEPA Administrative Record. Make available all parts of this project file to the CDOT/PM (or his or her designee), or to the Colorado Attorney General's office (as requested) at any time during the project's duration. All materials associated with the project file shall be delivered in the format specified by the CDOT/PM when closing the project. Final project invoice payments to the Consultant are conditional upon the professional and complete delivery of these materials to CDOT's office. Given the extent of documentation collected for the NEPA process, the consultant shall update the record regularly and provide information to CDOT electronically. See the [2019 FTA Environmental Project File and Considerations of the Administrative Record](#), [FTA Environmental Standard Operating Procedures \(SOPs\)](#), and the [CDOT NEPA Manual](#) for additional guidance.

C. Review Applicable Existing Documents

Review project-specific documents or data related to the assessment of environmental, social, and economic resources and impacts in the project area that are determined relevant. These resources may be CDOT documents or may have been created by local planning agencies, such as DRCOG, RTD, or municipalities. Section 1 of this Scope of Work document lists previous studies completed for the corridor.

4.3 Environmental Analysis and Documentation

A. Purpose and Need

Develop a Purpose and Need statement, reviewed, and approved by appropriate parties. The objectives of the project should be clearly identified and agreed upon early in the project process to prevent backtracking and limit schedule changes. Develop and refine, as necessary, to address information collected on the project during data collection, transportation analysis, and public and agency scoping

and involvement. Review previously prepared studies to help direct Purpose and Need information as appropriate (e.g., local planning studies, engineering feasibility studies, etc.). Submit the Purpose and Need for review and approval by CDOT, FTA, and FHWA.

B. Alternatives Development and Evaluation

Develop a range of reasonable alternatives for transit alignment, stations, logistics and operations that will satisfy the Purpose and Need requirements of the project, including, but not limited to, no action and those identified in earlier and ongoing studies of the area. The Consultant team, in coordination with CDOT, FTA and FHWA, will determine the design year to use for the project. The alternatives analysis should include a cost-benefit component to minimize the need for extensive infrastructure changes to the extent practicable. For example, the team should review options such as side-running BRT or center-running BRT and provide a full assessment of tradeoffs when the options require significant changes to the roadway. The alternatives analysis should account for phasing of the preferred alternative to incrementally improve the roadway for multimodal purposes if necessary. Changes in the design year during the project may be subject to a Scope of Work modification.

C. Alternatives Screening Process

Apply an alternatives screening process to identify the reasonable alternatives (practical or feasible from a technical and economic standpoint), which will be subject to a more detailed evaluation. Consider the Americans with Disabilities Act (ADA) environmental laws, regulations, and Executive Orders (e.g., Endangered Species Act, the Floodplain Management Executive Order 11988, as amended; Section 4(f) of the U.S. DOT Act; Section 106 of the National Historic Preservation Act; and Section 404 of the Clean Water Act) that can influence the range of alternatives. Develop NEPA-appropriate evaluation criteria, based upon the project purpose and need, and measures of effectiveness, and submit them for review and approval by CDOT, FTA and FHWA before beginning the screening process. The rationale for eliminating alternatives shall be thoroughly discussed within the documentation. For purposes of scope development approximately four alternatives should be anticipated - the No Action Alternative, Enhanced Bus Service, Side-running BRT, and Center-running BRT.

D. Preliminary Design of Alternatives

For each alternative that passes the screening process, incorporate preliminary design to a level that clearly allows the identification of impacts within each environmental resource area. These alternatives may be carried through the entire analysis process until a decision document is written. If CDOT or another agency or Consultants performs selected alternative studies, the Consultant shall incorporate the results of these studies into the appropriate document.

E. Evaluate Alternatives Impacts

Apply projected design-year traffic volumes and projected opening day traffic volumes for new facilities as developed for this Scope of Work, or as modified through later studies and calculations by CDOT. Evaluate the impacts of these alternatives according to established guidelines and examine the degree to which these alternatives satisfy the Purpose and Need requirements of the project. Compare the alternative(s) impacts to the no action alternative as well as to each other in terms of costs and benefits. Set out these evaluations both schematically and in narrative form for review within a reasonable time after the Notice to Proceed. The cost-benefit component should be sufficient to allow

CDOT to weigh the pros and cons of different concepts. This component should include a full range of factors on both the cost and benefit sides and should account for differences in feasibility if near-term delivery of the project is cost-prohibitive versus if it is more modest and attainable. CDOT intends to maximize public-facing improvements on an expedient timeline with as limited construction as feasible.

F. Preferred Alternative

The alternatives analysis discussed in Task 4.3 B. through E. will determine the Preferred Alternative for this project, which the consultant shall document based on CDOT input. This should incorporate feedback both from local government jurisdictions as well as from key stakeholders including businesses, community organizations, and RTD. The Consultant team shall propose a design year for the project to CDOT, who holds ultimate approval authority in coordination with FTA. Changes in the design year during the project may be subject to a Scope of Work modification.

G. Preliminary Design of Preferred Alternative

Incorporate preliminary design of the preferred alternative to a level that clearly allows the identification of impacts within each environmental resource area. These alternatives may be carried through the entire analysis process until a decision document is written. If CDOT or another agency or Consultants perform selected alternative studies, the Consultant shall incorporate the results of these studies into the appropriate document.

H. Evaluate Impacts of Preferred Alternative

Apply projected design-year traffic volumes and projected opening day traffic volumes as developed for this Scope of Work, or as modified through later studies and calculations by CDOT. Evaluate the impacts of the Preferred Alternative according to established guidelines and examine the degree to which it satisfies the Purpose and Need requirements of the project. Compare the Preferred Alternative impacts to the no action alternative. Set out this evaluation both schematically and in narrative form for review within a reasonable time after the Notice to Proceed.

I. Phases of Preferred Alternative

The Consultant shall develop implementation phases for the Preferred Alternative if necessary. The base-level phase shall meet the requirements of the Purpose and Need statement and advance an efficient design that the project sponsor can implement in the near-term. Successive phases shall include design components that may require additional clearances and/or funding and would likely be included as add alternates in the project construction phase. Phases shall include clear incremental improvements that can be initiated within a year to show demonstrable improvement to the public. Subsequent phases shall prioritize speed of delivering public-facing impact with as minimal disruption and interim safety impact to the public as feasible to achieve improvements that conform to the purpose and need.

4.4 Cost Estimates and Financial Analysis

A. Preliminary Construction Cost Estimates

The Consultant shall prepare general, “order of magnitude,” construction cost estimates during the Alternatives Selection phase to help inform CDOT’s decision of which Alternative is selected as Preferred. Upon selection of a Preferred Alternative and following cost-benefit analysis of prior alternatives, the consultant shall provide more detailed cost information, based on preliminary design, with itemized costs. . Project right of way acquisition and project environmental mitigation costs shall be included within the cost estimate. Cost options shall be provided for the base-level Preferred Alternative phase and successive phases.

The Consultant shall include enough detail to ensure a reasonable degree of accuracy for the level of design performed. Submit the format of estimates, including the year from which the unit costs were assumed, to CDOT’s Project Engineer for review and approval. Incorporate this analysis into the NEPA document.

B. Develop Project Cost Estimates and Financial Analyses

As part of comparing the Preferred Alternative and No-Action Alternative, develop cost estimates and financial analyses at varying levels of detail throughout the process in coordination with FTA. The CDOT Project Manager may specify at points financial analysis will be reviewed and to what level of detail they will be developed. Basic engineering, preliminary engineering, construction engineering, construction, and operating/maintenance for the design life shall also be analyzed. A funding package identifying the funding sources necessary to construct and maintain the project will be developed. Review the cost estimates and financial analysis, provide supplemental analysis as needed to support the Preferred Alternative, and incorporate findings into the draft NEPA document. The cost estimates will support application to FTA’s CIG program.

4.5 Data Collection, Field Investigation, Mitigation Measures, and Deliverables

The following analyses are required for the Preferred Alternative. Each resource will be summarized, focusing on the project issues of concern. The scope shall define the level of documentation, project tasks, and project deliverables for each of the resource areas. Identify the required area and resources to evaluate and determine the early coordination/scoping process as discussed above. This may evolve over the life of the project as new information is discovered through analysis. The level of detail and analysis will be determined based on the study and its appropriate level of environmental documentation. Deliverables can be static reports, digital reports, and/or GIS data layers. The scope should be specific as to what type of deliverable is expected.

A. Air Quality

Determine whether the Colorado Blvd. BRT project is a Regionally Significant Transportation Project in coordination with CDOT Air Quality Specialists and document in project file. If this is a positive of yes, the consultant shall follow requirements of SB-260 (signed into law in 2021) during the air quality analysis.

Use the new CEQ Guidance from Jan. 9, 2023 (FR Vol. 88, No. 5) “NEPA Guidance on Consideration of Greenhouse Gas Emissions and Climate Change,” [“Greenhouse Gas Emissions from Transit](#)

[Projects: Programmatic Assessment](#),” Colorado Revised Statute (CRS) § 43-1-128 (also referred to as Senate Bill [SB]-260), and the “CDOT SB 21-260 Interim Guidance” to evaluate the Preferred Alternative and No Action alternative contributions to greenhouse gas emissions.

Perform the necessary air quality assessment and MOVES emissions inventory as required under state and federal statutes and regulations. Provide the results for integration into the NEPA document and Air Quality Technical Report (with modeling data assumptions), in conformance with the requirements of the CDOT Air Quality Project Level Analysis Guidance (AQ-PLAG). These will include, but are not limited to, analysis or discussion of the NAAQS (criteria pollutant), regional emissions analysis, greenhouse gasses (GHG), climate change, construction issues such as fugitive dust emissions, and mitigation measures. For GHG, the Consultant shall use FTA’s [Transit Greenhouse Gas Emissions Estimator](#).

CDOT staff will lead coordination with the Colorado Department of Public Health and Environment Air Pollution Control Division (CDPHE-APCD), FTA, and U.S. Environmental Protection Agency (EPA) (as necessary). The analytical methodologies will be determined through the coordination. Each Build Alternative and the No-Action Alternative will be analyzed for impacts through the appropriate design year. Mitigation and air quality monitoring commitments will be developed, as necessary. The Consultant must get approval from the CDOT Region and/or EPB air quality specialist for any methodologies to evaluate hazardous air pollutants. Air quality analysis will directly support CDOT compliance with federal and state regulations.

CDOT has a clear and direct mandate to reduce greenhouse gas emissions through the implementation of its 10-Year Plan. In 2021, The Colorado State Legislature passed Senate Bill 260, which included a new Greenhouse Gas (GHG) Pollution Reduction Rule. CDOT’s Transportation Commission approved the GHG Pollution Reduction Planning Standard, which requires CDOT to determine the total pollution and GHG emission increase or decrease expected from future transportation projects and to take steps to ensure that GHG emission levels do not exceed set reduction amounts. This policy recognizes that transportation projects have an impact on how Coloradans travel and encourages choices for travelers across the state. BRT in the Denver metropolitan area is included as a key strategy in the 10-Year Plan to address this mandate, with Colorado Boulevard a key project in that effort.

B. Water Quality

1. **Affected Environment:** Investigate and document the status of the water resources for the purposes of describing the existing condition or “affected environment” before construction: floodplains, groundwater, aquifers, lakes, rivers, streams, and springs, locations of drinking water treatment plants, Permanent Water Quality Control Measures, and locations of sewage treatment facilities.
2. **Environmental Consequences:** Investigate and document the impacts of the project, to water resources (quality, etc.) and quality impacts of the project during and following construction. Water Quality Modeling shall be used for this task, determined by considering the project location and design concepts in relation to existing water resources including groundwater or

alluvial waters or aquifers (particularly sole source), drainage ditches and other State Waters as defined by CDPHE Water Quality Control Division, aquatic as well as riparian habitat, and Sensitive Waters (Class 1 Aquatic Life, Recreation 1, and Water Supply, 303[d] listed, etc.).

3. Document in a Water Resources Technical Memo
4. MS4 Permit requirements shall apply to this project. Determine the requirements of the Municipal Separate Storm Sewer System (MS4), Colorado Discharge Permit System (CDPS), and design and permitting issues per the CDOT PWQ program. The project area falls within the jurisdictions of the City of Glendale, City and County of Denver, and Arapahoe County, and individual stormwater permitting requirements will need to be determined and followed.
5. Recommend appropriate Water Quality mitigation measures as necessary. A mitigation plan that includes conclusions of effects, permanent best management practices (BMPs), temporary/construction BMPs, erosion control measures, and definition of maintenance responsibilities.

C. Wetlands and Waters of the U.S. (WUS)

1. Wetlands Determination/Delineation
 - a. Conduct a field evaluation for the presence of wetlands within the project study area. Global Positioning System (GPS) or survey equipment should be used for this activity.
 - b. Delineate the boundaries of all anticipated jurisdictional and non-jurisdictional wetlands and waters of the US within the project area using United States Army Corps of Engineers (USACE) guidance listed in Appendix A. Data to be provided to CDOT in the correct format – i.e., shapefiles with information separated in a report or memo.
 - c. Prepare maps that delineate the wetland boundaries within the corridor. The ordinary high-water mark should also be delineated, as appropriate. GPS will be used for this mapping.
 - d. Coordinate the findings with the CDOT Region and if requested by the region, with the USACE. If requested by the CDOT Region, obtain jurisdictional determination of the wetlands from the USACE.
 - e. Document in the Water Resources Technical Memo

2. Wetland Finding Report

If required based on temporary and/or permanent impacts, prepare a Wetland Finding Report according to CDOT's most recent guidance/checklist. The Functional Assessment of Colorado Wetlands (FACWet) should be used, as appropriate according to current CDOT procedures. Conduct a wetland assessment based on the NEPA document addressing the amount of permanent and temporary wetlands impacts and mitigation. Wetland mitigation should be identified as early as possible in the NEPA process. All wetlands will be considered jurisdictional for mitigation purposes. CDOT will determine the type of mitigation – i.e., bank or onsite. Mitigation sites must be evaluated for availability and suitability for wetland habitat.

D. Vegetation and Noxious Weeds

1. Affected Environment: Investigate (GIS and field) and document the status of vegetation habitat and noxious weeds for the purposes of describing the existing condition or “affected environment” before construction.

2. Environmental Consequences: Investigate and document the impacts of the project, to vegetation habitat and noxious weeds during and following construction.
3. Recommend appropriate vegetation habitat and noxious weed mitigation measures as necessary.
4. Prepare an Integrated Noxious Weed Management Plan to be prepared prior to construction
5. Document findings in a Biological Resources Technical Report

E. Fish and Wildlife

Conduct necessary field surveys and identify fish and wildlife and their habitat within the project area. As appropriate, GPS will be used to identify habitat.

1. Coordination with the Colorado Division of Parks and Wildlife (CPW) and US Fish and Wildlife Service (USFWS)
2. Perform an impact analysis.
3. Develop appropriate mitigation measures
4. Document in the Biological Resources Technical Report.

F. Threatened and Endangered (T&E) Species and State Sensitive Species

1. Coordinate with USFWS to determine if T&E species or their habitat exists in the project area.
2. Conduct necessary desktop and field surveys and identify T&E species and/or Designated Critical Habitat.
3. Review existing planning documents to determine any existing Habitat Conservation Plans (HCP) under Section 10, if necessary, for T&E species.
4. Review existing planning documents to determine need for a Biological Assessment/Biological Opinion under Section 7 for the USFWS if federally listed T&E species and/or Designated Critical Habitat will be impacted and there is a federal nexus.
5. Develop an HCP under Section 10 and/or Biological Assessments/Biological Opinions under Section 7, if necessary, with the USFWS if T&E species and/or Designated Critical Habitat will be impacted and if there is a federal nexus.
6. Identify any impacts and develop a mitigation plan to conform to requirements of the Endangered Species Act. Any effect determinations made under Section 7 of the Endangered Species Act shall be made in coordination with FTA.
7. Document in the Biological Resources Technical Report.

G. Historic Properties

1. Meet at project onset with FTA and CDOT Region 1 History to develop overall scope for history compliance.
2. Perform and provide the survey and effects report(s) for review by FTA and CDOT Region History, and incorporate the information into the NEPA document. The following lists are not meant to be exhaustive.
3. The Consultant shall collect and evaluate baseline information as defined by Section 106 of the National Historic Preservation Act of 1966. The list below represents a typical scope of work, but consultants should coordinate with FTA and CDOT staff to determine the level of effort for this project.

Consultants should never contact SHPO staff or submit any material without FTA oversight and approval.

4. Historic Clearance
 - a. Identify the Area of Potential Effects (APE), consulting and interested parties, opportunities for public input, and level of identification efforts required in coordination with FTA, CDOT, and the State Historic Preservation Officer (SHPO).
 - b. Conduct literature and records search for previously recorded historic resources in the APE using the OAHP Compass database, the CDOT Historic Sites Viewer, the CDOT Historic Highway Inventory, the Brick Sewer Programmatic Agreement, and the Colorado Historic Streetcar Survey. Perform other records searches, including County Assessor Records, local libraries, and archives, etc.
 - c. Conduct an architectural field survey of the APE and determine National Register of Historic Places (NRHP) eligibility for resources at least 50 years old. Age of resources evaluated may vary depending on when the project will be constructed. Potential resources include man-made structures, ditches, railroads, streetcar lines, brick sewers, etc. Level of effort (e.g., reconnaissance, intensive) for the survey may vary depending on the project scope and schedule and should be coordinated with FTA staff and CDOT History.
 - d. In coordination with FTA staff and CDOT Region 1 History, prepare materials for CDOT to coordinate with consulting and interested parties (e.g., public, historic preservation groups, local historical societies, museums) regarding historic properties in the project area and meetings to discuss project updates and Section 106 findings.
 - e. Prepare a comprehensive Survey Report according to guidelines established by the OAHP to submit for review by the FTA and CDOT Region 1 History. The report will include historical context information and other data to support eligibility determinations. Make revisions as requested by FTA and CDOT Region 1 History.
 - f. Determine potential effects, both direct and indirect, to historic resources and recommend strategies to avoid, minimize, or mitigate impacts. Depending on project scope, the Consultant may prepare a separate effects report for review by FTA and CDOT Region 1 History.
 - g. Prepare draft correspondence as necessary for FTA and CDOT History review for the FTA to submit to the SHPO and consulting parties. FTA or CDOT, with FTA's approval, will submit correspondence to SHPO using the state's MOVEit system. If there are adverse effects, consultants shall assist FTA staff and CDOT to identify possible measures to minimize and avoid adverse effects, and if necessary, any mitigation needed for a Memorandum of Agreement (MOA). CDOT will draft the MOA (if required) with review and approval by FTA.
 - h. Prepare draft Section 4(f) documents as required. In most cases, CDOT staff will prepare documentation of Section 4(f) exceptions and *de minimis* findings, in coordination with FTA. Consultant assistance may be needed for programmatic and full evaluations.

H. Archaeology

1. A review of historic Sanborn Fire Insurance maps and other appropriate archival sources shall be completed to determine if the area may contain significant archaeological sites or features.

2. Conduct an intensive field survey of the project corridor(s) and undertake site-specific test excavations, as necessary and appropriate, to determine NRHP eligibility. The Consultant shall not undertake test excavations before consulting with CDOT.
3. Complete laboratory analyses of all collected artifacts and ancillary specimens
4. Write a comprehensive survey report according to guidelines established by the OAHP
5. Develop a data recovery plan to mitigate potential adverse effects to significant archaeological localities, as appropriate and necessary.
6. Coordinate the mitigation plan with the FTA, EPB Senior Staff Archaeologist, appropriate Region staff, SHPO, and other required agencies.
7. Conduct data recovery excavations at any significant archaeological site that cannot be avoided during construction.
8. Analyze artifacts.
9. Prepare and submit a data recovery excavation report which describes, in a thorough and comprehensive fashion, the project results and the nature of the site in the context of the regional archaeological database. The report must also include site management recommendations in the context of the NRHP.
10. Coordinate with FTA on Tribal consultation and support FTA staff as needed.
11. NEPA Deliverable: Cultural and Paleontological Resources Technical Report
12. Prepare Section 4(f) documents as required.

I. Paleontological Resources

1. Perform a literature and museum fossil database search and field assessment.
2. Conduct analysis to determine the scientific significance (research and/or educational value) of the resource.
3. Document findings and proposed mitigation in the Cultural and Paleontological Resources Technical Report for review by the EPB Staff Paleontologist.
4. Coordinate the mitigation plan with the EPB Staff Paleontologist, and appropriate Region staff.

J. Section 6(f) Evaluation

1. Inventory and map project area for Section 6(f) resources. Using CDOT's Online Transportation Information System (OTIS).
2. Determine if any potential impacts or ROW acquisitions include Section 6(f) resources.
3. Evaluate project impacts on Section 6(f) properties using preliminary design information, and the necessary commitments for mitigation measures. Determine whether impacts qualify as a temporary non-conforming use or a park improvement. Document in a Parks, Recreation, Section 4(f) and Section 6(f) Memo.
4. If a conversion is triggered, document the level of impact, all practical alternatives to the conversion, and avoidance and minimization measures taken. Prepare the appropriate documentation in consultation with CDOT Region or EPB Staff
5. If a full conversion is required, coordinate with Colorado Parks and Wildlife (CPW) to find a replacement property that is of equal fair market value and equivalent use of the property being converted. Purchase and document conversion of the property using National Park Service guidance.

K. Section 4(f) Evaluation: Please note that there are separate requirements for historic and non-historic Section 4(f) evaluations

1. Inventory and map project area for possible Section 4(f) resources.
2. Determine if any potential impacts or ROW acquisitions include Section 4(f) resources (e.g., publicly owned parks, recreational facilities, nationally significant historic sites, wildlife refuges). Coordinate with FTA and CDOT Historians on any Section 4(f) uses to historic sites and whether CDOT Historians will be preparing Section 4(f) – historic documentation.
3. The FTA Regional Administrator is responsible for making Section 4(f) determinations based on resource impacts. Coordinate with FTA on the necessary level of documentation and Official with Jurisdiction (OWJ) outreach. This coordination should occur early in the project schedule.
4. Determine and evaluate project impacts on Section 4(f) resources using preliminary design information, and the necessary commitments for mitigation measures. Determine in coordination with FTA and CDOT whether impacts require an exception, *de minimis*, programmatic, or individual 4(f) evaluation. Prepare an analysis that includes avoidance alternatives, discussion of prudent and feasible, least harm (if necessary), minimization, and mitigation related to Section 4(f) resources. This may include the development of a new alternative(s) as an avoidance alternative(s). Prepare the appropriate documentation in consultation with CDOT Region or EPB Staff.
5. Develop Official with Jurisdiction (OWJ) concurrence request letters (if necessary) and/or include with Section 106 correspondence for historic sites. For non-historic resources, OWJ will vary. For historic properties, the SHPO is the OWJ and the Section 106 consultation correspondence helps to inform the Section 4(f) process.
6. Document non-historic Section 4(f) resources in the Parks, Recreation, Section 4(f) and Section 6(f) Memo. Document historic Section 4(f) resources in the Cultural and Paleontological Resources Technical Report. Determine, in coordination with FTA, whether a standalone Section 4(f) evaluation document is required.

L. Noise and Vibration

Prepare a BRT noise and vibration assessment and analysis in accordance with the most recent CDOT Noise Analysis and Abatement Guidelines and with the most recent FTA Transit Noise and Vibration Impact Assessment Manual (FTA Report 0123). Submit a comprehensive noise assessment document to FTA/CDOT for review and acceptance.

1. Define relevant noise and vibration abatement criteria and identify noise-sensitive and vibration sensitive land uses.
2. Validate the traffic noise model and determine existing noise and vibration levels (by measurement and modeling) under current conditions.
3. Predict future traffic noise and vibration levels for all alternatives, including the No-Action Alternative, using the FTA Transit Noise and Vibration Impact Assessment Manual
4. Determine traffic noise impacts and traffic vibration impacts for the No Action and Build Alternative(s)
5. Identify and evaluate the feasibility and reasonableness of noise abatement measures. Identify and evaluate feasibility and reasonableness of vibration abatement measures. Coordinate with

the Project Engineer with regards to locations, heights, and lengths of proposed abatement measures and with locations and technologies to mitigate vibration.

6. Develop recommendations regarding noise and vibration abatement measures
7. Assess construction related noise and vibration issues. (i.e., optimized barrier design.)
8. The above items shall be addressed and documented in a Noise and Vibration Technical Report, which will be prepared and submitted to CDOT and FTA for review and acceptance. Prior to beginning this work, the Consultant shall meet with the CDOT Noise Specialist to review the appropriate noise and vibration assessment methodology. The draft and final technical report will be completed and made available to the CDOT Noise Specialist and appropriate Region staff for review; the findings shall be incorporated into the NEPA document.

M. Hazardous Materials

Perform and document the following activities in a Hazardous Materials Technical Memo:

1. In accordance with CDOT Hazardous Materials Guidance, which reflects applicable federal regulations, conduct an initial site assessment to determine if there is any known or potentially hazardous waste within the proposed project limits. Conduct regulatory research that includes the collection, mapping and evaluation of data
2. FTA's process requires following proper due diligence procedures to limit liability, which involves conducting a Phase I Environmental Site Assessment in accordance with USEPA's All Appropriate Inquiries Rule. Analyze results of regulatory research and records review and identify potential impacts that construction activities may have on existing hazardous waste sites, including leaking underground storage tanks and landfills which are known to exist in the corridor. Assess potential liability issues and hazards to the public, construction workers, and the environment then develop potential mitigation options.
3. Prepare the draft and subsequent Hazardous Materials Technical Memo to address comments provided by FTA and CDOT.
4. Conduct In-Situ Tests such as lead-based paint and asbestos testing as necessary, and provide a survey report, as determined on a project-specific basis.
5. If Recognized Environmental Conditions (RECs) are identified, conduct a Phase II Assessment in coordination with FTA and CDOT to sample and analyze the nature and extent of the identified hazards.

N. Land Use

Collect, map, and evaluate baseline information. Prepare information on land use and zoning, including maps of existing, planned, and future uses. Prepare land use mapping. Mapping may include parcel use categories such as land in public ownership, commercial, retail, wholesale, industrial, residential, vacant, and mixed etc., identifying jurisdictional boundaries and land usage along each alternative. (Information may be obtained from DRCOG, the Department of Local Affairs, Sanborn maps, archival aerial photos, the local city, town, or county, and/or from field verification.) Document findings in a Land Use/Socio Economic Technical Memo.

O. Social and Economic Resources

Collect, map, and evaluate baseline information to investigate and document the effects of the project alternatives on community cohesion, safety and security, neighborhoods, and accessibility of facilities and services. Investigate the effects of the project alternatives on commercial and industrial enterprises, employment, local tax base, regional earnings, etc. When relevant, recent census data shall be utilized. This will be done at the regional and corridor level, as well as part of a cumulative effects analysis, as appropriate. Document findings in a Land Use/Socio Economic Technical Memo.

P. Environmental Justice

Collect the necessary U.S. Census and other applicable data to identify existing low-income and minority populations, as well as adverse effects and mitigation measures or alternatives that would avoid or reduce the impacts according to environmental justice guidelines. Impacts to these communities will be evaluated in accordance with the CDOT NEPA Manual, Executive Order 12898 from February 11, 1994, “Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations”, US DOT Order of April 15, 1997: “DOT Order to Address Environmental Justice in Minority Populations and Low Income Populations,” and the FTA Environmental Justice Circular 4703.1 “Environmental Justice Policy Guidance for Federal Transit Administration Recipients.” Beneficial effects of the project on these populations will also be identified. The analysis will cross-reference other resources as appropriate (e.g., noise, air and water pollution, aesthetics, community cohesion, relocation impacts).

As part of the project’s public participation or public involvement program, ensure that meaningful opportunities for all members of the community to provide input to the project exist. Document the degree to which affected low income or minority populations have been afforded the opportunity to provide input in the NEPA process. As dictated by the class of action, meaningful opportunity to comment on or related to the development of purpose and need, alternatives analysis and evaluation, impact analysis, preferred alternative identification, and mitigation measures development. Collaborate with EPB’s Environmental Justice Specialist, CDOT’s Environmental Justice and Equity Branch, and CDOT’s EEO Office to determine the level of Environmental Justice and Title VI outreach activities necessary to obtain sufficient input from low-income and/or minority populations. Document all outreach efforts and input (or feedback) for low-income and/or minority communities within an Environmental Justice Technical Report in accordance with Chapter 7 of the CDOT NEPA Manual.

1. Title VI Equity Analysis:

Complete a Title VI Equity Analysis as required by the FTA Circular 4702.1B, “Title VI Requirements and Guidelines for Federal Transit Administration Recipients.” This analysis takes place before design activities and includes an analysis of the impacted populations, project impacts, and potential alternative project locations. Coordinate with DTR, the Equity and Environmental Justice Branch at CDOT, and FTA when conducting this analysis.

Q. Residential/Business/Right-of-Way (ROW) Relocations

Alternatives shall be developed in a manner that limits residential and business impacts to the maximum extent possible and identifies all feasible approaches to avoid this situation. The following activities

will be performed and documented by a qualified member of the Consultant team, in coordination with the CDOT Region ROW manager (or designee), or Headquarters ROW specialist assigned to the project. This task shall be conducted in accordance with Title 23 CFR 710, FTA real property requirements, and will be documented in development of the Real Estate Acquisition Management Plan (RAMP). Task components include:

1. Prepare a table identifying and listing all potentially affected properties including, at a minimum, ownership names, property and mailing addresses, type of property, estimated areas of impacts per parcel, type of impact i.e. – full or partial acquisition, temporary or permanent easement, and indicating which alternatives impact each property. This table will be submitted to the CDOT Region ROW Manager for review and may be included in the NEPA document (without personal property details) at the discretion of the CDOT Region and/or Headquarters ROW staff. All costs associated with such impacts – including property costs as well as other costs such as impacts to business opportunities or resident quality of life – should be documented clearly.
2. Perform a ROW field inspection of each short-listed alternative. Ascertain number of parcels, types of improvements, and possible issues (e.g., historic sites). Estimate family sizes for residential relocations.
3. Compile a ROW acquisition and relocation cost estimate for the Preferred Alternative .
4. Prepare a property ownership map based on tax records, which identifies ownerships for the Preferred Alternative.
5. Develop and document mitigation measures for impacted properties.

R. Utilities and Railroads

Develop Subsurface Utility Engineering (SUE) analysis and determine quality level. Collect utility location key maps for all existing and planned utilities in the area in coordination with the CDOT Region utilities specialist. Conduct all field utility locates. The potential impacts on or from utilities in the project area will be analyzed as well as any appropriate mitigation measures. The Consultant shall evaluate if 3rd party agreements with utility and/or railroad companies are required. Follow CDOT NEPA Manual, Chapter 9 for guidance on evaluation and documentation. Coordinate with FTA and CDOT to determine if findings can be documented in the NEPA document, or if a separate Utilities Technical Memo is required.

S. Geologic Resources and Soil

(For unique circumstances) Perform and document in the NEPA Document, and a Geologic Technical Report, a thorough investigation of the project area to determine possible geologic influences on the Preferred Alternative under consideration, or vice versa. Constraints, including but not limited to major excavations, unsatisfactory sub-grade materials, present and potential subsidence, potential for rockfall, the presence of abandoned mine sites, etc., will be evaluated. This task includes consideration and description of the corridor water table (i.e., depth/gradient). Coordinate with FTA and CDOT to determine if findings can be documented in the NEPA document, or if a separate Geologic Resources Technical Memo is required.

T. Visual Resources

Assess whether the proposed project substantially degrades the existing visual/aesthetic character or quality of the site, its surroundings, and/or recognized view sheds. Visual resources can be natural features, vistas, viewsheds, community features, such as skylines, settings, monuments, architecture, historic properties, or other visual characteristics that create a sense of place of an area. Consider whether the proposed project creates a new source of light or glare that may affect day or nighttime views in the area. Review any existing community aesthetic guidelines and incorporate into the design as mitigation. Determine, in coordination with FTA and CDOT, whether visual resources can be documented in the NEPA document, or a separate report is required.

U. Cumulative Impacts

Consistent with CEQ regulations, the cumulative effects of each proposed action on a resource, ecosystem or human community will be evaluated for the Preferred Alternative . The analysis will both list and consider incremental impacts of the Preferred Alternative in conjunction with all past, present, and reasonably foreseeable future actions, no matter what entity (federal, non-federal, local government, or private) is taking or has taken the action; but the analysis should only focus on meaningful effects. Develop the scope of the analysis in consultation with FTA and CDOT, and in general base temporal and spatial boundaries on the natural boundaries of resources of concern and the period of time that the proposed action's impacts will persist. The analysis will be incorporated into the NEPA document, and mitigation measures specific to cumulative impacts, if needed, will be identified.

Standard global climate change language can be found in CDOT NEPA Manual Appendix F and should be incorporated within every cumulative impacts section of a NEPA document.

Task 4.0 Deliverables

- Logical Termini Memo
- Purpose and Need Memo
- Preferred Alternative Development and Evaluation Memo
- Standard Operating Procedure Memo
- Cost Estimate, Financial Analysis, and Funding Options Memo
- Air Quality Technical Report with emphasis on Greenhouse Gas Emissions
- Water Resources Technical Memo
- Wetland Finding Report (as required)
- Biological Resources Technical Report
- Cultural and Paleontological Resources Technical Report Recreational Resources including Section 4(f) and Section 6(f) Eligible Properties Technical Report
- Section 4(f) Evaluation, as required
- Section 6(f) Evaluation, as required
- Traffic Noise and Vibration Technical Report
- Hazardous Materials Technical Memo
- Land Use/Socio Economic Technical Memo
- Environmental Justice Technical Report
- Right of Way memo
- SUE Analysis

- Utilities and Railroad Mapping and Permits Requirements
- Visual Impact Assessment, as required
- Geologic Resources Technical Report, as required
- Existing Transportation Conditions Technical Report (passenger vehicle, freight, bike, pedestrian, and transit)
- Community Survey Results and Report
- Public Engagement Coordination Plan
- Agency Coordination Plan
- Summary Report of Public Coordination and Public Involvement
- Project Administrative Record

Section 5 – National Environmental Policy Act (NEPA) Evaluation

Building upon previous work, the Consultant shall assist CDOT with completion of appropriate environmental evaluation as required to apply for and obtain FTA CIG funding. At this time, the NEPA class of action is anticipated to be an FTA Environmental Assessment (EA) document, but another assessment level may be required. If the NEPA class of action is subsequently determined to be an FTA Categorical Exclusion (CE), the Consultant level of effort may be reduced. Environmental resource evaluations for NEPA will be conducted according to methodology specified by FTA (see Section 5.2 below).

The goal of this work effort is to complete FTA NEPA clearance for BRT operating within the appropriate project limits, and to use the process to establish the project definition (scope and budget) associated with the CIG application.

The FTA NEPA process will utilize the work completed to date and continue to refine the purpose and need statement/project justification, strategically engage the public, evaluate environmental resources and impacts, and determine the scope of the project in conjunction with funding options. The Consultant will assist CDOT to complete the NEPA process at an appropriate level of detail to allow the FTA to make an informed decision, including all documentation in alignment within the milestone requirements of the FTA Project Development process.

Develop, coordinate, write, review, conduct QA/QC and finalize the appropriate NEPA document in accordance with CDOT NEPA Manual Chapter 8, as well as the current provisions of the following laws, regulations, and standards.

5.1 NEPA Class of Action Determination & Pathway

The Consultant will work with CDOT and its partners and the FTA to determine the course of action for determination and approval options. The Consultant team will affirm the path forward for the NEPA process and coordinate with FTA and CDOT as needed.

5.2 Draft and Final NEPA Document Preparation (EA or CE)

Assign a team leader qualified to (1) manage the FTA NEPA process, (2) develop a schedule for document preparation, printing, review, and comment response, and (3) direct the Consultant team in the following tasks in coordination with the CDOT Region, EPB, FTA and FHWA (if applicable). The CDOT NEPA Manual specifies the number of copies to be provided for document review for each phase of the NEPA process.

Use of Geographic Information Systems (GIS) for environmental data is required to comply with CDOT GIS standards. All GIS data shall be provided to CDOT in electronic format with the annual updates for the project file.

1. Distribute the internal draft NEPA document and relevant technical reports for review to a distribution list specified by CDOT. Prepare no more than **2** versions of the draft NEPA document and relevant technical reports with each version. Provide effort for no more than **2** review cycles of the draft NEPA document and relevant technical reports. Coordinate and conduct no more than two comment resolution meetings for distribution list comments. Respond to comments within a reasonable number of working days after received.
2. If FTA determines that an EA is required, prepare a NEPA document outline for review by CDOT, FTA, and FHWA (if applicable). Prepare no more than three versions of the outline to be submitted and reviewed, with reviews and approvals being conducted by CDOT, FTA, and other appropriate agencies.
3. For the review cycles, prepare a comment/response matrix for each draft NEPA document and relevant technical reports that describe how each comment was addressed. This matrix will be distributed with each version of the draft document and relevant technical reports that CDOT and FTA review.
4. If FTA determines that an EA is required, submit the NEPA document to CDOT for signature and routing to FTA for approval.
5. Create draft and final text for the public Notice of Availability of the NEPA document and the date, time, and location of the public hearing [if appropriate for NEPA document] for placement in all appropriate local papers and provide to the FTA Region 8.
6. Provide an electronic version of the NEPA document and relevant technical reports on the CDOT website in PDF, or other read only format.
7. Revise the final draft NEPA document and relevant technical reports. The resulting NEPA document and relevant technical reports will be provided to CDOT for distribution and final review, prior to preparing the signature copy. Provide certification that all comments have been addressed. The Consultant shall submit a signature copy of the NEPA document and relevant technical reports [to CDOT] for signatures and routing to FTA for approval, and then will provide copies of the signed final NEPA document to CDOT and FTA.

5.3 Public /Meeting OR Hearing (EA or CE)

Provide the following services, in coordination with the CDOT Region and in accordance with Chapter 7 of the CDOT NEPA Manual:

1. Identify ADA compliant facilities and a transit accessible facility for a public meeting.
2. Advertise the public hearing/meeting date and location. The following media will be used for advertisement: social media, press releases for newspapers, CDOT website, mailed meeting notices, email meeting notice, radio Public Service Announcements, public displays, community newsletters, etc.
3. Hire translator, and/or sign language communicator, as needed.
4. Provide audio/visual equipment and support for presentations, as needed.
5. Prepare the graphics/display boards to include, at a minimum, the following features:
 - a. Purpose of and need for project
 - b. Maps showing alternatives
 - c. Description of social, environmental, and economic impacts
 - d. Design features
 - e. Consistency with federal and local plans
 - f. Right-of-way information, acquisition, and construction
 - g. Source and amount of funding
 - h. Location of 4(f) properties, if required
 - i. Any other project-specific resource impacts deemed appropriate
 - j. Mitigation measures that warrant public disclosure or relevance
 - k. Anticipated project schedule and next steps
 - l. How and where the public can provide comments
6. Provide a court reporter (if public hearing) and prepare a certified transcript of the public hearing within **14** working days after the public hearing/meeting.

5.4 Resource Evaluation and Documentation

Following review of work completed during previous transit studies, the Consultant shall identify and conduct any additional, revised, or updated resource evaluations for the entire project according to FTA NEPA requirements, including:

- Air Quality
- Biological Resources
- Social Resources and Economic Impacts, including environmental justice, community disruption, land use and development, and safety/security (during and post-construction)
- ROW acquisitions/relocations
- Energy Conservation
- Geology and Soils
- Hazardous Materials
- Cultural Resources, including historic and archaeological
- Transit Noise and Vibration
- Section 4(f)/Section 6(f) Resources

- Visual Quality
- Transportation Impacts including traffic and parking
- Utilities
- Water Resources
- Construction Impacts
- Indirect and Cumulative Impacts
- Local, State and Federal Permits

5.5 Mitigation Plan & Next Steps

Environmental mitigation requirements and strategies will be identified in the NEPA document and reflected in preliminary design documents. It is critical to clearly understand and document mitigation strategies that address, environmental impacts to the community, traveling public, and businesses. The Consultant shall also identify mitigation items that need to be addressed in future NEPA process, design, and construction work efforts.

5.6 Draft and Final Decision Document Preparation (EA or CE)

There is no guarantee of the outcome of the NEPA process to determine next steps of the NEPA decision document. Once FTA has enough information to make the Class of Action (COA) determination, then the project will go down either the CE path or the EA path. If an EA is required, then FTA will determine whether a FONSI is the decision document, or if an EIS must be prepared instead.

As described in previous tasks, the Consultant will prepare Draft and Final NEPA documents for FTA approval. Documentation will be at the necessary level of detail to identify and evaluate environmental impacts and potential mitigation requirements for the Preferred Alternative, along with other corridor-wide plans, as are determined to be appropriate.

Development of the draft and final NEPA documents will also include:

1. Preparation of draft and final technical resource reports and appendices
2. Administrative record, to include:
 - a. Summary documentation of public involvement
 - b. Graphics and maps
3. Preparation of a draft financial plan

The Consultant will provide CDOT with 10 bound copies and electronic copies in PDF format for both draft and final versions of the NEPA decision documents.

A. Review Timeline

It is anticipated that CDOT and reviewing agencies (Municipalities, RTD, others as appropriate) will have three to four weeks to review and comment on the first draft. Once the draft report comments have been addressed, the draft EA will be submitted to FTA for review. Any comments by FTA will be addressed and the NEPA documentation will be resubmitted to FTA for legal counsel review. Upon

FTA approval, the Consultant shall prepare a final NEPA EA documentation for FTA signature approval.

Task 5.0 Deliverables

- Memo/report summarizing the agency scoping process and initial resource evaluation to support the appropriate FTA NEPA clearance
- Draft and final Purpose and Need Statement/Project Justification
- FTA NEPA EA documentation and administrative record
- Resource reports and related documentation
- Comment/response documentation matrix
- Draft and Final NEPA decision document

Section 6 – FTA CIG Definition and Grant Application

It is anticipated that the Preliminary Preferred Alternative will meet the FTA requirements for CIG funding based on FTA’s Capital Investment Grant Policy Guidance – Small Starts (January 2023). Professional Services are sought to assist CDOT and its partners to request permission to enter project development. The Consultant shall analyze CIG Project Definition options and assist in preparing the CIG funding application, with tasks including but not limited to:

1. Project Management Plan according to [FTA CIG Guidelines](#). This PMP shall include a Real Estate Acquisition Management Plan (RAMP) and Management Capacity and Capability (MCC) review at appropriate dates in the project schedule.
2. The technical plan,
3. Development of the financial plan,
4. Preparation of the Project Development Phase application letter,
5. Preparation for project sponsorship,
6. Continued public outreach,
7. Analysis for final CIG rating,
8. Successful NEPA clearance, and
9. Any subsequent services deemed necessary during the Project Development phase intended to enhance the project’s ability to secure FTA and additional local funding.

CDOT, along with its partners, seeks funding through FTA’s CIG Program. This Project Development Phase support services effort is bounded by the following objectives:

A. Capital Investment Grant Program Entry Objectives

Develop a strategy for successful entry into the Project Development Phase (PDP) of FTA’s CIG Program. The goal is to maximize the eligibility of work and project costs through the CIG process.

B. Capital Investment Grant Program Project Development Phase Support Objectives

Develop a strategy for successful rating by FTA’s CIG Program in anticipation of a full funding grant agreement. FTA suggests the following as it pertains to activities needing completion during Project Development Phase for Small Starts:

1. The project sponsor must select a Preferred Alternative;
2. The project sponsor must get the Preferred Alternative adopted into DRCOG's fiscally constrained metropolitan transportation plan;
3. The environmental review process required under NEPA must be completed as signified by a final FTA environmental decision (e.g., categorical exclusion, Finding of No Significant Impact, combined final Environmental Impact Statement/Record of Decision, or Record of Decision) covering all aspects of the project proposed for FTA funding; and
4. The project sponsor must develop sufficient information for FTA to develop a project rating.

C. Capital Investment Grant Program Project Development Phase Actions

Given that the current project is expected to have met the first three requirements through the execution of this effort, the Consultant will also focus its efforts to number 4 above (the project sponsor must develop sufficient information for FTA to develop a project rating). Related tasks include:

1. Coordinate with Design/Engineering efforts to finalize project definition and Technical Plan
2. Ridership and travel time modeling for final rating (Compass/STOPS/FOCUS)
3. Develop final Financial Plan including development of agency IGAs
4. Develop and Implement Public Outreach Plan – strategy to address public concerns as project moves forward
5. Analyze project for final Project Rating – including additional planning support as needed to address land use, (TOD, affordable housing); cost-effectiveness; mobility improvement; congestion relief; environmental benefits including air quality, energy, and safety; and economic development.

These requirements are detailed in the [Capital Investment Grants Policy Guidance FTA 2023](#) (i.e., Project Justification). Tasks to provide the required Project Rating data are described in Sections 7.0 and 8.0 below. Environmental resource evaluation including land use, energy and economic development are included in the NEPA task as described in Section 4.0.

Task 6.0 Deliverables

- CIG Project Definition Process & Outcome documentation
- Technical and Financial Plans (per FTA CIG Program)
- Project Management Plan (PMP per FTA CIG Program) including RAMP and MCC
- Public Outreach Plan (per FTA CIG Program)
- Project Development Phase application letter

Section 7 – Travel Modeling, Safety Evaluation, Ridership & Traffic Analysis

Traffic analysis will need to be conducted to develop ridership forecasts, vehicular demand forecasts, and determine mitigation strategies (if required). To complete this analysis, new traffic count data and/or location-based service data (LBS) will be needed within the project area and on the local street network where impacts are anticipated. All future analysis should be updated to the most recent horizon year as agreed to by CDOT and FTA with input from DRCOG. It is anticipated that 2050 travel demand models (including air quality conformity) will be used, coincident with DRCOG practice. Ridership forecasts from

the prior Alternatives Analysis will need to be updated to the horizon year using STOPS. The vehicular travel demand forecasts from the Alternatives Analysis will also need to be updated to the horizon year using the most recent DRCOG model. The raw volumes will need to be run through traffic analysis models to allocate traffic to the local street network. Intersection operations will need to be modeled to understand how all modes are being processed at the study area intersections. VISSIM and Synchro shall be used to analyze study intersections and person throughput. The analysis will also need to examine the effects of left turn restrictions and consider parking removals or restrictions. The analysis tools proposed will also need to support the needs of the NEPA analysis (air quality and noise analysis, if required).

The consultant shall propose a methodology for developing and analyzing traffic forecasts in the study area. It is expected that this analysis will be required of projected traffic conditions on and along the corridor to assess the expected performance of buses. This analysis will also be necessary to understand impacts to general traffic on Colorado Blvd. and potential magnitude of traffic diversion onto adjacent and nearby routes. This analysis will assist in determining the need and nature of potential traffic calming and pedestrian safety features on nearby streets. The consultant should account for the length and complexity of the corridor while developing a traffic analysis approach that satisfies the analytical needs of the project. The consultant should also consider traffic incident management and special event impacts in the traffic analysis. The approach will be developed in collaboration with FTA, RTD, and CDOT and the partnering local agencies. The approach will be documented and agreed upon by CDOT and the local agencies prior to conducting the analysis.

Analysis of existing and future traffic operations will be conducted for the No-Action Alternative and Build Alternative(s). Analysis will be completed in accordance with the latest edition of the Highway Capacity Manual or similar methodology. In addition, the Consultant shall use a micro simulation software package (i.e., CORSIM, VISSIM, Dynasmart-P, or others as approved by CDOT) to evaluate the operations of the entire roadway network and report the appropriate measures of effectiveness for the alternative(s). The selection of the software package for the required analyses will depend on the size and other characteristics of the network, the alternatives to be analyzed, and the measures of interest. At a minimum, analysis will consider existing traffic volumes, crash history, percent of truck traffic, directional splits on all arterials, turning movements at intersections, interchange and ramp characteristics, travel/access patterns, level of service, delays, travel times and speeds, and areas of congestion. During the alternatives development and evaluation process, the appropriate level of operations analysis will also be conducted on the alternatives being considered. The results of the operations analysis are documented into a Transportation Technical Report.

The Consultant shall establish an approach for final modeling of the Project that meets FTA's expectations including calibration/validation. The previous planning efforts for this Project have utilized FOCUS ridership and travel time information. Dependent on FTA guidance, the Consultant shall provide support to obtain ridership and travel time data through another model (e.g., STOPS, COMPASS) in agreement with FTA.

This task shall analyze connections to existing transit services, including but not limited to light rail, bus rapid transit, and local bus routes. The analysis should consider dwell times associated with connecting to separate lines/routes and impacts to overall speed and reliability of the BRT service. The Consultant shall

document this analysis and anticipated impacts in a memorandum and incorporate findings into design recommendations.

The Consultant shall follow CDOT Policy Directive 1602. Research and identify existing and future planned bicycle and pedestrian facilities in the project area. The necessary data will be collected from project design documents, community transportation plans, local land developers, open space and park trails, or local governmental agency or community interest groups to determine if any facilities will be impacted, and as a result what mitigation is necessary. If the corridor is a heavily traveled biking facility, the scope of work shall include meetings to coordinate with bike users throughout the NEPA process. Identify impacts and recommend appropriate mitigation measures as necessary.

The Consultant shall conduct safety analysis and document crash rates based on data collected from local emergency services, local law enforcement, Colorado State Patrol, and CDOT Traffic Analysis Unit; obtain weighted hazard index from CDOT/PM; evaluate trends; document safety issues and how they can be addressed through capital and operational improvements.

To support CDOT's initiatives and alignment with Vision Zero, the Consultant shall assess the safety of the entire corridor in terms of vehicle, pedestrian, and bicycle safety.

While RTD will be responsible for the travel demand modeling to obtain ridership and travel time savings data, the Consultant team will need to formulate a traffic analysis modeling strategy for travel demand modeling (excluding ridership forecasts), network and intersection operations, and to identify potential strategies to improve operations (if required) and inform the design process. The Consultant will work with RTD in the development of a ridership modeling approach that will provide meaningful results including realistic mode shift projections. The Consultant will also assist RTD with obtaining and summarizing metrics from the model.

Specifically, RTD will:

1. Perform network coding for the corridor (in support of developing ridership forecasts).
2. Provide travel forecasts for the corridor, including VMT, transit trips and transit-dependent trips as required for FTA evaluation.
3. Provide opening day and DRCOG horizon year (2040 or 2050, as appropriate) land use data sets and roadway networks in coordination with DRCOG.

Task 7.0 Deliverables

- Traffic modeling methodology memorandum
- Transit modeling analysis based on the preferred method
- Traffic modeling analysis and design recommendations
- Model Report with inputs needed for Project Rating
- Safety Evaluation

Section 8 – Preliminary Engineering

The Consultant will prepare a preliminary engineering design package for the roadway, stations, passenger access routes, sidewalks, property conforms, and bike network integration, to help develop cost estimates and identify any Right-Of-Way needed for the Project. The Consultant shall complete preliminary design and within that limitation meet the Federal requirements for preliminary engineering for entry into the FTA Project Development Phase of CIG, including refining the design to avoid or reduce environmental impacts identified in the previous study phases of the Project and including NEPA evaluation.

A. Mapping

Aerial mapping and a topographical survey shall be prepared by the Consultant within the entire project limits in sufficient detail to accurately identify locations that will require regrading to meet ADA access requirements or that change drainage paths. The survey shall include break lines, topographic features, buildings, curbs and gutters, surface treatments, trees and substantial vegetation, utility covers and manholes, aerial utilities, lot lines, and right-of-way lines.

Subsurface utilities including historic trolley tracks and brick-lined sewers shall be mapped based on existing City mapping supplemented with field sampling (potholing, magnetic surveys, manhole dips, etc.) as required.

B. Survey Control Map

A survey control map shall be prepared within the entire project limits and for topographic features within the right-of-way. The survey control map will also depict all the primary horizontal control monuments that are near the project. The coordinate system for this project shall be based on CDOT's standard for projection. A coordinate table shall be prepared for all the depicted monuments. The map shall be prepared in accordance with the Colorado Revised Statutes and shall additionally include a list of all maps or documents considered in preparing the survey. The list shall reference the recording, depositing, or identification information of each document. Additionally, this map shall include a documentation legend of all monuments describing the physical characteristics of the monument.

C. Existing Right-of-Way Plan and Ownership Map

The Consultant will research all relevant repositories and obtain recorded or existing mapping including but not limited to Subdivision Plats, Official City Resurveys, Land Survey Plats, Improvement Survey Plats, Right-of-Way Plans, Private Survey Notes, Range Point/Line Documents, and monumentation. The Consultant will collect accurate locations on all found monumentation controlling or supporting the location of the adjacent right-of-way or boundary lines for the subject properties. Documentation shall include all the monuments within the area of influence of the right-of-way line or subject properties sufficient to support the survey procedure being utilized to determine the rights-of-way or subject properties. The plan and map shall be prepared showing the project corridor and all adjoining properties. This shall include the identification of all streets and parcels, the property owners name and mailing address together with the assessor's parcel identification number. This map shall accurately depict the existing right-of-way of Colorado Blvd. and all intersecting streets.

D. Typical Sections

The Consultant shall provide typical sections showing existing and proposed sections of the roadway inclusive of station and intersection areas. The cross sections will be cut every 50 feet showing proposed roadway, drainage, utilities, structures, and other predominant features. Aerial and street sections with proposed BRT stops cross sections shall be cut from centerline of the street to the right of way line at the beginning and end of each proposed BRT bus station.

E. Plan and Profile

The Consultant shall provide Plan and Profile at a scale that adequately demonstrates the existing site conditions and accurately conveys the design intent coincident with this level of design. The Plan and Profile sheets shall at a minimum contain:

1. Existing and proposed roadways, striping, intersections, right-of-way, storm drainage and culverts, ditches, direction of flow, structures, utilities, bus stops, driveways, cross streets, additional topography (e.g., signals, sidewalks, other significant features)
2. Proposed roadway geometry
3. Profile grades for any roadway and intersection improvements
4. Proposed drainage improvements including culverts, storm sewers, inlets, drainage ditches
5. Proposed structures
6. Proposed utility improvements/relocations
7. BRT stations with anticipated components and accessible paths shown
8. Existing and Proposed Bike routes
9. Existing bus service and stops on intersecting streets
10. Landscaping and green infrastructure areas

The Consultant shall use CDOT bid items and provide the tabulated quantities for the following, on a sheet-by-sheet basis. CDOT will provide the Consultant a template for such bid items and cost estimates:

1. Demolition of existing asphalt and concrete
2. Concrete curbs, gutters, and other flatwork
3. Concrete paving
4. Asphalt paving
5. Structural and earth backfill
6. Structural components of stations
7. Drainage improvements
8. Landscaping
9. Green Infrastructure
10. Signing and Striping
11. Pedestrian ramps and related equipment

F. BRT Stations

The Consultant shall create site plans that include the following components for the proposed BRT stations. The following elements are provided to guide the level of design anticipated – all station elements shall be agreed upon by the project team during the project. Site plans shall be consistent with the [Final Policy Statement on the Eligibility of Pedestrian and Bicycle Improvements Under Federal Transit Law](#).

- Grading
- Access paths to boarding areas
- Paving
- Bus bays
- Boarding areas
- Bike access at and to station, and in parallel facilities
- Pedestrian access at and to station
- Directions and approximate distance to existing nearby transit stops
- Shelters
- Lighting
- Trash receptacles
- Fare ticket vending machines
- Utilities
- Landscaping areas
- Green infrastructure
- Right of way
- Signal infrastructure

The Consultant shall provide the tabulated quantities for the following, on a sheet-by-sheet basis:

- IT infrastructure
- Cameras
- Fare collection
- Information kiosks
- Furniture
- Emergency Call Box

G. Utilities

The Consultant shall determine current utility locations, identify potential utility relocations, abandonments, and proposed utilities based on survey data from this project and other provided data. This information will be called out on a sheet and summarized in a report section in a tabular format and will include estimated relocation times.

H. Drainage

The Consultant will conduct a drainage study using the drainage methodology used by Denver Wastewater Capital Projects Management. The Consultant shall utilize historical information drainage and flooding data, existing hydrology reports and memos to analyze basin flows and hydrology through the Project area. The Consultant shall work with the Local Agencies Wastewater Capital Projects

Management to coordinate the BRT-related drainage design. The drainage study shall identify locations where inlets will be placed and where conveyance will be provided to the existing drainage network. Please note that where existing flooding cannot be practically mitigated within the scope extents of the project, the design shall not further degrade the existing deficiencies.

Opportunities and technologies for green stormwater infrastructure shall be identified in the draft study with candidate locations summarized.

I. Soils

Existing soils information from within the project area shall be obtained by the Consultant and included in the information provided. Additional soil boring shall not be required for PE purposes other than environmental evaluation.

J. Signalization

The Consultant shall document modifications to the traffic signals to accommodate future BRT transit signal priority, queue jumps, or any other signal modifications as identified from the transportation operations analysis.

K. Cost Estimates

The Consultant will develop project element cost estimates including appropriate contingencies based on the design plans developed in the previous tasks. These cost estimates will be included with all other project element cost estimates to identify the total estimated capital cost and CIG funding request. The total project cost estimates shall not equal more than \$399 million.

L. Cost Effectiveness

Per FTA requirement, the Consultant will compute the cost-effectiveness of the Preferred Alternative as a measure of the annualized capital federal share of the project divided by the annual number of trips using the project. Travel trip data will be calculated in Task 7.0 Travel Modelling.

M. Infrastructure Sustainability Evaluation

The Consultant will conduct a sustainability gap analysis of the Preferred Alternative identified in the NEPA process using either INVEST or Envision as per Executive Order 123. Two workshops with project team members are assumed.

Task 8 Deliverables

- Survey control map, draft for review
- Existing right-of-way plan and ownership map, draft for review
- Survey Control Map, comments addressed, signed, and sealed
- Existing right-of-way plan and ownership map, comments addressed, signed and sealed
- Recovery or reestablishment of range points and monuments
- PDF files of all deliverable products
- Point files of all survey shots

- All survey data and mapping in AutoCAD file for use by the design team
- Existing SUE quality level identification, cataloging, and labeling on sheets
- Preliminary Engineering Design Drawing Package
- Identify approvals and permits needed from local, State and Federal agencies
- Costs Estimates
- Cost Effectiveness technical memorandum
- Proposed construction schedule (duration, sequencing, and identification of neighborhood groups affected by construction)
- Phasing Plan
- Drainage Study and Report
- Sustainability Evaluation Review/Technical Memorandum
- List/memo of anticipated Project Special specifications
- Memo discussing maintenance of traffic concepts and construction ideas to maintain mobility and businesses operations.
- Design Memorandum summarizing constraints, issues, and anticipate deviations along with rationales for the next design phase.

Section 9 – Financial/Funding Analysis and Support

The Consultant will assist in the development of a Financial Plan. This plan will serve as the basis for developing the local funding match and entry into the FTA Project Development Phase.

This task will require working with the CDOTs CFO (and/or designee) and the Governor’s Office of State Planning & Budget (OSP) as well as the project partners to:

1. Peer project approaches and identification of alternative or non-traditional funding and financing strategies.
 - a. The Consultant will identify and research peer BRT project funding structures and approaches. The effort should be specific to BRT, based upon actual project results, and not represent an off-the-shelf, generic analysis. The Consultant will prepare a Funding and Financing Strategies Report of these peer approaches and include a matrix of funding opportunities and constraints based on these peer approaches and traditional approaches (those identified above). The Consultant will also identify, develop, and include alternative or non-traditional funding and financing strategies and include these in the Report and matrix. Phased project funding and implementation should be considered in all approaches.
2. Supporting CDOT in prioritizing and assessing identified funding opportunities. The Consultant will support CDOT and stakeholders in prioritizing and assessing identified funding opportunities as documented in the Funding and Financing Strategies Report. This effort will include a meeting or meetings with CDOTs CFO (and/or designee) to prioritize the most promising approaches and preparation of supporting materials for presentation at meetings with stakeholders and to the CDOT Transportation Commission and OSPB.
3. Preparation of documentation to support CDOTs pursuit of prioritized funding opportunities and development of inputs for financial modeling.

- a. Pursuing and securing external funding sources often requires the development of supporting information. Upon determination of the course(s) of funding for the project, the Consultant shall, at a minimum, prepare documentation for CDOTs use of: 1) project capital and O&M costs consistent with CDOTs financial models; 2) documentation of project benefits consistent with the needs of the grant or other funding program identified; and 3) documentation of project impacts, primarily those generally required for planning and NEPA evaluation (see Section 5.0 for a list of resources to be evaluated).
4. Based upon the efforts in 1-3 above, support and facilitate CDOT in its efforts to coordinate with other agencies to secure funding.

Task 9.0 Deliverables

- Technical memo establishing initial Financial Plan
- Intergovernmental/funding agreements as negotiated by the various agencies meet the project's local funding share for construction and for subsequent operation and maintenance.