



# I-25 Central PEL

## PURPOSE AND NEED

May 31, 2018 (approved per May 25, 2018 Executive Oversight Committee meeting revisions)

---

### Introduction

The Colorado Department of Transportation (CDOT), with Federal Highway Administration (FHWA) oversight, is conducting a Planning and Environmental Linkages (PEL) Study for the portion of Interstate 25 (I-25) located in central Denver. I-25 is the primary north-south interstate through the densest part of the metro area. This section of I-25, from approximately Santa Fe Drive to 20th Street: is critical to the local, regional, and interstate transportation network; regularly experiences severe and extended congestion; and, does not have a current improvement plan. Stakeholder agencies include the City and County of Denver (Denver), Regional Transportation District (RTD), and Denver Regional Council of Governments (DRCOG).

The Purpose and Need Statement for potential transportation improvements in the I-25 Central Corridor was developed after analysis of existing conditions and in coordination with stakeholder agencies and the public. The Purpose is a concise statement defining the transportation problem to be solved. The Needs identify specific deficiencies recognized through analysis of existing conditions and provide data to support the Purpose statement. The Needs for the project are summarized below and fully documented in the Corridor Conditions Report (in development, to be completed summer 2018), which has been prepared as part of this PEL study. Thorough documentation of the process and recommendations is a critical element of a PEL study so decisions can be used in future NEPA processes and project delivery.

### Planning Context

The I-25 Central Corridor is critical for moving people and goods to and from downtown Denver while also providing access to other major transportation corridors, including U.S. Highway 85 (US 85/Santa Fe Drive), U.S. Highway 6 (US 6/6th Avenue), and U.S. Highway 40 (US 40/Colfax Avenue). It is the primary north-south corridor to move through central Denver, connecting communities north and south of Denver and along the Front Range. The I-25 Central Corridor parallels the South Platte River, an environmental asset to the local community, and the South Platte River Trail, an important regional bicycling and recreation facility. I-25 also parallels the Consolidated Mainline Railroad tracks, which support important freight movements within and through the state. Collectively, I-25, the river, trail, and railroad tracks provide significant capacity for north south movements but also create a major barrier for east/west connectivity for all modes of transportation (vehicular, transit, bicycle, and pedestrian) through central Denver.

By 2040, population within the Study Area is projected to almost double (25,836 in 2015 to 43,986), Denver is expected to grow by approximately 180,000 people (27 percent), and the Denver region (DRCOG area) is expected to increase by 1.2 million people (37 percent) which is expected to result in increased travel demand through the corridor. Additionally, large parcels of land along the corridor are in various stages of planning and redevelopment, which may contribute to increased demand or changed travel patterns throughout the study area. Responding to this planned growth is critical for the continued economic vitality of the region. It is equally important to consider impacts to the existing land uses adjacent to the interstate if expansion or alignment shifts are proposed.

Several planning studies have been considered during this PEL Study, including but not limited to:

- Vision Zero initiatives
- DRCOG's 2040 MetroVision Regional Transportation Plan
- Valley Highway EIS
- River South Greenway Master Plan
- Sun Valley EcoDistrict Plan
- Stadium District Plan
- Blueprint Denver
- Denver Moves: Transit
- Denver Moves: Pedestrian and Trails
- Denver Moves: Enhanced Bikeways
- Denver Moves: Downtown
- Smart Cities initiatives
- Mobility Action Plan
- Downtown Area Plan Amendment
- State Highway Freight Plan

## Purpose

The purpose of the recommended transportation improvements in the I-25 Central Corridor between approximately Santa Fe Drive and 20th Street is to reduce congestion and improve safety and travel-time reliability for the movement of people and goods. The improvements will also consider access to and from I-25 as well as connectivity across I-25 for bicycles, pedestrians, transit and local traffic.

## Need

### 1. Improve Safety

#### 1.1. High number of crashes

With three crashes per day / 1,000 per year, 20 percent of which result in an injury or fatality, this portion of I-25 is at or above the 80th percentile for crashes compared to similar facilities in Colorado. There is a high potential for crash reductions.

#### 1.2. Poor structural conditions

At least three bridges have substandard clearance and are functionally obsolete, with vertical clearance as low as 13 feet 0 inches. This sometimes causes tall vehicles to swerve and merge into center lanes, and results in frequent bridge strikes.

#### 1.3. Mainline and ramp geometry and design standards increase the likelihood of crashes including:

1.3.1 Multiple locations do not meet minimum ramp-spacing standards which creates shorter than desirable distances for vehicles to safely enter or exit the highway. This concern is exacerbated by the fact that approximately 80 percent of the traffic volume on I-25 in the study area either exits or enters the highway in the corridor study area.

1.3.2 Ramp design and geometric conditions (i.e., horizontal alignment) are substandard on numerous ramps. Approximately 20 percent of all I-25 crashes are associated with a ramp or ramp terminal.

1.3.3 Mainline and ramps have consistently deficient lane/shoulder width, superelevation, and stopping sight distance.

## **2. Reduce Traffic Congestion**

- 2.1. The corridor experiences over 8 hours of congested traffic conditions daily.
- 2.2. Northbound and southbound delays are spread across three hours in the morning peak period and 5 hours in the evening peak period.
- 2.3. The facility carries traffic volumes of over 250,000 vehicles per day (350,000 people at a vehicle occupancy rate of 1.4), which greatly exceeds the 150,000 vehicles per day capacity of a typical 8-lane freeway.
- 2.4. Anticipated local and regional growth is expected to increase trip-making demand and traffic volumes on I-25 by at least 10 percent by 2040. Based on current planning efforts, substantial additional development in the corridor may increase travel demand beyond current forecasting expectations.
- 2.5. The corridor does not have adequate infrastructure to accommodate traffic associated with the number of high-volume special events that routinely impact operations (such as those from Mile High Stadium, Pepsi Center, Coors Field, etc.).
- 2.6. Congestion on the highway regularly causes “spill-back” of traffic onto the local street network.
- 2.7. Limited capacity and convenience of local network roads (crossing, and parallel to I-25) causes many travellers to make short trips on I-25, increasing friction and congestion on the mainline by adding a high volume of weave and merge movements.
  - 2.7.1 Currently there are only 11 roadway crossings for vehicles.
  - 2.7.2 There are pedestrian and bicycle facilities on 10 of the 11 vehicle crossings (not 6th Avenue). Many are substandard and therefore uninviting. There is one additional bicycle/pedestrian bridge at 16th Street.

## **3. Improve Travel Time Reliability**

- 3.1. The 1,000 crashes per year and additional breakdown type incidents (served by the CDOT Motorist Safety Patrol program) seriously impact travel reliability in the corridor. Infrastructure accommodations and incident management efforts must be improved, as each incident causes four minutes of delay for every one minute in place
- 3.2. Beyond the regularly expected congestion, a major event or incident occurs once every 3-4 days, causing substantial traffic delays and creating unpredictable travel times.
- 3.3. Substandard shoulder widths and lack of refuge areas provide few locations for disabled vehicles and hinder emergency response activities. This often results in closure of mainline lanes during emergency-response activities, resulting in increased congestion (delay and duration) and the likelihood of secondary crashes.

## **Goals**

1. Investigate opportunities to improve mainline geometry and design to meet current standards and address substandard:
  - Stopping-sight distance
  - Clear zones
  - Narrow lane widths and narrow shoulder widths
2. Investigate opportunities to use and/or not preclude emerging technologies to improve the safety, capacity, and management of mainline operations
3. Provide efficient access to major parallel routes and corridor destinations
4. Consider the impacts and benefits of proposed improvements on the local network
5. Improve connectivity across I-25 and the South Platte River for all modes
6. Consider the impacts of adjacent high-density redevelopment and the related potential changes in travel demand on I-25
7. Consider the impact of congestion improvements on southbound I-25 in relation to improved operation for southbound RTD buses
8. Consider the impacts and benefits on freight movement in the corridor
9. Consider the ability of improvements to the mainline and local network to improve person-trip connectivity
10. Consider the effects of improvements on the South Platte River and the surrounding communities
11. Consider the effects of expanded ROW on adjacent land uses
12. Consider the ability of improvements to provide community and environmental enhancements
13. Consider the ability of improvements to support economic development opportunities in the metro Denver area