



**COLORADO**  
**Department of Transportation**

**SCOPE OF WORK**  
**Design Services**

**PROJECT LOCATION: CO 7: 28th Street to 64th Street, City of Boulder**  
**PROJECT CODE: 23157**

*March 15, 2022*

Colorado Department of Transportation  
10601 W 10th St, Greeley, CO 80634  
Greeley, CO 80634



<b>1.0.</b>	General Project Information	4
1.1.	Introduction	4
1.2.	Description of Project Area	4
1.3.	Background	5
1.4.	Stakeholders	7
1.5.	Scope of Work	8
1.6.	Cost	9
1.7.	Work Duration	9
1.8.	Milestones and Proposed Schedule	9
1.9.	Consultant Responsibility and Duties	9
1.10.	Coordination with other projects	10
<b>2.0.</b>	Project Management	10
2.1.	CDOT Oversight	11
2.2.	Document Control / Information Management	11
<b>3.0.</b>	Public Information/Public Involvement	12
3.1.	Public Involvement Plan	12
3.2.	Deliverables	13
<b>4.0.</b>	Design Criteria	13
4.1.	Design Criteria	13
4.2.	Project Design Data and Standards	14



4.3.	Project Computer Software Requirements	14
5.0.	Affected Environment and Mitigation Measures	15
5.1.	Historic Survey	15
5.2.	Parks, Trails and Open Space	15
5.3.	Deliverables	16
6.0.	Design Process	17
6.1.	Survey and Right of Way	17
6.2.	Utilities	17
6.3.	Hydraulics	18
6.4.	Geotech	18
6.5.	Traffic	18
6.6.	Typical Sections	18
6.7.	Plan and Profile	18
6.8.	Phased Implementation Plan	19
6.9.	Cross Sections	19
6.10.	Cost Estimates	19
6.11.	Deliverables	20

## 1.0 General Project Information

### 1.1 Introduction

Colorado Department of Transportation (CDOT or the Department) is requesting consultant services to perform engineering project management and design for 15% level designs for corridor-wide improvements along CO 7 between 28<sup>th</sup> Street and 64<sup>th</sup> Street. CDOT, in close coordination with City of Boulder planning and engineering staff, will assume consultant management of this project.

The Consultant may suggest modifications to the proposed scope based on their experience with similar projects. Any proposed scope change shall have a detailed explanation regarding the rationale for the proposed change.

### 1.2 Description of Project Area

The project is located on CO 7 between 28<sup>th</sup> Street and 64<sup>th</sup> Street in the City of Boulder. CO 7 within the project area is commonly known as East Arapahoe, a six lane arterial and one of the City of Boulder's most heavily traveled commuter corridors. Within the project area, preliminary engineering for a protected intersection at CO 7 and 30<sup>th</sup> Street is being designed as a separate project. It is expected that the Consultant will incorporate the intersection design into the corridor design set. Figure 1 illustrates the many large employers and destinations along the East Arapahoe corridor.

Figure 1: Project Area





### 1.3 Background

CDOT, along with local partners, completed the CO7 Corridor Development Plan in January 2021. Building on previous planning efforts, this wholistic plan for the corridor identified several Sections of Independent Utility (SIU) including SIU A, CO7 from 28<sup>th</sup> Street to 64<sup>th</sup> Street in Boulder. Previous planning efforts for this section of CO7 include Bus Rapid Transit Feasibility Study, BRT Station Area Design, and the East Arapahoe Transportation Plan and will provide the foundation for the preliminary engineering and environmental design of SIU A.

East Arapahoe Transportation Plan was adopted in 2018. The City of Boulder's CO 7/East Arapahoe Transportation Plan sets out a long-range vision for safety, access, and mobility improvements for the East Arapahoe corridor. The 2040 vision concept for East Arapahoe transforms one of the City of Boulder's busiest travel corridors into a complete street with better travel options for commuters, as well as for the greater number of people who will be working and living in East Boulder. A cornerstone of this transportation investment will be high frequency, high quality regional Bus Rapid Transit service along CO 7 connecting Boulder to communities to the east and I-25.

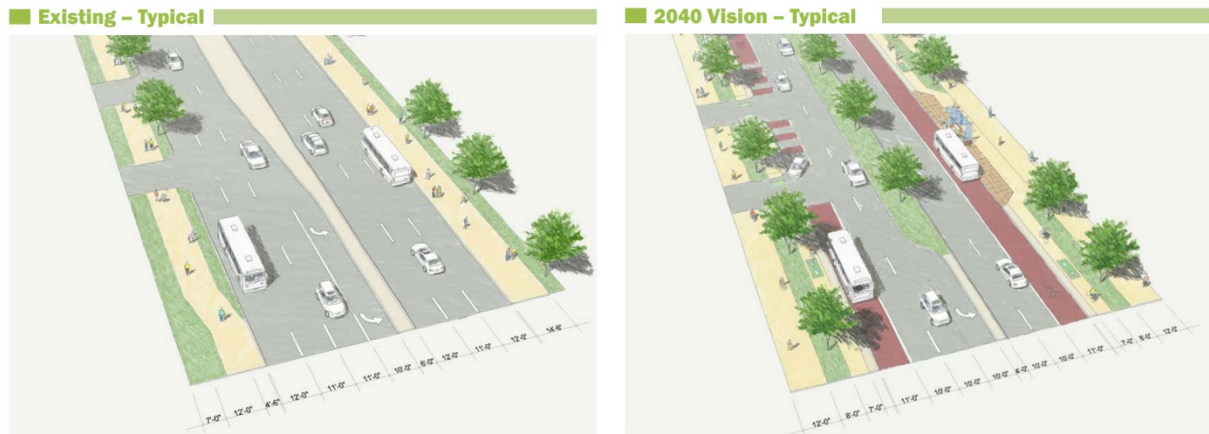
The concept plan for East Arapahoe, shown in Figure 2, includes the following features:

- Two general-purpose traffic lanes in each direction west of 55<sup>th</sup> Street and one general purpose traffic lane in each direction generally east of 55<sup>th</sup> Street.
- Curbside business access and transit lanes accommodate local and regional transit, right-turning vehicles, high occupancy vehicles and new technologies such as shared autonomous/connected vehicles
- Raised protected bike lanes with a separate multi-use path to create safe, comfortable places for people to walk and bike
- Amenity zones enhance the streetscape and public realm



Scope of Work  
CO 7 Corridor (28<sup>th</sup> – 64<sup>th</sup> St)  
Preliminary Engineering & Environmental  
Project Code: 23157

Figure 2: CO 7/East Arapahoe Transportation Plan



The abovementioned elements of the East Arapahoe Transportation Plan are intended to be phased incrementally. The City of Boulder is currently engaged in the [East Arapahoe Road Multi-Use Path and Transit Stops Project](#) which will advance a first phase and near-term action item of the East Arapahoe Transportation Plan by addressing existing deficiencies, such as missing segments of multi-use path on either side of SH 7/Arapahoe Avenue, upgrading narrow sidewalks to wider multi-use paths, and upgrading transit stops that lack infrastructure, such as concrete pads, trash receptacles and shelters.

Figure 3 illustrates the segments and bus stop locations along CO 7 that this project will improve. Construction is anticipated in 2022-23.

Figure 3: East Arapahoe Road Multi-Use Path and Transit Stops Project



## 1.4 Stakeholders

The following is a list of stakeholders and/or interested parties in this project:

Agency/Stakeholder	Role or Involvement
Colorado Department of Transportation (CDOT)	<ul style="list-style-type: none"> <li>• Project oversight</li> </ul>
City of Boulder	<ul style="list-style-type: none"> <li>• Project within the City</li> </ul>
Boulder County	<ul style="list-style-type: none"> <li>• Segments of project within County</li> </ul>
CO7 Corridor Coalition and Technical Advisory Committee (TAC)	<ul style="list-style-type: none"> <li>• General oversight and promotion of the CO7 Corridor between Brighton and Boulder</li> </ul>
University of Colorado Boulder	<ul style="list-style-type: none"> <li>• Key Stakeholder adjacent to the project</li> </ul>
Regional Transportation District (RTD)	<ul style="list-style-type: none"> <li>• Involved with BRT and transit stop components</li> </ul>
Colorado Parks and Wildlife (CPW)	<ul style="list-style-type: none"> <li>• Involved with the evaluation of Threatened &amp; Endangered, Candidate and Colorado State Sensitive Species</li> </ul>
Colorado Water Conservation Board (CWCB)	<ul style="list-style-type: none"> <li>• CLOMR/LOMR application review</li> </ul>
United States Forest Service	<ul style="list-style-type: none"> <li>• Ensure that project actions do not impact or</li> </ul>



(USFS)	jeopardize existence of any listed species or critical habitat
US Fish and Wildlife Service (USFWS)	<ul style="list-style-type: none"> <li>Involved with the evaluation of Threatened &amp; Endangered, Candidate and Colorado State Sensitive Species</li> </ul>
Mile High Flood District	<ul style="list-style-type: none"> <li>Regional management and maintenance of watershed/Boulder Creek</li> </ul>
Utilities	<ul style="list-style-type: none"> <li>Could be directly affected by the project</li> </ul>
<b>Other Stakeholders</b>	<b>Role or Involvement</b>
Traveling public	<ul style="list-style-type: none"> <li>Roadway safety/trip reliability input</li> </ul>
City of Boulder Transportation Advisory Board	<ul style="list-style-type: none"> <li>Advisory board appointed by City Council</li> </ul>
Property owners, businesses, and residents along the corridor	<ul style="list-style-type: none"> <li>Could be directly affected by the project</li> </ul>
Emergency responders	<ul style="list-style-type: none"> <li>Emergency response/access input</li> </ul>

The Consultant should anticipate that a design which affects an agency will have to be accepted by that agency prior to its acceptance by the Colorado Department of Transportation. Submittals to affected agencies will be coordinated with CDOT.

**Technical Team**

There will be a small technical team that will hold regular meetings throughout the the corridor design project. The goal of the Technical Team is to ensure that the design is consistent with local agency corridor and community plans and integrates seamlessly into the surrounding transportation and land-use context. The team members will include staff from CDOT and the City of Boulder. The Consultant shall indicate when these meetings will occur in the project schedule. The consultant will be responsible for collecting, distributing or publishing meeting minutes for these meetings.

**1.5 Scope of Work**

The scope of work will advance previous planning efforts, including the East Arapahoe Transportation Plan concept plan, into preliminary engineering (15% design) and environmental review.





## **1.6 Cost**

The 15% corridor design is estimated at approximately \$1.305M Project will be designed to budget.

## **1.7 Work Duration**

15% corridor design is expected to be completed within 12 -18 months.

## **1.8 Milestones and Proposed Schedule**

The Consultant shall develop a preliminary schedule as part of its proposal. CDOT has assumed an overall schedule of twelve to eighteen months to complete the project. The schedule will include the following:

- All project activities and deliverables shall be incorporated.
- Steps necessary to identify Federal NEPA requirements
- A timeline outlining amount of time required to complete each task.
- Proposed project outreach plan and calendar (open house meetings, etc.)
- Preparation of public notices and required notices for required public comment periods.

The Consultant shall provide a schedule which addresses the items above over a twelve month period. If the Consultant determines that it cannot accomplish the schedule in the proposed twelve month period then the Consultant will be required to provide the reasons as to why it is not feasible.

## **1.9 Consultant Responsibility and Duties**

The Consultant is responsible for:

- Project Management
- Data Collection
- Project Coordination
- Preliminary Design Coordination with CDOT Design Team
- Right of Way/Survey



*Note on Survey: Aerial and Mobile LiDAR is being conducted across this section. This is expected to be completed by early 2022. The contractor should use available mapping.*

- All other efforts and deliverables as indicated in this contract

### **1.10 Coordination with other projects**

- Ongoing efforts related to the CO 7 Corridor Development Plan shall be coordinated with this project
  - Traffic modeling shall be integrated with the development of the Corridor Systems Planning Tool (FHU)(Region 1)
  - Traffic modeling for this scope of work will reference prior modeling conducted by the City of Boulder on the East Arapahoe Transportation Plan.
  - CDOT intersection design at CO7 and 95<sup>th</sup> Street in Lafayette (scoping)
  - City of Boulder intersection design at CO7 and 30<sup>th</sup> Street (pre-scoping)
  - CDOT preliminary engineering of SIU B (65<sup>th</sup> Street to US287)
  - Other upcoming projects identified in the CDP

## **2.0 Project Management**

The Consultant will be required to work closely and coordinate with CDOT design staff and other CDOT consultants throughout the project. In general, Project Management activities will include, but not be limited, to the following:

Conduct and document with agenda and meeting minutes project coordination and progress meetings with the technical team

Provide materials, attend, and participate in up to 3 TAC meetings to present the project. TAC meeting agenda and minutes will be documented by CDOT.

- The Consultant shall prepare monthly project progress reports, billings, establish and maintain the project schedule with key milestones, a contact reporting system, an issues tracking system, and a schedule for bi-weekly progress meetings.
- The Consultant Project Manager will be required to attend all corridor public meetings held throughout the environmental and engineering design process,



unless otherwise specified by CDOT. The Consultant will be responsible for preparing appropriate presentation materials for all meetings.

- The Consultant shall be expected to take minutes at all meetings and provide the CDOT Project Manager with a completed copy within five (5) working days after each meeting. When a definable task is discussed during a meeting, the minutes will identify the “Action Items”, the agency responsible for accomplishing them, and the proposed completion date.
- The monthly progress reports will include summaries of work accomplished, task percent complete, task percent expended, work planned in the upcoming month and problems identified and solutions to the problems. The monthly progress report shall also include a schedule status, and, if behind schedule, a schedule recovery plan.

## **2.1 CDOT Oversight**

CDOT will conduct reviews of contract submittals to determine the extent to which contract requirements are being met by the work products, and ultimately to provide CDOT with the necessary confidence for acceptance. The Consultant shall review CDOT’s comments on submitted work products, provide a written response utilizing the medium in which these comments were provided, and implement corrective actions as required. CDOT design review comments will be recorded. However, these reviews are not intended to replace the Consultant’s own quality assurance/quality control activities.

## **2.2 Document Control / Information Management**

To ensure efficient information management on the project, CDOT will use Cloud ProjectWise, a web-based information management system. An overall Projectwise file management structure, organization, and protocol will be provided by CDOT for active file sharing, retrieval, and archiving for the project.

The Consultant’s proposal must include agreement to use the Cloud ProjectWise when communicating with CDOT on its respective projects. This includes use for all Document Control related for the duration of the project. Cloud ProjectWise will be used by all participants engaged on this project, including contractors, subcontractors, and their subsequent legal successors in title. It is the Consultant’s responsibility to ensure this is the case.

Access to the Cloud ProjectWise system for the respective CDOT project will be provided to all contractors, subcontractors and subconsultants free of charge for the duration of the project.

### 3.0 Public Information/Public Involvement

#### 3.1 Public Involvement Plan

The Consultant shall develop a public involvement plan. The East Arapahoe Transportation Plan and 30<sup>th</sup> Street Corridor Plan included a high level of community engagement and this next phase of design is expected to generate as much, or more interest by surrounding neighborhoods, business and organizations, bicycling advocacy groups and transit users.

Pursuant with the CO 7 Corridor Development Plan, an overall corridor-wide Communications Manager (to be provided by CDOT) will provide and coordinate corridor-wide communication activities and will provide oversight and corridor-related communication materials and regional stakeholder coordination for this project. As shown in the table below, the Communications Manager (to be provided by CDOT) will provide corridor-wide branding, regional coordination, regional messaging, corridor website administration, a centralized database for regional contacts and social media, and community briefings for corridor-wide progress. The public involvement plan developed by the Consultant for this project (SIU A) will reflect and integrate with the overall communications roles and responsibilities framework. Local, project-specific messaging and engagement will be led by the Consultant in coordination with the corridor-wide Communications Manager and will include, at a minimum: project-specific stakeholder engagement, project information for the corridor website, project-specific contact list, local social media communications, project-specific public involvement activities, and project-specific community briefings and events.

Communications Activities	Roles and Responsibilities	
	Corridor-Wide Communications Manager (Provided by CDOT)	Project (SIU A) Communications Specialist
Branding	X	
Regional Partners Coordination/Media Relations	X	
Messaging and Engagement	X (Regional)	X (Local)
Project Website	X	
Stakeholder Contact List	X (Regional)	X (Local)
Social Media	X (Regional)	X (Local)
Public Involvement (Townhalls, Open Houses, etc.)		X (Local)
Community Briefings and Events	X (Regional)	X (Local)



The Consultant will conduct public, agency, neighborhood and business association and special interest meetings throughout the project. The Consultant will prepare all graphic, presentation and technical materials required by CDOT. Interested people shall be notified of project activities through e-mail blasts, social media announcements and organizational newsletters. In addition, a project page will be established on the CDOT web site that shall be updated throughout the project. All public information documents will be ADA compliant and shall be translated to Spanish to accommodate Spanish-speaking residents.

CDOT will rely on the Consultant to develop a public involvement approach which responds to the unique characteristics of the project area and to the unique challenges posed by COVID-19 and the Delta variant. To that end, CDOT will not prescribe a specific public involvement strategy, but will expect the Consultant to develop an innovative approach that expands outreach beyond just a project website, public meetings, newsletters and mailings. Such approaches might include virtual meetings, text-based survey tools and the use of social media as a way to most effectively reach interested parties. Special consideration should be given to reaching underserved and low-income populations that are more difficult to reach through traditional public involvement processes.

All public facing materials, including Power Point presentations, reports, graphic materials and other documents, that are shared with the general public shall be made accessible for the visually impaired. This shall be the responsibility of the Consultants and not CDOT staff.

### **3.2 Deliverables**

- Public involvement plan
- Accurate and timely Website updates (the initial Website setup and administration will be provided by CDOT)
- Electronic copies of all outreach materials created (including maps, posters, etc.)
- Public involvement report, including public comments received
- Public Hearing(s) transcripts and appropriate responses.

### **4.0 Design Criteria**



#### 4.1 Design Criteria

Preliminary Design Criteria will be developed by the Consultant and coordinated with the CDOT/PM prior to starting the design. An overall CO7 Design Manual will be provided by CDOT as guidance for the project-specific design criteria. The Consultant shall develop the CDOT Form 463 and submit a copy upon completion. The design criteria will successfully include all State and Federal standards used on CDOT projects.

#### 4.2 Project Design Data and Standards

The consultant is responsible for obtaining and ensuring compliance with the most recent CDOT adopted version of the listed references including standards and specifications, manuals, and software or as directed by the CDOT/PM. The consultant shall also reference AASHTO Bikeway Design Guide, the City of Boulder Design and Construction Standards (DCS), consult the National Association of City Transportation Officials (NACTO) Urban Street Design Guide, NACTO Urban Bikeway Design Guide and Regional Transportation District (RTD) Design Standards. Conflicts in criteria shall be resolved by the CDOT/PM. The Consultant shall submit any proposed changes to the pertinent criteria to the CDOT/PM at one of the periodic progress meetings prior to initiating design.

#### 4.3 Project Computer Software Requirements

The consultant shall utilize the most recent CDOT adopted software with the current CDOT workspace. The primary software used by CDOT is as follows:

- |    |                       |   |
|----|-----------------------|---|
| A. | Earthwork             | OpenRoadsDesigner   |
| B. | Drafting/CADD         | OpenRoadsDesigner with CDOT's formatting configurations and standards.    |
| C. | Survey/photogrammetry | CDOT TMOSS, OpenRoadsDesigner   |
| D. | Bridge                | CDOT Staff Bridge software shall be used in either design or design check |
| E. | Estimating            | AASHTOWare Project Applications used by CDOT and P70 tools                |
| F. | Specifications        | Microsoft Word  |



- G. Scheduling    Microsoft Project
- H. Traffic Modeling                                        Synchro, VISSM

## **5.0 Affected Environment and Mitigation Measure**

As described in the CO 7 Corridor Development Plan, because this project does not include the initiation of NEPA, the environmental approach is to provide the necessary and supporting environmental analyses for the preliminary engineering and design in compliance with NEPA processes to streamline the subsequent environmental documentation to be conducted later for FIR/FOR design plans and construction. It is anticipated that the subsequent NEPA analyses, in whole or in phases, would be a CatEx level of review. The analyses for this project will therefore entail appropriate study and assessment for those key resources that could affect the preliminary design. Additional environmental analysis will then be required as part of any future NEPA analysis and documentation (not included in this RFP).

Accordingly, the Consultant will work with CDOT Region 4 staff to determine the appropriate level of NEPA-like analysis for this project. CDOT’s expectation is that the project’s limits and areas of direct impact will be within the existing transportation right-of-way (TBD) and may consequently require a lower level of environmental review, as per the environmental approach. CDOT Region 4 will provided clearances listed below.

The following environmental analyses, as appropriate, are to be included with the project to support the preliminary engineering design and to facilitate future NEPA analyses and documentation:

### **5.1 Historic Survey**

As appropriate, prepare an area of potential affect (APE) based on conceptual design project area and conduct a survey of properties within the APE that include structures greater than 40 years of age for the Corridor to identify eligible and potentially-eligible properties for the NRHP. Consultation with SHPO in accordance with Section 106 will be conducted by CDOT.

### **5.2 Parks, Trails and Open Space**

Review parks, open space, and trails along the Corridor to identify Section 4(f) and Section 6(f) properties; coordinate with the preliminary design for any necessary design



alternatives analyses to avoid and minimize impacts; and develop a potential mitigation strategy, as needed, for potentially impacted sites.

In addition, the following resources are to be identified, mapped, and characterized which could potentially affect the project design and/or facilitate the future NEPA analyses.

If impacts are found and are relevant to the preliminary design, appropriate mitigation measures will be determined and incorporated into the design. Those resources not present within the limits of the project should be noted. Additionally, those resources present, but not impacted should be discussed. Collection and identification of resources will be performed in ArcGIS, as appropriate, and coordinated with the overall CO7 ArcGIS database pursuant with the CDOT-provided structure and organization.

- a. Land Use – not anticipated to be included (CDOT in-house clearance)
- b. Economic Considerations – not anticipated to be included
- c. Right-of-Way and Relocations
- d. Social Impacts and Community Facilities – not anticipated to be included
- e. Environmental Justice – not anticipated to be included (CDOT in-house clearance)
- f. Cultural / and Section 106 (Historic listed above)
- g. Parklands, Recreation Resources and 4(f) / 6(f) Evaluation (listed above) (CDOT in-house clearance)
- h. Public Safety and Security
- i. Visual and Aesthetic Resources – not anticipated to be included
- j. Air Quality – not anticipated to be included
- k. Noise and Vibration (listed above)
- l. Biological Assessment (CDOT in-house clearance)
- m. Mineral Resources / Geology / Soils (CDOT in-house clearance)
- n. Farmlands (CDOT in-house clearance)
- o. Hazardous Materials (CDOT in-house clearance)
- p. Utilities (CDOT in-house clearance)
- q. Energy – not anticipated to be included
- r. Water Resources and Water Quality
- s. Wetlands / Waters of the U. S. (CDOT in-house clearance)

### **5.3 Deliverables**

Documentation for each resource.





## 6.0 Design Process

The goal of the design process is to prepare engineering design packages to help establish budget and right-of-way needed for CO 7 from 28<sup>th</sup> Street to 64<sup>th</sup> Street, conduct sufficient engineering to document environmental impacts, and to prepare the the corridor to enter into Field Inspection Review (FIR) plans.

### 6.1 Survey and Right-of-Way

Use available Mobile and Aerial LiDAR digital orthophoto mosaic mapping and topography Digital Terrain Model (to be provided by CDOT). Additional design surveys to support the 15% design will be provided by the Consultant, as needed. Consultant shall collect and map available right-of-way information from assessors and other available sources to map within the ArcGIS database and show on the preliminary design plans.

### 6.2 Utilities

Determine existing utility relocations, abandonments, and proposed utilities. Existing and proposed utilities are to be shown including water, sanitation, fiber, and electrical and provided in the ArcGIS dataset and 15% plans. A Subsurface Utility Engineering (SUE) investigation is not anticipated. The utilities investigation will include:

- Location Maps - Obtain utility location maps from the Utility Companies which identify utility features in the project area. Requests and receipt of maps will be coordinated with the Region Utility Engineer via copies of request and transmittal letters.
- Reviews and Investigations - Conduct field reviews and utility investigations with the Region Utility Engineer and Utility companies, as required, to ensure correct horizontal and vertical utility data. When possible this will be done utilizing non-destructive investigative techniques. The horizontal and vertical locations will be shown in the 15% plans and cross sections.
- Incorporate utility locations in plans from utility survey/mapping.
- Relocation Recommendations – Provide utility relocation preliminary designs as necessary in the plans.
- Ditch Company Coordination - Contact ditch companies through the Region Utility Engineer to coordinate ditch requirements and restrictions. Develop the plans for the necessary irrigation structures and submit to the Region Utility Engineer for Ditch Company review.



### **6.3 Hydraulics**

Preliminary drainage study shall be conducted using the methodology found in the CDOT Drainage Manual and in compliance with City of Boulder DCS and Floodplain Standards. Where existing drainage, hydraulic and hydrology information is provided from other studies within the project limits, this information shall be used in lieu of conducting a new drainage study. Design standards will reflect the strictest of standards outlined by the City of Boulder, CDOT, and MHFD.

### **6.4 Geotech**

Existing soils information from within the study area shall be obtained and included in the information provided. Additional soil boring shall not be required for design process.

### **6.5 Traffic**

Modifications of intersections and surrounding traffic signals shall be analyzed and documented to accommodate proposed improvements or any other signal modifications as identified from the transportation operations analysis (i.e. signal cabinets and software). Mainline traffic volumes (to be provided by CDOT), lane utilization, corridor operations and intersection performance shall be modeled and evaluated in VISSM, including transit, to determine ideal configurations. This traffic analysis will update the East Arapahoe Transportation Plan [Vehicle Operations Analysis](#) completed in 2018.

- Summary of MOEs including Intersection and network-wide delay, queuing, VMT, etc.(tbd).
- LCCA or BCA including at least safety costs, user costs and capital cost considerations.

### **6.6 Typical Sections**

Typical sections shall show existing and proposed sections for the roadway, all bicycle and pedestrian facilities, landscaping, transit lanes/facilities, bus stops and BRT stations.

### **6.7 Plan and Profile**

Plan and profile sheets shall at a minimum contain:

- Existing and proposed roadways including all transit, bike and pedestrian facilities, striping, intersections, right of way, storm drainage and culverts, ditches, direction of flow, structures, utilities (location, type, size, buried or aerial),



bus platforms, bus shelters & seating, bike parking, access roads, railroad tracks, additional topography( i.e. trees, fences, sidewalks, bike paths, signals, other significant features),.

- Proposed roadway geometry shall be shown on the plan sheets.
- Profile grades shall be shown for any roadway, bus ramps and busways, and intersection improvements.
- Proposed drainage improvements shall be shown on the plan and profile sheets and shall include culverts, storm sewers, inlets, drainage ditches, and detention/retention ponds.
- Proposed structures shall be shown on the plan and profile sheets.
- Proposed utility improvements shall be shown on the plan and profile sheets (i.e. power, communication conduit, lighting, water, sanitary).
- Property ownerships and utility ownerships and contacts shall be indicated.
- Horizontal and vertical control line shall be located between the inside travel lane and inside shoulder or center line of arterial streets.
- BRT stations and bus stops with platforms, passenger waiting areas, shelters, seating, fare collection devices, and real time bus arrival information displays shall be shown.

## **6.8 Phased Implementation Plan**

A Phasing Plan shall be developed that includes the following information:

- Recommended segmentation of project, assuming it will be implemented in phases over time.
- The consultant shall make recommendations regarding a phasing plan that is geographic based or elemental/facilitie based
- Cost estimates shall be reflective of the phasing plan and include inflationary escalations to match estimates of when project segments will be constructed
- Identify elements in the corridor that would benefit from a single construction corridor wide effort

## **6.9 Cross Sections**

Along CO 7, cross sections shall be cut every 100 feet showing proposed roadway, drainage, utilities, structures, and other predominant features.



## 6.10 Cost Estimates

Cost estimates shall be developed based on the design plans specified above. CDOT's P70 tool shall be used throughout the design process and at the various stages of design from scoping to final.

## 6.11 Deliverables

- Design plan set and/or rollplots and estimates.
- Memo Identifying technical challenges to implementation.
- Memo Identifying approvals and necessary permits needed from local and other agencies.
- Identify neighborhood groups, stakeholders and community members affected by proposed construction plans.
- Cost estimates for scope items.
- Phased Implementation plan
- Traffic Operations Report