

## 1.1 INTRODUCTION

The Federal Highway Administration (FHWA) and Federal Transit Administration (FTA), in cooperation with the Colorado Department of Transportation (CDOT) and the Regional Transportation District (RTD), have jointly prepared this Final Environmental Impact Statement (FEIS) to identify and evaluate impacts of multi-modal transportation improvements in the United States Highway 36 (US 36) corridor. This project follows the National Environmental Policy Act of 1969 (NEPA)/Section 404 merger process as agreed to and modified by the U.S. Army Corps of Engineers (USACE), FHWA, and CDOT. The NEPA/Section 404 merger process is guided by and supports the requirements of Section 404 of the Clean Water Act (Public Law 92-500, as amended), and U.S. Environmental Protection Agency regulations (40 Code of Federal Regulations ([CFR] Part 230 et seq.). This process has involved consultation and coordination with the USACE throughout the NEPA process. The USACE is a cooperating agency. Recently, the application of the NEPA/Section 404 merger process has been modified for this project because of a change in the Section 404 requirements for final mitigation plans. Originally, the plan for this project was to apply for the Section 404 Permit with the release of the FEIS to the public. Because of the more stringent requirements for final mitigation plans, all parties involved have agreed to postpone the application for the Section 404 Permit until all the requirements can be met and before there are any impacts to waters of the United States (U.S.).

This FEIS has been prepared in compliance with the Council on Environmental Quality regulations for implementing NEPA (40 CFR 1500 et seq.), FHWA's and FTA's environmental impact and related regulations (23 CFR 771), the FHWA Technical Advisory T 6640.8A (Guidance for Preparing and Processing Environmental and Section 4[f] documents), and other applicable laws.

### Project Location

The US 36 corridor considered in this study is an existing highway alignment between Interstate 25 (I-25) in Adams County and Foothills Parkway/Table Mesa Drive in Boulder (a distance of approximately 18 miles). This portion of US 36 consists of four main through-lanes (two in each direction), and 10 major interchanges (Broadway, Pecos Street, Federal Boulevard, Sheridan Boulevard/92<sup>nd</sup> Avenue, Church Ranch Boulevard/104<sup>th</sup> Avenue, Wadsworth Parkway, East Flatiron Circle, 96<sup>th</sup> Street/Interlocken Loop, McCaslin Boulevard, and Foothills Parkway/Table Mesa Drive). The project area (Figure 1.1-1, US 36 Corridor Project Area) includes portions of several communities in the northwest Denver metropolitan area, including the City and County of Denver, the City of Westminster, the City and County of Broomfield, the City of Louisville, the Town of Superior, the City of Boulder, and portions of unincorporated Adams, Jefferson, and Boulder counties. Appendix A, Corridor Reference Maps, provides detailed aerial photographs of the US 36 corridor.

*The project area includes an existing 18-mile highway alignment between Denver and Boulder.*



## **The National Environmental Policy Act of 1969 Process**

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NEPA requires federal agencies to prepare an Environmental Impact Statement (EIS) for any major federal action that may significantly affect the environment.

This FEIS describes the reasonable alternatives and resulting packages of alternatives considered for improvements in the project area. The alternatives subjected to the evaluation process include general-purpose lanes, high-occupancy vehicle (HOV) lanes, managed lanes, bus improvements, new arterial lanes, and bicycle facilities. In the evaluation process, alternatives were initially considered as stand-alone elements and then were grouped together and evaluated as packages of improvements that specifically address the transportation needs in the US 36 corridor. The packages that emerged from the evaluation process, including the Combined Alternative Package (Preferred Alternative), are evaluated in detail in this FEIS. The alternatives and evaluation process are described in more detail in Chapter 2, Alternatives Considered.

This FEIS presents four packages, including the Combined Alternative Package (Preferred Alternative), and the impacts associated with each. It also includes measures to avoid and minimize impacts, and mitigation measures for those unavoidable impacts. In addition, this FEIS describes and discusses impacts of the Combined Alternative Package (Preferred Alternative) by implementation phases.

The FEIS incorporates final revisions made to the Draft Environmental Impact Statement (DEIS) based on the public and government agency comments received to date. The FEIS contains responses to all the public comments obtained during the DEIS review period and during the public hearings. Like the DEIS, this FEIS is available for review and comment to interested parties, including state and federal agencies, citizens, and elected officials. During the FEIS review period of 45 days, a public hearing will be held and final comments recorded.

Concurrence from the USACE that the Combined Alternative Package (Preferred Alternative) appears to be the Least Environmentally Damaging Practicable Alternative (LEDPA) has been received (see Appendix B, Consultation and Coordination), in accordance with the NEPA/Section 404 merger process, Section 404(b)(1) regulations and guidance. The remaining steps in the NEPA/Section 404 merger process require applying for a Section 404 Permit to gain concurrence from the USACE that the Preferred Alternative is the LEDPA and that the mitigation meets the regulatory requirements. Because of recent changes in the mitigation requirements, these steps required a modification of the NEPA/Section 404 merger process. CDOT, FHWA, and the USACE have agreed that the application for the Section 404 Permit will be postponed until compliance with the final mitigation rule is achieved (see Appendix B, Consultation and Coordination). The application for the Section 404 Permit will be made before any waters of the U.S. are impacted and likely after the Record of Decision (ROD) is issued.

The next step in the EIS process is preparation of a ROD that will document the federal agencies' decision and commitments for the project. The ROD includes not only the components of the project, but also the mitigation and monitoring requirements accepted by FHWA, FTA (if applicable), CDOT, and RTD. The findings and commitments stated in the EIS are enforceable by law under NEPA. The ROD will identify funding for the approved action consistent with the fiscally constrained Regional Transportation Plan (RTP).

Due to the length of the corridor, the extent and cost of improvements recommended for this corridor, and the federal requirement that a project be listed in the region's conforming fiscally constrained RTP before a ROD can be signed, US 36 corridor improvements will be approved in phases. Therefore, a series of RODs will be issued for this project, and the Combined Alternative Package (Preferred Alternative) improvements will be made over time and as funding is available. Chapter 8, Phased Project Implementation, describes how the project may be broken into phases.



## 1.2 BACKGROUND AND PROJECT HISTORY

### Roadways

The US 36 corridor was initially built as a toll road that opened to traffic in 1951. At the time, this four-lane road had one access point, located in Broomfield between Denver and Boulder. The toll road bonds were paid off early, and the toll facilities were removed in 1968. Since the early 1950s, the expansion of the Denver metropolitan area has led to additional housing and employment development, thereby altering the travel patterns in the northwest quadrant of the Denver region. There are now 10 interchanges along US 36 between I-25 and 28<sup>th</sup> Street in Boulder; however, the number of main through-lanes has remained at four.

### Transit Service and Facilities

The US 36 corridor has a strong history of transit service. According to RTD, US 36 has the highest bus ridership of any FasTracks corridor, and the highest ridership of any regional bus corridor in the RTD system. The US 36 corridor is currently served by RTD’s express, regional, and skyRide bus routes, complemented by local service that feeds into the system at the following US 36 park-n-Ride facilities: Broadway, Westminster Center, Church Ranch, Broomfield, East Flatiron, Superior/Louisville, and Table Mesa. Ridership in the northern metropolitan area has increased more than 80 percent in the past 12 years and RTD continues to add new service in response to the high levels of demand. Park-n-Ride facilities are near capacity at most locations along the US 36 corridor.

### Pedestrian/Bicycle Facilities

Pedestrian and bicycle facilities along the US 36 corridor are limited to local bikepaths and designated bike lanes. Currently, no continuous bikeway exists between Denver and Boulder. There are many institutions and activity centers in the corridor that generate bicycle travel demand, including the University of Colorado and the federal laboratories in Boulder, Front Range Community College in Westminster, and the Interlocken Business Park in Broomfield.

The corridor is represented by several bicycle advocacy groups. Local jurisdictions in the corridor produce and update a regional bicycle facilities map, *Bike Links 36 Regional Bicycle Map* (2006). These jurisdictions also document the missing links that, if built, would facilitate intra-corridor bicycle use. The US 36 bikeway is included on the multi-jurisdictional missing links planning map as a desired facility. Partial funding for the US 36 bikeway is included as a part of the FasTracks Program.

### Summary of Past and Ongoing Studies

Several studies have analyzed improvements to portions of the US 36 corridor since the late 1960s, as shown on Table 1.2-1, Summary of Previous and Ongoing US 36 Corridor Studies.

**Table 1.2-1: Summary of Previous and Ongoing US 36 Corridor Studies**

Date	Agency/Title	Summary
1983	<i>Turnpike Corridor Technical Feasibility Study</i> (RTD)	Studied the technical feasibility of rapid transit in the turnpike corridor.
1995	<i>US 36 Corridor Study</i> (prepared by a coalition of jurisdictions in the corridor)	Identified and evaluated, in a cursory manner, various strategies to recommend to decision makers.
1999	<i>US 36 Wadsworth Broomfield Interchange System Project Level Feasibility Study, Interchange Management Plan, and park-n-Ride Relocation Analysis</i> (CDOT)	Studied interchange reconfiguration and park-n-Ride relocation.
2000	<i>North Front Range Transportation Alternatives Feasibility Study</i> (CDOT)	Recommended future commuter rail line between Fort Collins, Longmont, Boulder, and Denver.

**Table 1.2-1: Summary of Previous and Ongoing US 36 Corridor Studies**

Date	Agency/Title	Summary
2001	<i>US 36 Major Investment Study</i> (RTD)	Recommended highway widening, HOV lanes, BRT, commuter rail service, and alternate transportation improvements.
2005	<i>120<sup>th</sup> Connection Environmental Assessment</i> (CDOT)	Studied reconstruction of the interchange and east/west extension of SH 128 across US 36. Received Finding of No Significant Impact from FHWA and the re-evaluation approved in 2008.
2005	<i>Safety Assessment Report for US 36 Corridor</i> (CDOT)	Assessed the nature and magnitude of safety problems in the US 36 corridor.
2008	<i>Denver Union Station EIS/ROD</i> (RTD)	EIS for regional multi-modal transportation center at DUS. ROD signed in October 2008.
2008	<i>Northwest Corridor Environmental Planning Study</i> (CDOT)	Planning Study for transportation linkage between US 36 and I-70 was published in July 2008.
2003/Ongoing	<i>North I-25 DEIS</i> (CDOT/RTD)	DEIS for corridor along I-25 and the BNSF corridor from DUS to Fort Collins was published in October 2008. The FEIS is in process.
2003/Ongoing	<i>East Corridor DEIS/Basic Engineering</i> (RTD)	EIS and basic engineering for transit improvements between downtown Denver and DIA was published in January 2009. The FEIS was released in September 2009.
2003/Ongoing	<i>I-70 East DEIS</i> (CDOT)	EIS for I-70 corridor between I-25 and Tower Road was published in November 2008.
2007/Ongoing	<i>Northwest Rail EE/EA</i> (RTD/USACE)	EE/EA to study commuter rail line along the BNSF between Denver, Boulder, and Longmont.
2008/Ongoing	<i>I-70 Central Park Boulevard EA/FONSI</i> (CDOT)	EA to study new interchange at Central Park Boulevard on I-70. FONSI was signed by FHWA in August 2009.

Source: US 36 Mobility Partnership, 2008; CDOT, 2009.

Notes:

- BNSF = Burlington Northern Santa Fe
- BRT = bus rapid transit
- CDOT = Colorado Department of Transportation
- DEIS = Draft Environmental Impact Statement
- DIA = Denver International Airport
- DUS = Denver Union Station
- EA = Environmental Assessment
- EE = Environmental Evaluation
- EIS = Environmental Impact Statement
- FEIS = Final Environmental Impact Statement
- FHWA = Federal Highway Administration
- FONSI = Finding of No Significant Impact
- HOV = high-occupancy vehicle
- I-25 = Interstate 25
- I-70 = Interstate 70
- ROD = Record of Decision
- RTD = Regional Transportation District
- SH = State Highway
- USACE = U. S. Army Corps of Engineers
- US 36 = United States Highway 36

The *US 36 Major Investment Study* (RTD 2001), the most recent corridor-wide study aside from the US 36 Corridor FEIS, concluded with approval of a locally preferred alternative (LPA) by the cities and counties in the US 36 corridor. The LPA was a multi-modal package of improvements, including highway widening, HOV lanes, bus rapid transit (BRT), commuter rail service along the BNSF Railway, and alternate transportation improvements, such as bicycle facilities. This FEIS evaluates alternatives that were in the *US 36 Major Investment Study* (RTD 2001) and other reasonable alternatives proposed during the scoping period for this project.

## Relationship to Regional Planning Process

The Metropolitan Planning Organization for the region is the Denver Regional Council of Governments (DRCOG). The DRCOG Board of Directors adopted the *Metro Vision 2035 Regional Transportation Plan (2035 MVRTP)* in December 2007 and amended it in 2009 (DRCOG 2009). This long-range RTP focuses on improving multi-modal transportation facilities, establishing inter-modal connections, and providing transportation programs and services.

The overall vision of the plan for the Denver metropolitan area is “a dynamic mixture of distinct pedestrian-friendly urban and suburban communities within a limited area...distinguished by a transportation system that includes sidewalks, bikepaths, bus service, rail transit, and roads; plentiful parks and open space; and clean air and water” (DRCOG 2007). Numerous policies identified in the *2035 MVRTP*, as amended (DRCOG 2009) are consistent with the needs identified in the US 36 corridor. Highlights of the key transportation-related policies from the plan include:

*The Denver Regional Council of Governments is the Metropolitan Planning Organization for the Denver metropolitan area.*

- Expanding capacity of existing roadways in the most critically congested corridors and at key traffic bottlenecks, and encouraging access controls to maintain capacity.
- Providing increased transit service and facilities that stimulate travel by means other than the single-occupant vehicle (SOV), encourage transit-oriented developments, and provide mobility options.
- Assuring the preservation and maintenance of existing facilities.
- Providing bicycle and pedestrian access through and between developments, and providing links to transit facilities.
- Developing and maintaining a safe transportation system for all of its users.
- Making the best use of existing transportation facilities by implementing measures that actively manage and integrate systems, improve traffic operations, and reduce the demand for single-occupant motor vehicle travel.

In addition, the DRCOG congestion management process documents also identify US 36 as a key congested corridor.

Estimated to cost \$1.3 billion (2008 year dollars), the Combined Alternative Package (Preferred Alternative) for the US 36 project is included in the *2035 MVRTP*, as amended (DRCOG 2009). The project, however, is only partially funded in the plan, meaning that the project will need to be phased over time as additional funding becomes available. At this time, a total of \$515.7 million (2008 dollars) is identified from DRCOG, CDOT, and local funding sources, with an additional \$195.4 million contribution from RTD.

Consistent with the proposed project phasing, the following elements are deemed to be fundable between now and 2035, and therefore are included in the RTP:

- Reconstruction of the Sheridan Boulevard and US 36 interchange.
- Reconstruction of the Wadsworth Parkway and US 36 interchange.
- Addition of managed lanes on US 36 from Foothills Parkway to I-25.
- Addition of BRT lanes on US 36 and a bikeway parallel to US 36 (FasTracks).





## 1.3 PURPOSE OF AND NEED FOR THE ACTION

The purpose of improvements in the US 36 corridor is to improve mobility along the US 36 corridor from I-25 in Adams County to Foothills Parkway/Table Mesa Drive in Boulder, and among intermediate destinations. The transportation needs of the project are listed below and described further in the following sections.

1. Increase trip capacity.
2. Expand access.
3. Provide congestion relief.
4. Expand mode of travel options.
5. Increase efficiency of transit service.
6. Update outdated highway facilities.

### **Transportation Need #1: Increase Trip Capacity**

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Historical growth in population and employment has resulted in increased travel demand within the US 36 corridor. Additional growth is forecasted. One of the ways to respond to this continued growth is to increase trip capacity of the highway.

Substantial residential and employment growth along the US 36 corridor during the late 1990s, which continues today, has greatly increased the demand placed on the highway. According to DRCOG, in 2005, the population in the US 36 project area was estimated to be 505,900 and is expected to grow to 649,100 in 2035 — a 28 percent increase. As a whole, the population in the region is expected to increase from 2.7 million in 2005 to 4.4 million in 2035 — a 63 percent increase, as illustrated in Figure 1.3-1, Anticipated Population Growth. Areas of high growth are predicted in the middle portion of the US 36 corridor, as well as on the eastern end in Adams County. These growth areas will generate additional travel demand for use of routes through and within the corridor (DRCOG 2008).

DRCOG estimated employment in the project area to be 332,500 in 2005 and it is expected to grow to 508,500 in 2035 — a 53 percent increase, as illustrated in Figure 1.3-2, Anticipated Employment Growth. Overall employment in the region is expected to increase by 69 percent, from 1.3 million in 2005 to 2.2 million in 2035. Boulder, with over 78,000 employees, has the region's third-largest employment concentration. In the project area, retail employment is expected to grow by 47 percent between now and 2035 and is projected to be the fastest-growing component of employment growth, indicating an increasing number of regional shopping centers (DRCOG 2008). Areas of high employment growth are predicted in the middle portion of the US 36 corridor, primarily north and south of US 36 and west of US 287 in Broomfield. The Interlocken Business Park in Broomfield on the south side of US 36 will experience substantial employment increases, as will some areas within the City of Boulder. Employment growth is also predicted in Adams County, particularly south of US 36. Population and employment growth will result in increased travel demand and the need for increased trip capacity.

The analysis summarized in Figure 1.3-3, US 36 2035 a.m. Peak-Hour Travel Demand, shows that the capacity available in the US 36 corridor in 2035 will not be adequate to meet projected travel demand unless substantial improvements are made. Figure 1.3-3 compares the projected travel demand in 2035 to existing highway and transit capacity during the a.m. peak-hour. The comparison is made at eight locations along the highway. The demand that can be accommodated by the existing system is shown in dark blue and labeled as "Demand Served."

Figure 1.3-1: Anticipated Population Growth

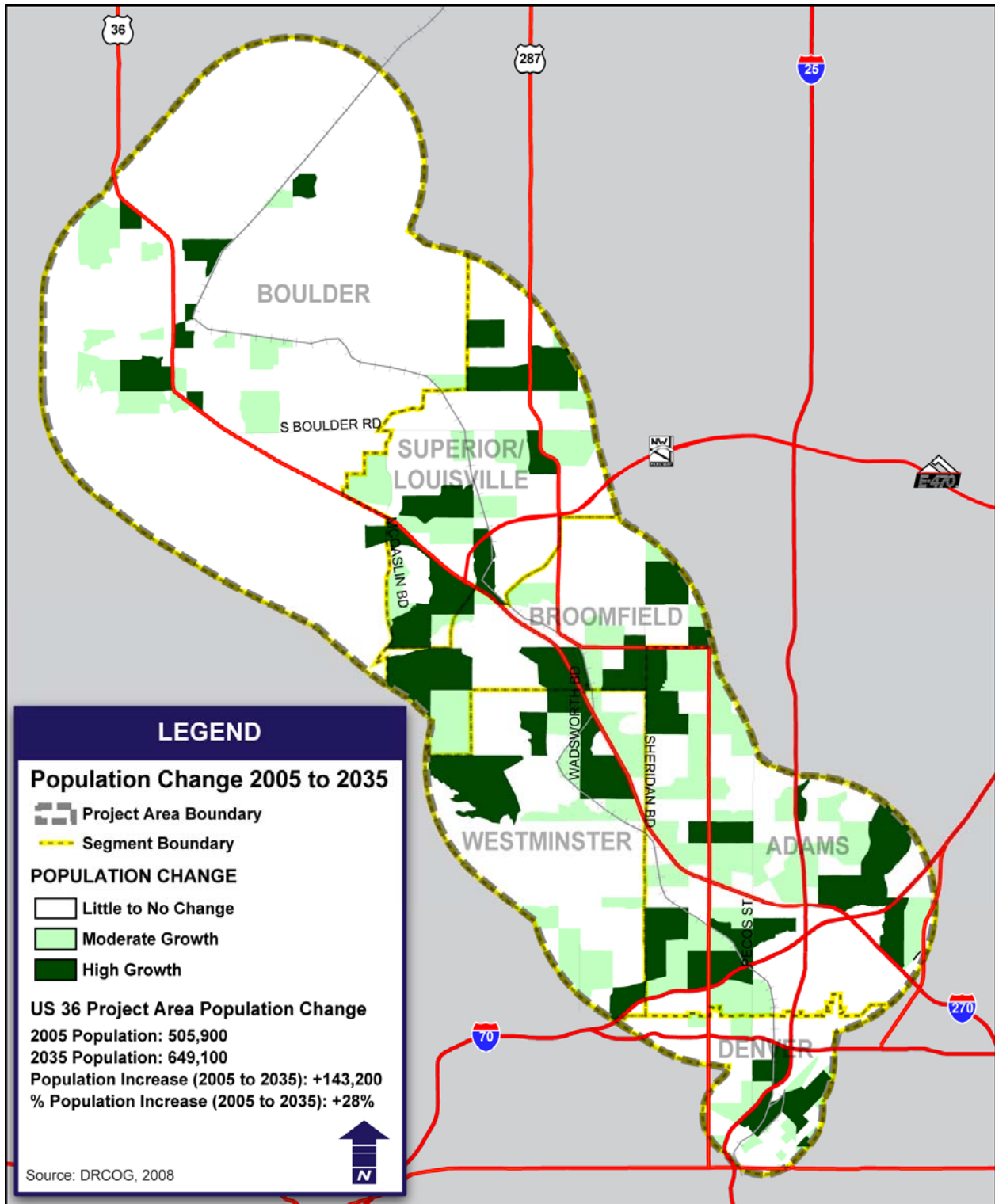


Figure 1.3-2: Anticipated Employment Growth

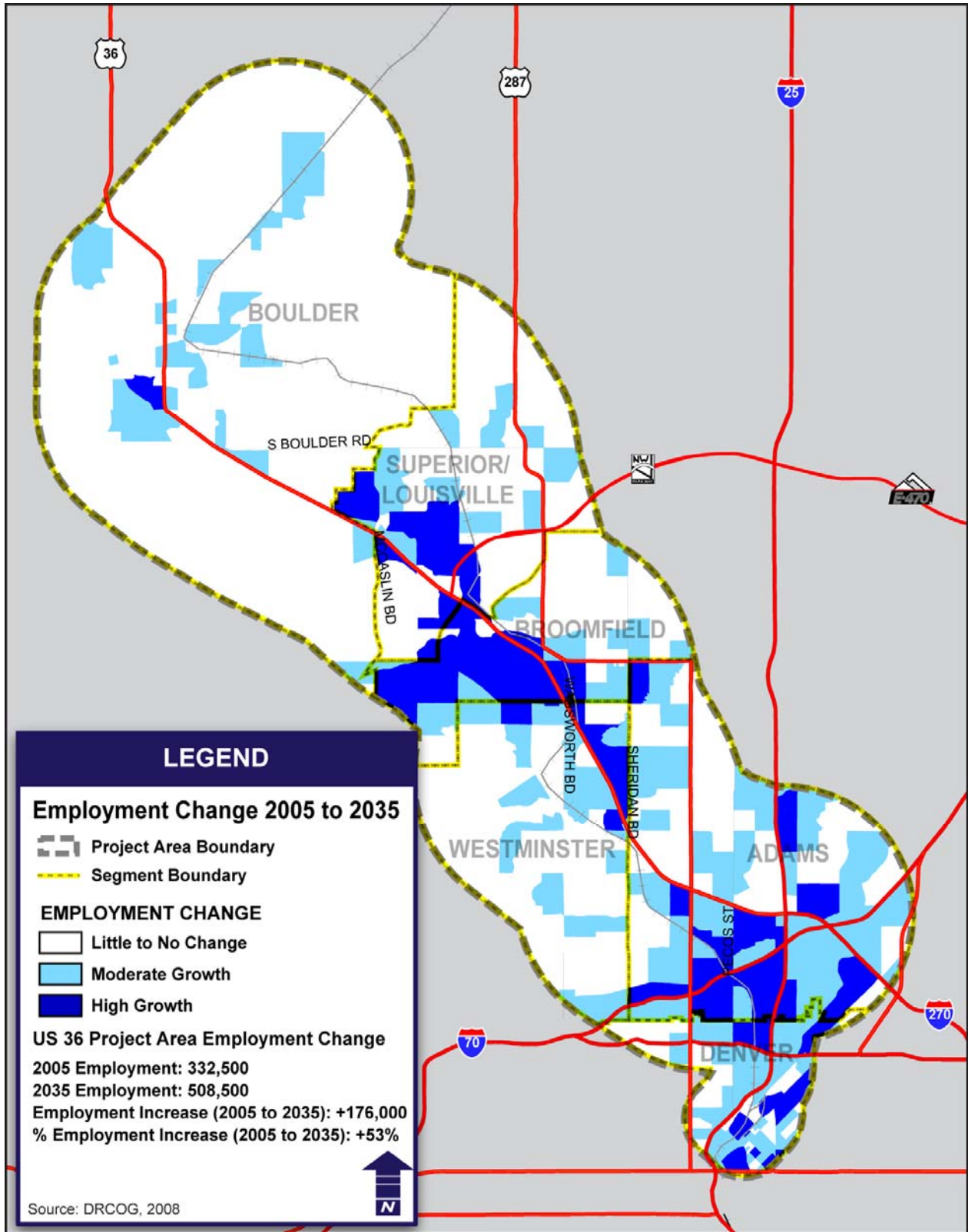
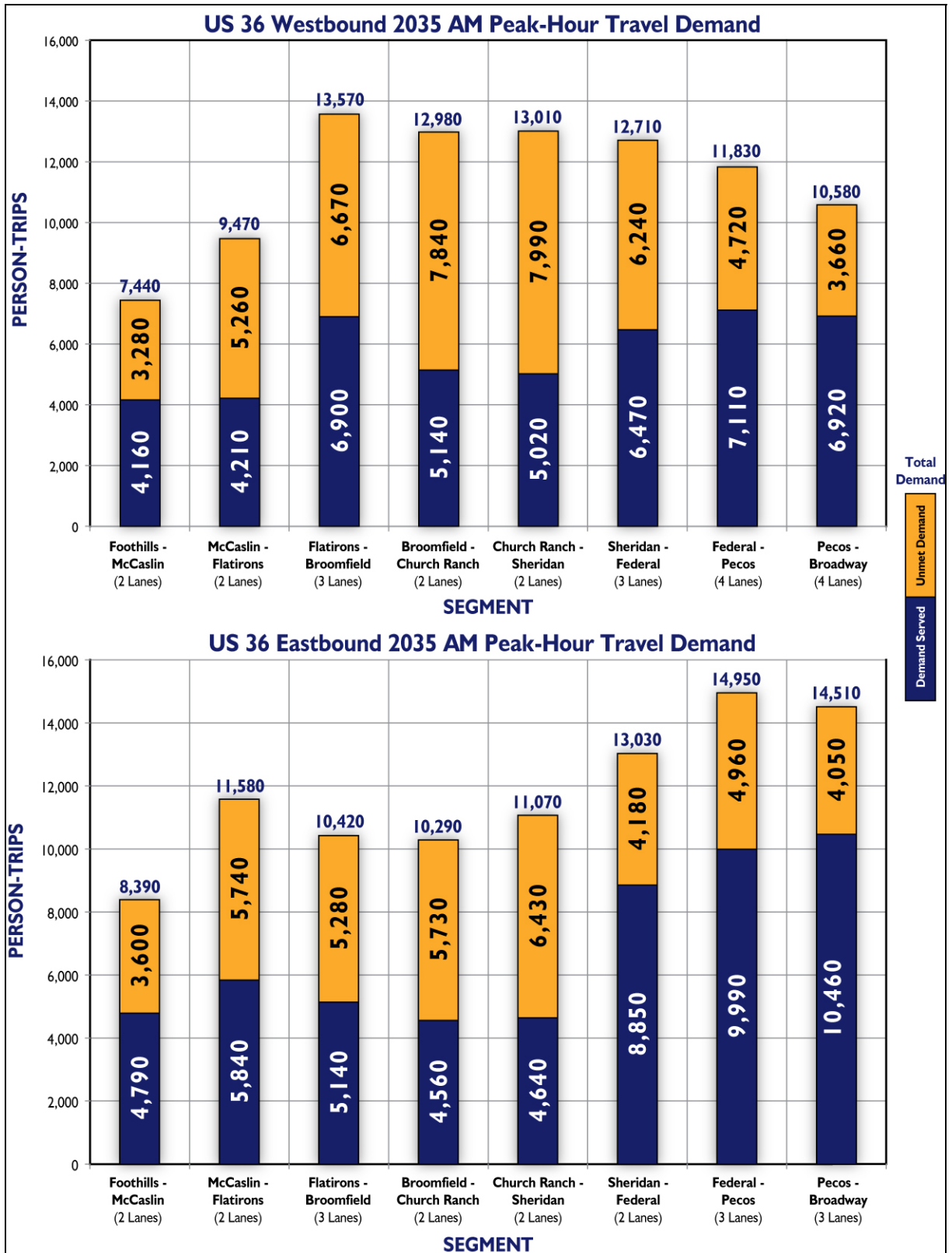


Figure 1.3-3: US 36 2035 a.m. Peak-Hour Travel Demand



Source: US 36 Mobility Partnership, 2008.

The analysis indicates that in 2035, between 6,880 and 14,420 person-trips cannot be accommodated at locations along the highway during the a.m. peak-hour if the existing transportation system remains unimproved. This demand is shown in yellow and labeled as “Unmet Demand.”

In transportation planning, facilities are often sized to accommodate 85 percent of the total projected demand. With an unmet demand of 14,400 person-trips in the peak-hour, the 85 percent level would set a threshold of 12,200 person-trips as the level at which the improvements would be considered to have met the Purpose and Need.

If no action is taken to meet the unmet demand on US 36, then existing transportation problems will worsen and cause increased traffic to spillover on to adjacent arterials and neighborhoods, resulting in more congestion, delays, and safety hazards throughout all parts of the corridor and project area.

*Forecasts show that more than 14,400 trips in 2035 in the a.m. peak-hour cannot be accommodated if the existing transportation system is not improved.*

## Transportation Need #2: Expand Access

Access to existing and planned activity centers such as Boulder, Flatiron Crossing, Westminster Center, and others is limited due to capacity constraints at the interchanges. Development of improved access at intersections is needed to meet the existing and future capacity demand.

*A substantial amount of traffic exits and enters the US 36 corridor at activity and employment centers between Boulder and Denver.*

A substantial amount of traffic exits and enters the US 36 corridor at activity and employment centers between I-25 in Adams County and Foothills Parkway/Table Mesa Drive in Boulder. Less than 10 percent of corridor drivers use the entire length of the US 36 corridor between Boulder and Denver; the remaining vehicle trips enter and/or exit at intermediate locations.

Based on DRCOG population and employment projections for 2035, and assuming no major transportation improvements in the US 36 corridor, access to activity centers will become more difficult for the following reasons:

- Access to activity centers is primarily served by US 36 interchanges, many of which are lacking in structure and capacity at intersections to meet existing and future capacity demand. Most arterial crossings of US 36 occur at interchanges that are already congested. This is because US 36 is a diagonal highway in an arterial grid network, resulting in interchanges at locations where major arterials intersect (e.g., Sheridan Boulevard/92<sup>nd</sup> Avenue, Wadsworth Parkway/120<sup>th</sup> Avenue). These major arterials are already carrying high volumes of traffic north/south and east/west. As a result, travel to and between activity centers in the corridor can be difficult during peak periods.
- In 2035, congestion will delay travel to activity centers. The 2005 peak-hour SOV travel time in the a.m., between I-25 in Denver and Foothills Parkway in Boulder, was estimated to be 33 minutes. In 2035, without improvements to the US 36 corridor, the same trip is estimated to take 42 minutes. In the westbound direction during the p.m. peak hour, the SOV travel time increases from 25 minutes (2005) to 42 minutes (2035).

## Transportation Need #3: Provide Congestion Relief

In 2007, DRCOG released a report and map identifying the most congested roadways of the Denver metropolitan area. In the following categories (1) “most congested freeway ramps” and (2) “worst traffic bottlenecks,” US 36 appeared at the top of the list (DRCOG 2007).

Corridor capacity is inadequate to meet growing travel demands. Relief is needed for increasing levels of congestion along the US 36 corridor.

As described in Transportation Need #1: Increase Trip Capacity, if no action is taken to meet the unmet demand on US 36, then existing transportation problems will worsen and cause traffic to spillover on to adjacent arterials and neighborhoods, resulting in more congestion, delays, and safety hazards throughout all parts of the corridor and project area.

Increasing levels of traffic congestion result in longer travel times for automobile drivers, commercial truck drivers, and transit patrons, as buses are mixed with general traffic.

A peak-hour travel time comparison was made for general-purpose and HOV-eligible traffic conditions between 2005 and 2035. Model-estimated travel time was examined along US 36 between I-25 and the interchange with Foothills Parkway. The results of this comparison are presented in Table 1.3-1, US 36 Travel Time Comparison with No Highway Capacity Improvements (Foothills Parkway to Denver Union Station). As shown in this table, the travel time for SOVs in general-purpose lanes for a.m. peak-hour traffic heading west is projected to increase by 27 percent if no improvements are made. The travel time for a.m. peak-hour traffic heading east is projected to increase by 53 percent. Eastbound evening (p.m.) peak-hour travel time is projected to increase by 8 percent and westbound p.m. peak-hour travel time by 67 percent.

**Table 1.3-1: US 36 Travel Time Comparison with No Highway Capacity Improvements (Foothills Parkway to Denver Union Station)**

Peak-Hour and Direction	Travel Time in General-Purpose Lanes (minutes)				Travel Time in HOV Lanes (minutes)			
	2005	2035	Absolute Change	Percent Change	2005	2035	Absolute Change	Percent Change
a.m. Eastbound	34	52	18	53	27	32	5	19
p.m. Eastbound	37	40	3	8	N/A	N/A	N/A	N/A
a.m. Westbound	30	38	8	27	N/A	N/A	N/A	N/A
p.m. Westbound	33	55	22	67	27	39	12	44

Source: US 36 Mobility Partnership, 2009.

Notes:

- a.m. = morning
- HOV = high-occupancy vehicle
- N/A = not applicable
- p.m. = evening
- US 36 = United States Highway 36

Travel times for buses would be similarly affected, as they are required to use the general-purpose lanes. In addition, buses must also get on and off the highway to access park-n-Rides, which substantially increases travel time.

*Without capacity improvements on US 36, LOS estimates for much of the corridor are expected to be at or below LOS D by 2035.*

In addition to estimating travel time, congestion can also be evaluated by determining the level of service (LOS) on the highway. LOS is a measure used to describe the amount of traffic congestion on a given section of road at a given time. LOS A represents free-flow traffic, while LOS F represents stop-and-go conditions. Without capacity improvements on US 36, estimates of LOS for much of the highway are expected to be at or below LOS D. Any segment at LOS E or LOS F could be considered deficient. Table 1.3-2, US 36 Corridor Level of Service with No Highway Capacity Improvements, shows the peak-hour highway LOS along US 36 for current (2003) and projected (2035) conditions without highway capacity improvements. The worst LOS would be experienced at both ends of the corridor,

with LOS F predicted for traffic eastbound from Sheridan Boulevard to I-25 in the a.m. peak-hour. Another location expected to experience LOS F in both the a.m. and p.m. peak-hour is from West Flatiron Circle to Foothills Parkway/Table Mesa Drive in Boulder. Westbound traffic between Sheridan Boulevard and Wadsworth Parkway, as well as from West Flatiron Circle toward Boulder, would also experience poor LOS (E) in the a.m. peak-hour. In the p.m. peak-hour, westbound US 36 from Federal Boulevard to Wadsworth Parkway is expected to be at LOS F.

**Table 1.3-2: US 36 Corridor Level of Service with No Highway Capacity Improvements**

Direction	a.m. Peak-Hour				p.m. Peak-Hour			
	Eastbound		Westbound		Eastbound		Westbound	
	2003	2035	2003	2035	2003	2035	2003	2035
Broadway to Pecos Street	D	F	C	C	D	D	D	D
Pecos Street to Federal Boulevard	C	F	C	D	D	D	D	D
Federal Boulevard to Sheridan Boulevard	D	F	C	D	F	F	D	F
Sheridan Boulevard to Church Ranch Boulevard	D	D	D	E	E	E	D	F
Church Ranch Boulevard to Wadsworth Parkway	C	D	E	E	D	D	D	F
Wadsworth Parkway to East Flatiron Circle	B	C	C	D	C	D	C	D
West Flatiron Circle to McCaslin Boulevard	C	F	D	E	E	F	D	F
McCaslin Boulevard to Foothills Parkway	C	F	D	F	F	F	D	F

Source: Analysis of counts by CDOT and the Project Team, and of forecasts from US 36 Mobility Partnership, 2008 (2035 Data).

Notes:

- a.m. = morning
- LOS = level of service
- p.m. = evening
- green shading = LOS D
- yellow shading = LOS E
- red shading = LOS F



## Transportation Need #4: Expand Mode of Travel Options

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Currently, options for travel between Denver and Boulder on US 36 include bus and automobile.

The US 36 corridor is currently served by RTD's express, regional, and skyRide bus routes, complemented by local service that feeds into the system at several park-n-Ride facilities. Bus frequency during peak-hours ranges from 10 to 60 minutes, with an average of 30 minutes for any one route. The RideArrangers VanPool Program is a partnership between RTD and DRCOG that provides long-distance commuting assistance to groups who form vanpools from across the Denver metropolitan region. RTD and DRCOG supply the van, fuel, and maintenance in exchange for a monthly fee.

*Currently, two options exist for travel between Denver and Boulder: bus and automobile.*

Despite these services, no dedicated right-of-way (ROW) for transit or HOV is available in the US 36 corridor, so buses must exit and enter the highway to access stations on the sides of US 36, requiring travel through congested intersections resulting in slower travel times and little travel time reliability. In addition, many local bus routes require buses to stop at park-n-Rides to pick up and drop off passengers. Additional facilities to provide priority and reliability for multi-occupant vehicles (such as median or side-loaded BRT stations and queue jumps at on-ramps) is needed to encourage SOV users to change modes to transit or HOV.

HOV lanes are available for bus, vanpool, and carpool use but are limited to the easternmost segments of the corridor. Express lanes on I-25 allow multiple-occupant vehicles for no fee, with the excess capacity available for use by SOVs who choose to pay a toll. Jurisdictions along the corridor are requesting the expansion of a rapid transit system into their respective communities to encourage use of alternative modes. The extension of the priority treatment for transit and HOV users from the I-25 express lanes west to Boulder is reflected in local government plans.

With no continuous bikeway in the US 36 corridor and limited inter-modal opportunities, non-motorized travel options are inadequate, resulting in a dependence on the automobile.

The high level of interest and community support for rapid transit of all types in the US 36 corridor is unique and highlights the need to evaluate a range of transportation solutions.

## **Transportation Need #5: Increase Efficiency of Transit Service**

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As a result of the FasTracks Program, funding has been identified for commuter rail transit in the BNSF corridor. A separate NEPA process, the USACE/RTD Northwest Rail Environmental Evaluation/Environmental Assessment, that will evaluate environmental impacts from the commuter rail transit project, is currently underway. Although rail in the BNSF corridor has been approved as part of the *FasTracks Plan* (RTD 2004), efficient bus transit service is still needed in the US 36 corridor. While rail in the BNSF corridor has some geographic overlap with the US 36 corridor, it will provide service to a different travel shed, particularly in the northern portion of the project area. In addition, due to its separate location from US 36, rail in the BNSF corridor will not link the key activity centers within the US 36 corridor.

With respect to bus service, the US 36 corridor exhibits some of the highest ridership on regional bus routes on the RTD system. Currently, weekday ridership on the B route between Boulder and Denver is approximately 6,300 boardings per day (RTD 2008).

Buses along the US 36 corridor are often substantially delayed in traffic, traveling no faster than automobiles. In the morning, no HOV lane is available for westbound traffic between I-25 and Boulder, and the highway is often heavily congested. At some locations, buses must also get on and off the highway to access park-n-Rides, substantially increasing travel time. For transit to be a viable alternative for users of SOVs, buses must have travel times that offer 1 minute of travel time savings per mile.

## Transportation Need #6: Update Outdated Highway Facilities

Roadway characteristics such as horizontal and vertical alignment, sight distance, highway cross section, lane continuity and balance, ramp sequencing, and accident history were evaluated for US 36 and compared to current standards. Along short sections of US 36, the vertical alignment was measured as “not to standard,” with grades of 5 percent or greater. There are several locations where stopping sight distance, decision sight distance, and highway cross section were also measured as “not to standard.” Structures such as bridges, retaining walls, and sound walls along US 36 were also evaluated. Of 35 bridges, 14 were determined to be either structurally deficient or functionally obsolete, and two are possibly hydraulically deficient (i.e., a 100-year flood event would cause water to pass over the bridge).

*Of the 35 existing bridges on US 36, 14 were determined to be either structurally deficient or functionally obsolete, and two are (possibly) hydraulically deficient.*

Several instances of lane imbalances also exist in the corridor. A lane imbalance occurs when the number of lanes approaching and the number of lanes leaving an interchange are not equal to each other or when the number of lanes does not remain relatively consistent through a corridor. For example, some portions of US 36 have two lanes, some three, and some four. The existence of through-lanes and acceleration/ deceleration or auxiliary lanes on US 36 is likewise inconsistent, causing disruptions in the flow of traffic. The *Existing Conditions Inventory and Deficiency Analysis – Draft Technical Report* (URS 2003) provides a detailed description of roadway deficiency ratings.

A CDOT safety analysis conducted in 2004 showed a higher-than-expected accident frequency along the entire US 36 corridor when compared to similar urban four-lane highways. The *Safety Assessment Report for the US 36 Corridor* (CDOT 2005) provides a detailed description and the results of the safety assessment. The report suggests some accident reduction is possible with improvements to the highway, including the addition of ramp metering. Ramp meters are traffic signals placed at on-ramps and are used to control the volume of traffic entering the highway. The addition of ramp metering generally equates to a 20 percent accident reduction within 1 mile of the ramp meter location. In 2006, ramp metering was implemented at several locations on US 36. Additional safety improvements could be achieved with ramp meters at the remaining US 36 on-ramps.



## 1.4 SCOPE OF ENVIRONMENTAL DOCUMENT

This FEIS follows a standard approach and outline for transportation NEPA projects that includes:

- Purpose and Need (Chapter 1)
- Alternatives Considered (Chapter 2)
- Transportation Impacts and Mitigation (Chapter 3)
- Affected Environment and Environmental Consequences (Chapter 4)
- Financial Analysis (Chapter 5)
- Public Involvement Program (Chapter 6)
- Final Section 4(f) Evaluation (Chapter 7)
- Phased Project Implementation (Chapter 8)
- List of Preparers (Chapter 9)
- References (Chapter 10)

The planning process for a project of this magnitude is complex and involves many people from various disciplines and interests. An explanation of alternatives considered, eliminated from further consideration, and carried forward for detailed study is presented in Chapter 2, Alternatives Considered. Subsequent chapters of this document provide more detail on the packages considered. Phasing of the ROD due to funding constraints is presented in Chapter 8, Phased Project Implementation. Appendices provide additional information to supplement the basic findings in the FEIS. Technical memoranda provide detailed analysis and information on various studies. These reports are available upon request from CDOT or RTD.

### **Use of Final Environmental Impact Statement Information in Decision-Making**

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The information in this FEIS is presented to assist with identification of a preferred package of transportation improvements for the US 36 corridor (i.e., the “Combined Alternative Package [Preferred Alternative]”). The packages offer different courses of action for FHWA, FTA, CDOT, and RTD to pursue in conjunction with jurisdictions in the corridor to address the Purpose and Need.

Comments on the FEIS will be obtained and considered as input to the ROD(s), which will occur subsequent to the FEIS. Refinements to the Combined Alternative Package (Preferred Alternative) described in the FEIS will be considered in the ROD(s) and subsequent engineering phases.

