

CUMULATIVE IMPACT ASSESSMENT
TECHNICAL MEMORANDUM

FOR THE

Federal Boulevard Improvements between
West 7th Avenue and Howard Place
Environmental Assessment

Prepared for

CITY AND COUNTY OF DENVER

COLORADO DEPARTMENT OF TRANSPORTATION

FEDERAL HIGHWAY ADMINISTRATION

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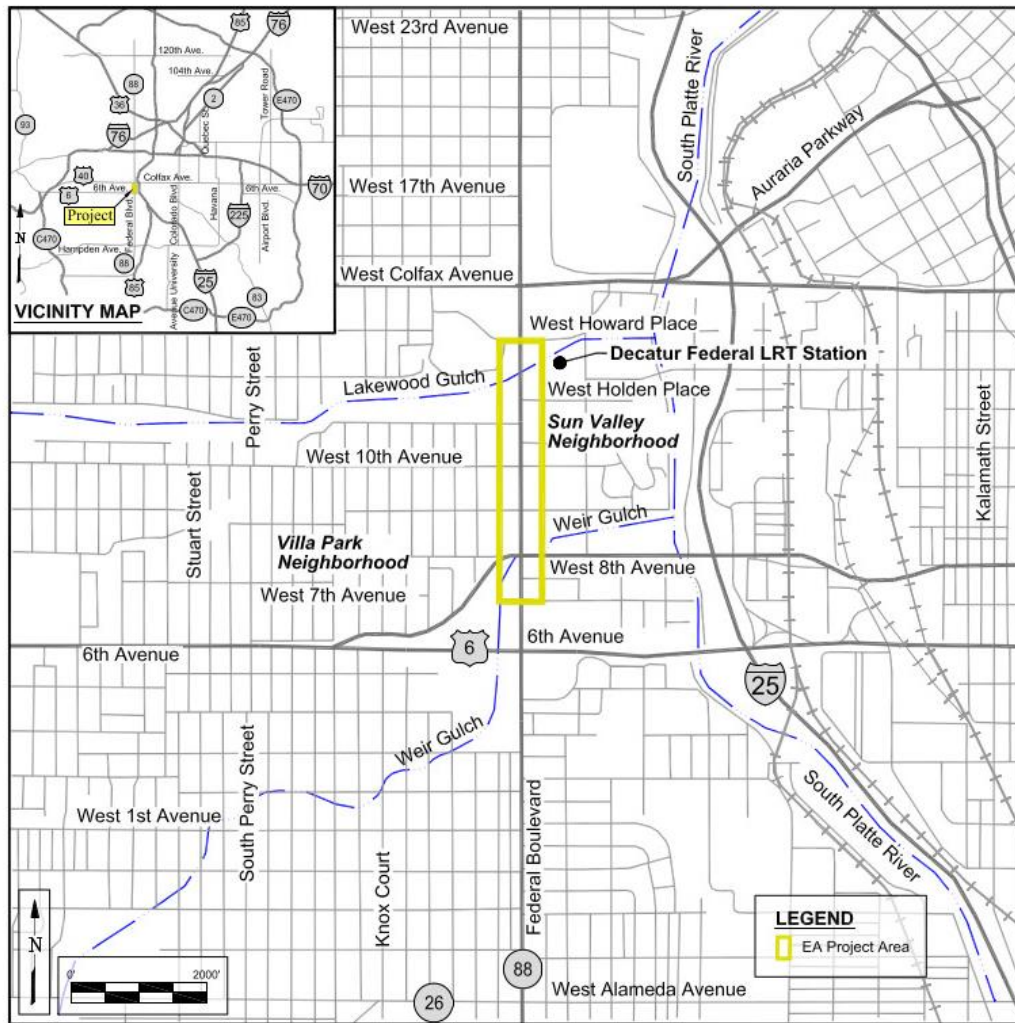
ACRONYMS

AASHTO	American Association of State Highway and Transportation Officials
ADA	Americans with Disabilities Act
CCD	City and County of Denver
CDOT	Colorado Department of Transportation
CEQ	Council on Environmental Quality
CO ₂	Carbon Dioxide
DRCOG	Denver Regional Council of Governments
DOLA	Department of Local Affairs
EA	Environmental Assessment
EPA	Environmental Protection Agency
FHWA	Federal Highway Administration
GHG	Greenhouse Gas
HUD	Housing and Urban Development
I-25	Interstate 25
LRT	Light Rail Transit
MS4	Municipal Separate Sewer System
MSAT	Mobile Source Air Toxics
NAAQS	National Ambient Air Quality Standards
PEL	Planning and Environmental Linkages
RTD	Regional Transportation District
RTP	Regional Transportation Plan
US	United States
VMT	Vehicle Miles Traveled

INTRODUCTION

This technical memorandum has been prepared in support of the Federal Boulevard (7th Avenue to Howard Place) (“Project Area”, Figure 1) Environmental Assessment (EA). This memorandum evaluates the impacts of the Federal Boulevard Improvement project (Proposed Action) and the No-Action Alternative with respect to cumulative impacts. The Study Area extends to Alameda Avenue to the south, Colfax Avenue to the north, and approximately Interstate-25 (I-25) and Perry Street to the east and west, respectively.

Figure 1. EA Project Area



Federal Regulations/Guidance

The Council on Environmental Quality (CEQ) states that cumulative impacts result from the “incremental impact of an action when added to other past, present, and reasonably foreseeable future actions regardless of which agency (federal or non-federal) or person undertakes such actions. Cumulative impacts can result from individually minor but

collectively significant actions taking place over a period of time” (CEQ, 40 CRF 1508.7). The CEQ has released a document, *Considering Cumulative Effects under NEPA*, to aid in assessment of cumulative impacts in NEPA documents.

The CEQ recommends that cumulative impact analyses examine resources that could be impacted by the action(s) under investigation or that are known to be vulnerable. This is because an action cannot contribute to cumulative impacts to a resource if it will not have a direct or indirect impact on that resource. Additionally, spatial and geographic parameters must be established in order to evaluate impacts which may occur in a different area, and to capture impacts from past or future actions.

The Federal Highway Administration’s (FHWA) guidance, *Secondary and Cumulative Impact Assessment in the Highway Project Development Process*, reiterates CEQ’s message of the importance of considering potential cumulative impacts in decision making for transportation projects and provides direction on implementation of CEQ requirements. It emphasizes the importance of considering the functionality of the resources and trends in the condition of the resources that may be impacted. This guidance, along with the Environmental Protection Agency’s (EPA’s) document titled *Consideration of Cumulative Impacts in EPA Review of NEPA Documents* and the Colorado Department of Transportation’s (CDOT’s) *NEPA Manual*, which was updated in March 2013, provided direction for this cumulative impact assessment.

PEL STUDY SUMMARY

A *Planning and Environmental Linkages Study* (PEL Study) was prepared to evaluate transportation improvements along Federal Boulevard between West 5th Avenue and West Howard Place within the City and County of Denver (CCD) by Felsburg Holt & Ullevig (FHU, 2009). The cumulative impact study area for assessment in the PEL Study extended beyond the project study area to include the neighborhoods adjacent to and near the project. The neighborhoods included are: Sun Valley, West Colfax, Villa Park, Barnum, and Valverde. The temporal limits of the analysis extended between 1940 and 2009, with 2035 as the future horizon year based on the planning horizon of the PEL Study.

Conclusions of the PEL Study with regard to cumulative impacts, based on the past, present and reasonably foreseeable actions as identified at that time, are summarized below. NOTE: Neither land use nor water quality were evaluated in the cumulative impact assessment completed for the PEL Study but are included in the assessment for this EA.

Transportation Resources

The PEL Study concluded that the Proposed Action, as identified in the PEL Study, would provide an overall cumulative improvement to the transportation system; however, it would not prevent congestion in the future as development and growth will continue to result in an increase in travel demand greater than the capacity that would be provided. The PEL Study also noted that the planned and ongoing projects were consistent with the

local planning goals of the CCD and the regional objectives set forth by the Denver Regional Council of Governments (DRCOG) (FHU, 2009).

The PEL Study noted that many of the past transportation improvements did not focus on multi-modal connectivity. The PEL Study concluded that the multi-modal improvements associated with the Proposed Action, as defined in the PEL Study, and the ongoing improvement of the recreational trail facilities would provide a net cumulative benefit in multi-modal connectivity and mobility within the cumulative impact study area.

Environmental Justice

The PEL Study documented that the Barnum, Valverde, Villa Park, Sun Valley, and West Colfax neighborhoods in the community study area were identified as environmental justice populations. The PEL Study concluded that there would not be disproportionately high and adverse impacts on minority and low-income populations. However, the PEL Study identified that an underinvestment in the public and transportation facilities in these neighborhoods has historically occurred over time (FHU, 2009). It was concluded that there could be a cumulative impact in regards to environmental justice based on the following:

- Redevelopment of the Denver Housing Authority Sun Valley Homes into a mixed market-rate and affordable housing development could displace low-income and minority residents
- Transportation projects in the area, including the Proposed Action identified in the PEL Study, would require the displacement of minority-owned businesses that provide goods and services to the local neighborhoods

The PEL Study also concluded that investment in transportation facilities would improve traffic operational performance, decrease the probability of crashes, and improve multi-modal mobility within the cumulative impact study area, which would benefit transit-dependent populations and provide more convenient and faster transit access to employment opportunities and services throughout the Denver metropolitan region.

Air Quality

The air quality in the Denver metropolitan area was documented as being relatively poor when monitoring began in the 1960s. Implementation of pollutant emission controls and programs over time have been successful in reducing air pollutant levels (FHU, 2009). The PEL Study noted that improved air quality continued to occur even with an increase in regional population and vehicles miles traveled primarily due to the strict regulatory controls in the State of Colorado and improved performance of vehicles. The Proposed Action, as identified in the PEL Study, was included in the regional conformity analysis performed by DRCOG for the 2035 Regional Transportation Plan (RTP); DRCOG determined that the Proposed Action would not result in exceedances of standards in the regional air quality conformity standards. It was concluded that although the continued

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development of transportation facilities was planned in the cumulative study area, these projects would not have a cumulative impact on the air quality for the region.

Noise Levels

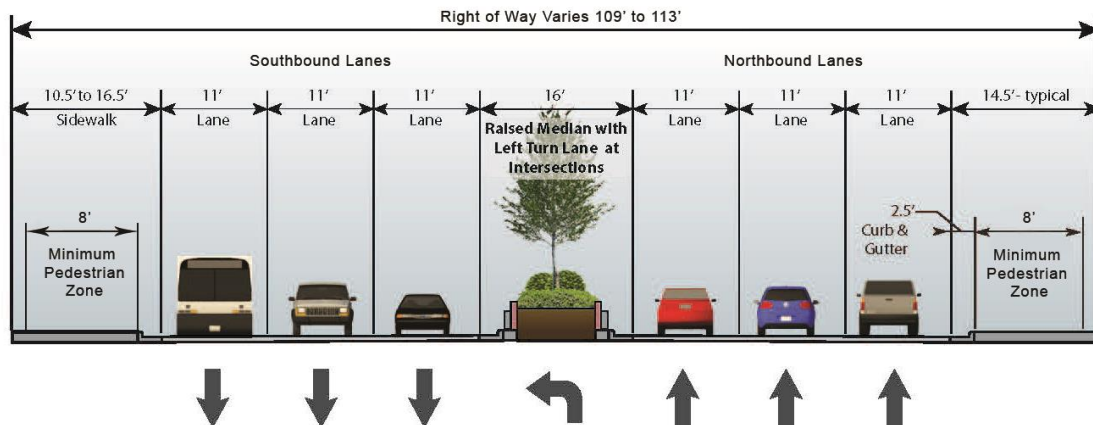
The PEL Study concluded that due to the urbanized nature of the cumulative impact study area, it is expected that noise has increased over time as land use changed and the transportation system developed. Projects at the time of the PEL Study that were either planned or being considered, including the Proposed Action identified in the PEL Study, were not identified as having an adverse cumulative noise impact in the study area.

PROPOSED ACTION

The Proposed Action is to add a third northbound lane between West 7th Avenue and West 10th Avenue and a raised median throughout the Project Area to improve mobility and safety (Figure 2). North of West 10th Avenue, the width of the existing three northbound lanes would be brought up to standard (11 feet). The existing southbound lanes would also be brought up to standard width in areas where they are currently substandard.

Note that this Project Area differs from that of the PEL Study as the portion of Federal Boulevard to the south of West 7th Avenue, including the interchange with United States Highway 6 (US 6), is being addressed by the US 6 Bridges Design-Build project. However, the proposed improvements are consistent with the Proposed Action in the PEL Study.

Figure 2. Proposed Action



The widening of Federal Boulevard during the Proposed Action will meet American Association of State Highway and Transportation Officials (AASHTO) and Colorado Department of Transportation (CDOT) standards. Access will be limited by controlling left-turns at non-signalized points. In the Proposed Action, the existing signalized crosswalks at the intersections of Federal Boulevard with West 8th Avenue and West 10th Avenue will be upgraded with new traffic and pedestrian signal indications and enhanced concrete crosswalks. Sidewalks on the west and east sides of the street will be brought

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up to Americans with Disabilities Act (ADA) standards; this will match the existing sections of Federal Boulevard to the north and south.

Access to bus service, which connects to local and regional destinations as well as the greater transit system, including the nearby West Line of RTD's LRT system, will be improved by upgrading the sidewalk to be consistent and compliant with ADA standards. Additionally, connectivity to the Weir Gulch Trail would be enhanced with better signage for the trail, reducing the curvature of the "T" intersection where the trail and sidewalk connect along West 8th Avenue, signage for the Trail, and a wider sidewalk along West 8th Avenue, all of which support the CCD's Bicycle Master Plan (CCD, 2001) and Denver Moves (CCD, 2011a). These improvements are anticipated to improve mobility, safety, and enhance multi-modal options within the Project Area.

In summary, the Proposed Action consists of the following elements:

- Federal Boulevard roadway alignment and improvements
 - Widening Federal Boulevard from the ROW boundary on the west side of Federal Boulevard toward the east between West 7th Avenue and approximately West 10th Avenue with an additional 11-foot northbound lane
 - Restriping and widening the three northbound lanes on Federal Boulevard between approximately West 10th Avenue to approximately West Howard Place to be 11 feet wide
 - Restriping and widening the three southbound lanes on Federal Boulevard between approximately West 7th Avenue and West 10th Avenue to be 11 feet wide
- Bicycle and pedestrian improvements
 - Improving the sidewalks on the east side of Federal Boulevard between West 7th Avenue and West 10th Avenue to meet ADA standards and better accommodate pedestrians
 - Standardizing inconsistent sidewalk widths on both the east and west sides of Federal Boulevard with an 8-foot pedestrian zone consisting of either a detached 5-foot sidewalk with a 3-foot buffer or an attached 8-foot sidewalk with ADA-compliant curb ramps and driveway cuts
 - Enhancing access to the Decatur-Federal LRT station through improved multi-modal connectivity by improving the sidewalks throughout the Project Area
 - Upgrading existing pedestrian signals and constructing enhanced concrete crosswalks at the signalized intersections of Federal Boulevard with West 8th Avenue and West 10th Avenue
 - Enhancing bicycle and pedestrian connectivity to the Weir Gulch Trail with better signage, wider sidewalks, and access ramps

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- Enhancing bicycle connectivity to Routes D-10 and D-12 by adding signage in the Project Area that meets CCD and CDOT standards

NO-ACTION ALTERNATIVE

The No-Action Alternative would leave Federal Boulevard as it currently is configured and would not provide any improvements beyond typical maintenance activities. The roadway would remain the same, with 3 southbound and 2 northbound lanes (each 9.5 to 11 feet in width) and a continuous two-way, center, left-turn median between West 7th Avenue and West 10th Avenue (Figure 3). The segment of Federal Boulevard from West 10th Avenue to West Howard Place has three southbound and three northbound lanes, and a continuous two-way left-turn median over Lakewood Gulch (Figure 4). The existing sidewalks along the both sides of Federal Boulevard in the Project Area are either narrow or not well-defined, and the curb ramps at intersections do not meet current ADA or CDOT standards. As part of State Highway 88, normal maintenance of Federal Boulevard would continue to be performed by CDOT. This includes the current direct discharge of stormwater to the nearby gulches.

Figure 3. No-Action Alternative between West 7th Avenue and West 10th Avenue

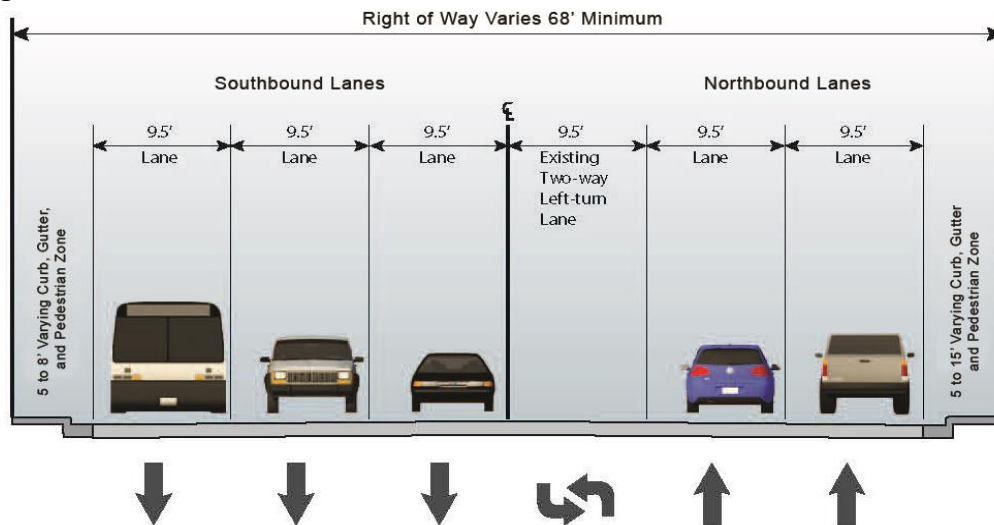
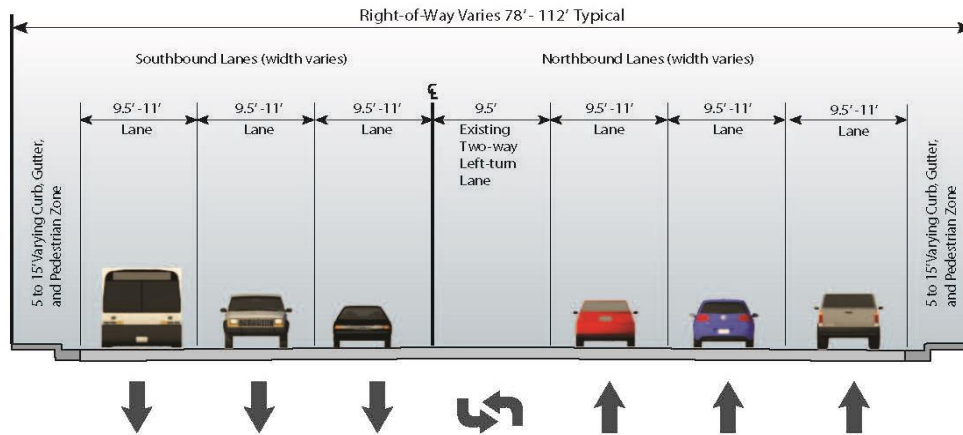


Figure 4. No-Action Alternative between West 10th Avenue and Howard Place



METHODOLOGY

As part of this technical memorandum, Pinyon reviewed the PEL Study (FHU, 2009), the *Final Environmental Impact Statement, Valley Highway – Logan to 6th Avenue* (CDOT, 2006), and the *Federal Boulevard (Alameda Avenue to 5th Avenue) Environmental Assessment* (CDOT, 2007) for information on past, present, and reasonably foreseeable actions. In addition, Pinyon reviewed the *Federal Boulevard US 6 to US 40 Transportation Investment Generating Economic Recovery (TIGER) Discretionary Grant Application* for updated project specific information (CCD, 2012) and numerous other planning documents. Based on review of these documents and coordination with the City and County of Denver (CCD) and CDOT, trends were identified for the resources evaluated in this cumulative impact assessment.

Evaluated Resources

Resources evaluated as part of this analysis were identified based on the potential cumulative impacts that may result from the additive impact of the Proposed Action with other past, present, and reasonably foreseeable future actions. Resources that would not be impacted by the Proposed Action, or those for which impacts could be mitigated, are not included in this analysis.

The resources that were evaluated for cumulative impacts as a part of this EA are:

- Transportation
- Land Use, Right-of Way-Acquisitions, and Relocations
- Environmental Justice
- Noise
- Water Quality
- Air Quality

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Air quality has been a concern in the Denver metropolitan area due to pollution levels in the past, resulting in exceedances of the National Ambient Air Quality Standards (NAAQS). Greenhouse gas emissions and their potential contribution to climate change is also a topic of interest in the CCD and across the nation. For these reasons, the potential contribution of the Proposed Action with regard to air quality has also been addressed.

Geographic Areas and Time Frame of Analysis

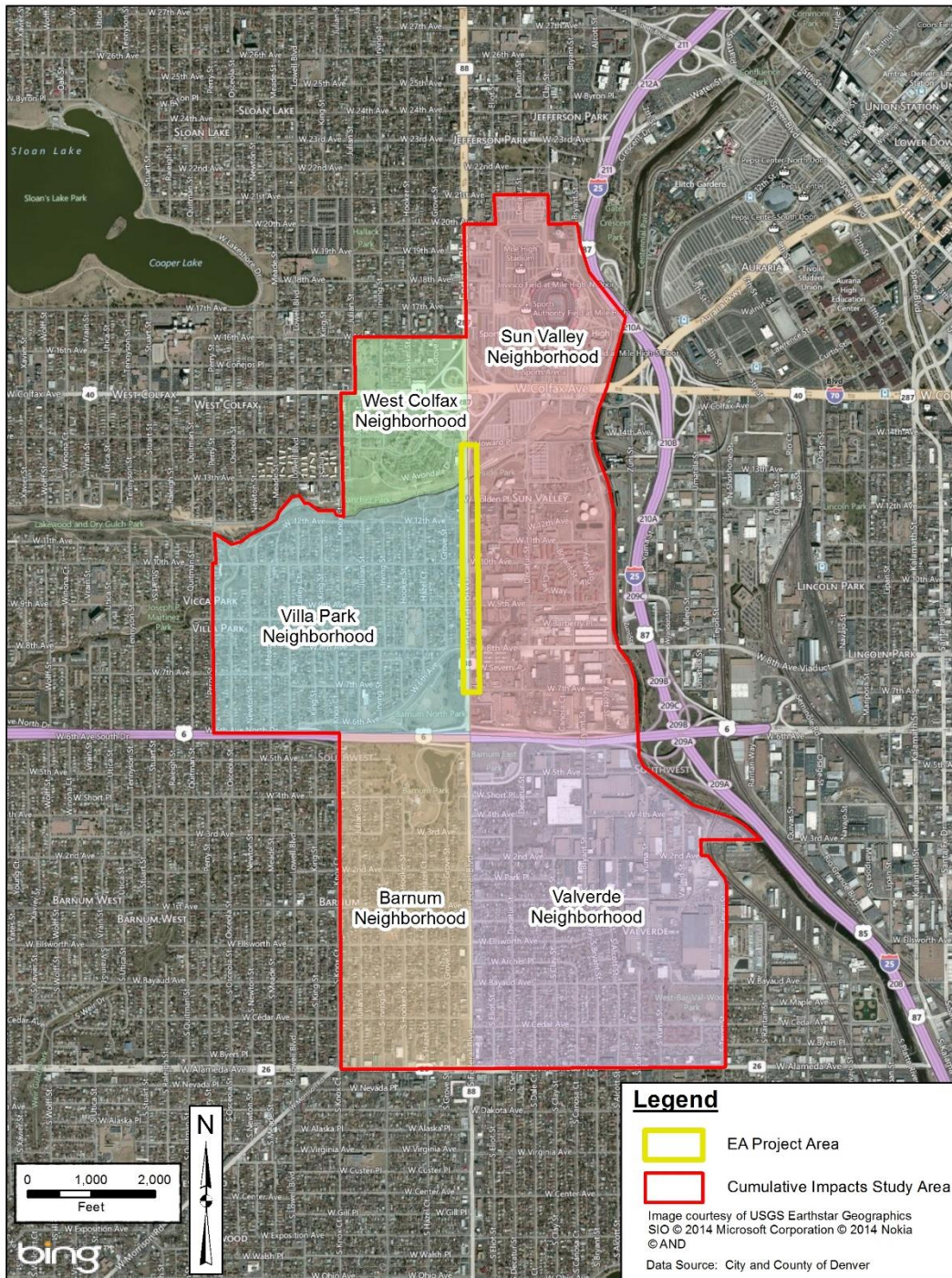
The geographic extent of the cumulative impact analysis was established based on an area in which the project may affect transportation resources, land use, and the potential environmental impacts. The area evaluated (i.e., Cumulative Impacts Study Area) includes neighborhoods adjacent to and in the vicinity of the project area (Figure 5).

The time frame established for the cumulative impact analysis extends between 1940 and 2014, with 2035 as the future horizon year based on the planning year of the project, which coincides with the DRCOG *2035 Metro Vision Regional Transportation Plan* (DRCOG, 2011). Land use surrounding Federal Boulevard changed circa 1940 due to the construction of US 6; therefore, this date has been selected as the temporal starting point for analysis.

Identification of Trends in Resources

As part of the cumulative impact analysis, the study team identified other past, present, and reasonably foreseeable future actions in the Study Area that could affect the evaluated resources or air quality. In accordance with NEPA guidance, future actions were considered if they are “reasonably foreseeable.” Reasonably foreseeable actions are those that are committed to, planned, or approved for implementation in the planning horizon, which is 2035 for this EA.

Figure 5. Cumulative Impact Assessment Study Area



PAST, PRESENT, AND REASONABLY FORESEEABLE FUTURE ACTIONS

The below sections discuss general trends and changes in the resources evaluated in this cumulative impacts assessment. These discussion of projects is not all-inclusive but instead highlight actions which influenced or contributed to the conditions of the six resources being evaluated in relation to cumulative impacts of this project.

Past Actions

Construction of the transportation infrastructure in the Study Area contributed to the context of the surrounding environment by affecting development patterns, noise levels, water quality, and demographics. Federal Boulevard between 2nd Avenue and 19th Avenue was built by 1940, when construction on US 6 began in response to the federal government announcing plans to construct a new Denver Ordnance Plant west of the CCD. Construction of US 6 not only changed area traffic patterns but it also bisected the Villa Park and Barnum Neighborhoods. West of approximately Knox Court, the US 6 project involved the removal of a swath of residences along its length to the Ordnance plant. The newly built US 6 facility provided access for residents to their jobs at the Ordnance plant, as well as to downtown Denver.

As a result of growth and the addition of US 6, Federal Boulevard, which was formerly a “narrow unpaved drive known as The Boulevard,” saw new interest in the 1940s and 1950s. As a result, there was transition away from residential to commercial development. Commercial infill began to occur on the many vacant lots along Federal Boulevard and the CCD rezoned the properties along the street to accommodate its new role as a major city thoroughfare (Pinyon, 2014a).

Interstate 25, formerly known as the Valley Highway, was constructed in the 1950s, further expanding the transportation system in and around downtown Denver. Additionally, the Federal Boulevard and Colfax Avenue interchange, as well as the Sun Valley residential complex, were built in the 1960s. The *Denver Comprehensive Plan* notes that during the mid-1940s through the 1960s the CCD became more suburban and residents had to drive to get to most destinations. After this time period the “driving habit” became “deeply ingrained” (CCD, 2000).

A number of other recent local agency and transportation projects have been completed in the Cumulative Impacts Study Area, including:

- In 1973 the area along Lakewood Gulch west of Federal Boulevard was designated as Paco Sanchez Park and in 1978 the area along Lakewood Gulch east of Federal Boulevard was designated as Rude Park. Over time, recreational facilities, including the parks and nearby recreation centers have been enhanced. Various public agencies worked together to improve Lakewood Gulch, including continuous concrete trails with connections via pedestrian underpasses at roadway crossings, multi-purpose athletic fields, and playgrounds.

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- I Roadway improvements including widening and upgrading pedestrian facilities were made to Federal Boulevard between Alameda Avenue and 5th Avenue in 2012
- RTD West Line, which was completed in April 2013 and parallels Lakewood Gulch as it crosses under Federal Boulevard. Water quality measures were implemented during construction of the RTD West Line, including construction of a water quality pond that captures stormwater runoff from Federal Boulevard between the bridge over Lakewood Gulch and Colfax Avenue.
- Improvements to the Federal Boulevard and Colfax Avenue Interchange and the Perry Street Bridge over Lakewood Gulch.
- Additionally, enhancements as recommended in the West Colfax Corridor Transportation Study between Sheridan Boulevard and Federal Boulevard were completed in 2012.

Land Use and Planning

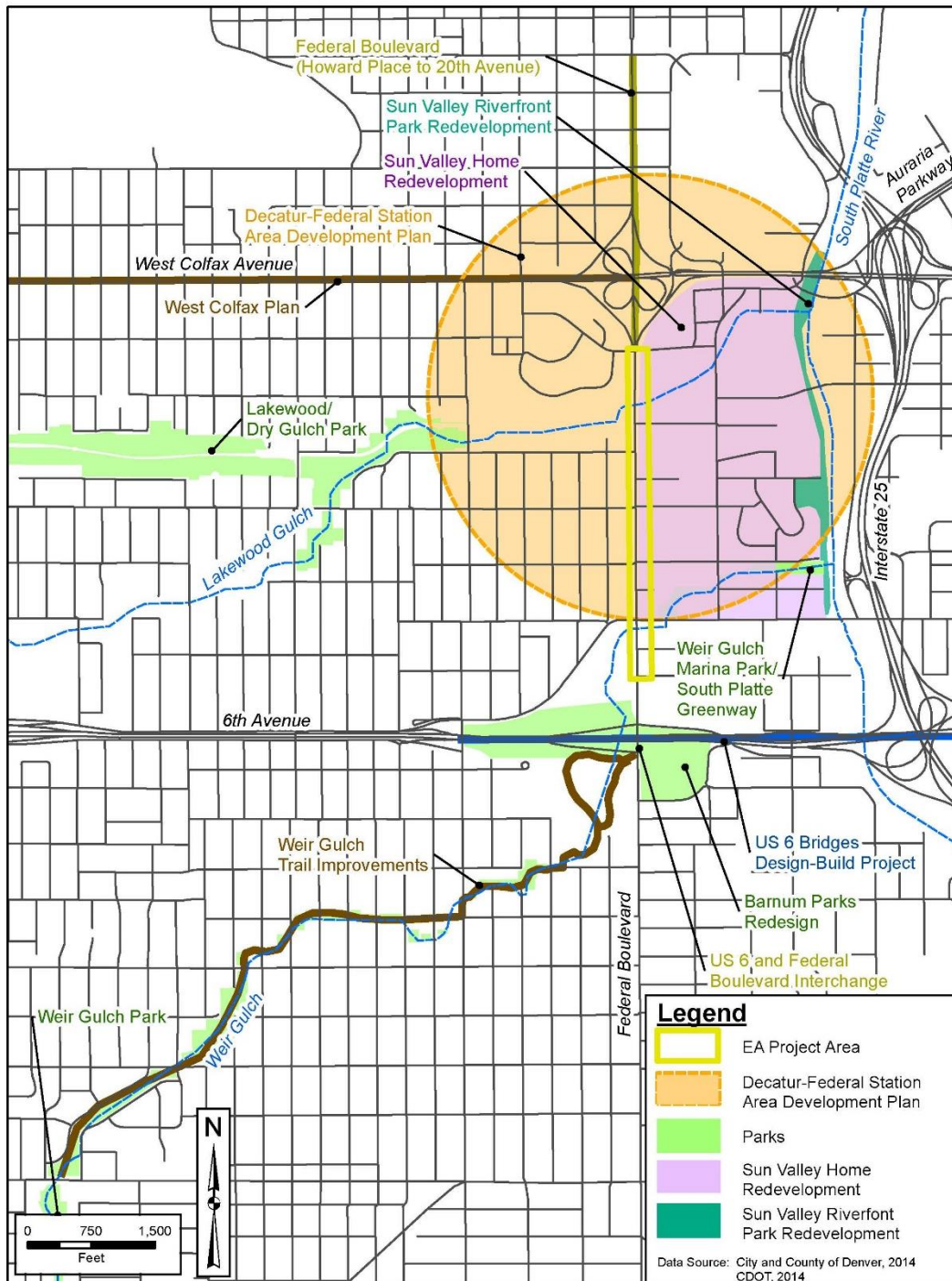
Land use and development has been stable from the 1990s through present day. During the population growth of the 1990s, congestion increased throughout the CCD and an emphasis on providing safe, efficient multi-modal transportation options emerged (CCD, 2000). The Sports Authority Stadium, located between Federal Boulevard and I-25 to the north of West Colfax, is the most recent facility to be built at this location but McNichol's Stadium occupied this site previously as did Bear Stadium.

The CCD's commitment to improving multi-modality is evident in numerous neighborhood and transportation planning documents. *Denver Moves*, an update to the *Denver Bicycle Plan* was completed in 2011; the two routes that cross Federal Boulevard, D-10 and D-12, were identified as part of the larger bicycle grid system for the CCD. The CCD also continues to implement the *Pedestrian Master Plan* and *Complete Streets Policy*, both of which provide direction on enhancing access and enjoyment of non-motorized travel (CCD, 2004; CCD, 2011b).

Present and Reasonably Foreseeable Actions

The Department of Local Affairs (DOLA) estimates that the Denver County population will swell by roughly 31 percent between 2012 and 2035 (DOLA, 2014). This growth will result in increased travel demand in CCD. The CCD and CDOT continue to invest in transportation improvements in the Cumulative Impacts Study Area. There are numerous current and reasonably foreseeable transportation projects in the Cumulative Impacts Study Area (Figure 6), several of which involve Federal Boulevard including the US 6 Design-Build Bridge Replacement Project. Additionally, enhancements to multiple nearby recreational facilities, which enhance bicycle and pedestrian activity, are planned or underway including improvements at Barnum Park and the Sun Valley Riverfront Park. These actions support the transportation and land use plans currently in place but also help accommodate the needs of a growing urban population.

Figure 6. Current and Future Projects



Although funding has not been identified, the CCD expects to implement improvements to Federal Boulevard to the north of this EA study area. A study entitled the Federal Boulevard (Howard Place to 20th Avenue) Conceptual Alignment and Interchange Study was completed in 2009. This study identified a proposed cross section for Federal

Boulevard and interchange alternatives for the existing cloverleaf configuration at Colfax Avenue. Both the through section as well as the interchange design include features to make the facility more urban and pedestrian friendly while minimizing impacts to the surrounding environment (CCD, 2009). These multi-modal connections would tie into the Proposed Action sidewalk improvements and the through sections would be continuous.

Planning is underway for elements of the *Decatur-Federal Station Area Plan* (the *General Development Plan* was approved in March 2014) and associated redevelopment of the Sun Valley neighborhood (CCD, 2013b) planned by the Denver Housing Authority in accordance with the *General Development Plan*. The Sun Valley neighborhood also received a Housing and Urban Development (HUD) Choice Neighborhoods Initiative Grant to revitalize the area. Additional re-development is anticipated around the US 6 and Federal boulevard interchange as the current project at this location has resulted in vacant lots that are for sale.

IMPACT ASSESSMENT

Transportation Resources

The transportation system in the Study Area has evolved since 1940 in response to the needs of the traveling public. Bounded by three major transportation corridors (Alameda Avenue to the south, Colfax Avenue to the north, and I-25 to the east) and with Federal Boulevard serving as a principal arterial for the CCD, the Study Area has long been an area with heavy traffic volumes. First the streetcar, then automotive travel, and now a mix of modes have carried people and goods through the area. In general, capacity of the transportation system in the Study Area has been outpaced by travel demand (FHWA, 2006).

Growth and re-development will continue to place pressure on the existing transportation network, increasing the level of travel demand over time. The traffic volumes on Federal Boulevard are projected to increase approximately 30 percent by the year 2035 (FHU, 2009b and TSH, 2014). The expansion of RTD's LRT system and high usage of public transit by the residents in the neighborhoods adjacent to Federal Boulevard emphasize the need for multi-modal options and connectivity. Other current and reasonably foreseeable future projects will also contribute to an enhanced transportation system; the Proposed Action and these other projects complement each other to improve the transportation system network and multi-modality in the cumulative impact study area. There will be improved safety and traffic operations, as well as improved connectivity between different modes of travel over the next 20 years.

When combined with other past, present, and reasonably foreseeable future actions, the Proposed Action is expected to contribute to the positive trend in the improvement of transportation resources.

Land Use, Right of Way Acquisitions, and Relocations

Past transportation projects in the Study Area have required acquisition of privately held property and necessitated the relocation of residences and businesses. There has also been development that converted open lands to residential, public, industrial, and commercial uses within the cumulative impact study area. This includes Sports Authority Stadium in the Study Area as well as several parks and publicly held lands.

Current and reasonably foreseeable actions, including this project, are anticipated to continue this trend as the transportation system expands and as re-development occurs in response to regional population growth. Planned transportation projects build upon existing infrastructure, but projects, including the Proposed Action, still have impacts on the surrounding land use. As the Study Area is already established with little vacant land available for development, it is expected that re-development will occur where possible as the area is revitalized through efforts such as *Blueprint Denver*, the *Sun Valley Neighborhood Decatur-Federal Station Area Plan*, and implementation of the HUD Choice Neighborhoods Initiative Grant.

When combined with other past, present, and reasonably foreseeable future actions, the Proposed Action would contribute to the cumulative impact of converting land to a transportation use as well as the continued urbanization of the Study Area. This trend includes right-of-way acquisitions and relocations.

Environmental Justice

As the transportation system was built and land was developed, the Study Area became an affordable place to live for many low-income households and it has a large minority population. Major transportation projects (construction of US 6 and I-25) have provided mobility to and from the Study Area but a lack of investment within the communities and for the benefit of the communities has led to the area becoming economically disadvantaged.

Both the Sun Valley and Villa Park neighborhoods are environmental justice populations (Pinyon, 2014b). The Federal Boulevard: Alameda Avenue to 5th Avenue Environmental Assessment indicated that the Barnum, West Colfax, and Valverde neighborhoods, also within the Study Area, are also environmental justice populations (CDOT, 2007). According to the *Denver Comprehensive Plan 2000* and the supplemental *Blueprint Denver*, these areas are Areas of Change. An Area of Change is defined as an area of Denver where change is either desirable or is underway and will benefit from, and thrive on, an infusion of population, economic activity, and investment (CCD, 2002).

As the Decatur-Federal LRT station area evolves and the Sun Valley neighborhood is re-developed, the demographics and character of the Study Area may change. There are also planned improvements to the recreational facilities in the Cumulative Impacts Study Area. Efforts to revitalize the neighborhoods and the surrounding areas include the implementation of transportation improvements to improve safety, mobility, and multi-

modal connectivity. The Federal Boulevard US 6 to US 40 TIGER Discretionary Grant Application noted that the Proposed Action would “...enhance livability in an economically disadvantaged area...” (CCD, 2012). An improved transportation system will support the strengthening of the community.

Environmental justice populations in the Study Area have been, and will continue to be, impacted by transportation projects including this project, and other re-development activities. Some of the impacts are positive, such as the improved safety, mobility, and multi-modal connectivity. Transportation projects, as well as the commercial and industrial development, also have negative impacts: conversion of commercial areas into other uses, acquisition of right of way from environmental justice populations, higher noise levels, increased impervious surface and associated stormwater runoff, and reduced neighborhood cohesion. Not all right-of-way acquisition is negative; in some instances individuals are eager to sell their property.

When combined with other past, present, and reasonably foreseeable future actions, the Proposed Action would contribute to the trend of impacting the environmental justice populations through right-of way acquisition and increase in noise levels. These populations would also experience a positive trend from the Proposed Action in combination with other current and reasonably foreseeable transportation projects through improved safety and mobility as well as increased multi-modal connectivity.

Noise Levels

Noise levels have increased since 1940 due to commercial, residential, and industrial activity as well as the growing transportation system. The urbanization of the Study Area has led to ambient noise levels that would be expected in a city; noise sources include traffic, schools, recreation, construction, community facilities, and general day-to-day activities at residences and businesses.

Existing noise levels in the cumulative impact area currently exceed the CDOT Noise Abatement Criteria levels at seven commercial receivers, out of the 100 that were modeled for this EA (Pinyon, 2014c). Given the urbanized nature of the Study Area for the EA and the high traffic volumes on Federal Boulevard, US 6, I-25, and Colfax Avenue, as well as local collector/distributor streets, this is not unexpected. In addition, commercial and industrial activities as well as construction planned and underway in the Study Area contribute to the existing noise levels and will continue to add to the noise in the future.

Noise levels are expected to increase in the future based on the modeling completed for this EA (Pinyon, 2014c). Increased traffic volumes on Federal Boulevard and other streets in the Study Area will contribute to the rise in noise levels as will construction of current and planned projects. Re-development and population growth will also add the noise levels; re-development and growth will occur regardless of the implementation of the Proposed Action. Additionally, the Proposed Action is not expected to cause an increase

in noise levels above those that are forecasted for the year 2035 without its implementation.

When combined with other past, present, and reasonably foreseeable future actions, the Proposed Action is expected to have a negligible contribution to the trend in the increase of noise levels in the Study Area.

Water Quality

Water quality has been reduced over time as development and transportation uses increased in the Study Area. The South Platte River's alignment was altered and channelized prior to 1940 (FHWA, 2006). Activity that has degraded water quality includes direct discharges and stormwater runoff entering receiving waters, including nearby gulches and South Platte River. Runoff volumes have risen as impervious surface has increased due to development of the transportation system as well as from other residential, commercial, and industrial uses.

Awareness of water quality degradation and its implications has been reflected in legislation, regulation, and permitting requirements that have been issued at the federal, state, and local level. The MS4 permitting program was extended to include stormwater in 1990 by the EPA. The CCD, RTD, and CDOT have MS4 permits for the Study Area that have resulted in the improvements of water quality, as projects have been completed in the Study Area in compliance with permitting requirements. The CCD requires use of a four-step process focused on reducing runoff, implementing best management practices to capture water and release it slowly, stabilizing drainage ways, and utilizing site-specific controls for development and re-development projects including linear construction projects (CCD, 2013). The culmination of the regulatory controls has resulted in improving water quality over the past several decades.

The construction of the Proposed Action will result in a negligible increase in impervious surface and runoff when added to existing and future development in the Cumulative Impacts Study Area. However, requirements to comply with federal, state, and local, stormwater regulations will provide a positive effect on treatment of runoff within the Study Area, resulting in an improvement compared to existing conditions.

When combined with other past, present, and reasonably foreseeable future actions, the Proposed Action is expected to contribute to the trend of improving water quality in the Study Area.

Air Quality

The Denver metropolitan area air quality routinely exceeded NAAQS in the 1980s and was classified as a nonattainment area. A number of factors affect air quality including manufacturing and industrial activities and mobile air emissions sources such as cars, trucks, and trains. Through a reduction in air emissions, supported by an educational program, and improvements in technology which led to a decrease in vehicle emissions, the CCD has obtained compliance with two of the NAAQS. The CCD was re-designated an

attainment/maintenance area for carbon monoxide in 2001 and for particulate matter 10 microns or less in 2002. The CCD is currently a nonattainment area for ozone.

The EPA requires that all transportation projects in nonattainment or maintenance areas be included in the RTP; the RTP requires consideration of the contribution of a project to the emissions in the area. All current and reasonably foreseeable future actions will need to comply with this requirement.

When combined with other past, present, and reasonably foreseeable future actions, the Proposed Action is not expected to contribute to the trend in the change of air quality in the Study Area.

Global Climate Change

The issue of global climate change is an important national and global concern that is being addressed in several ways by the Federal government. The transportation sector is the second largest source of total greenhouse gases (GHGs) in the US, and the greatest source of carbon dioxide (CO₂) emissions – the predominant GHG. In 2004, the transportation sector was responsible for 31 percent of all US CO₂ emissions. The principal anthropogenic (human-made) source of carbon emissions is the combustion of fossil fuels, which account for approximately 80 percent of anthropogenic emissions of carbon worldwide. Almost all (98 percent) of transportation-sector emissions result from the consumption of petroleum products such as gasoline, diesel fuel, and aviation fuel.

Recognizing this concern, FHWA is working nationally with other modal administrations through the Department of Transportation's Center for Climate Change and Environmental Forecasting to develop strategies to reduce transportation's contribution to greenhouse gases - particularly CO₂ emissions - and to assess the risks to transportation systems and services from climate change.

At the state level, there are also several programs underway in Colorado to address transportation GHGs. The *Governor's Climate Action Plan*, adopted in November 2007, includes measures to adopt vehicle CO₂ emissions standards and to reduce vehicle travel through transit, flex time, telecommuting, ridesharing, and broadband communications. The CDOT issued a *Policy Directive on Air Quality* (Policy Directive) in May 2009. This Policy Directive was developed with input from a number of agencies, including the State of Colorado's Department of Public Health and Environment, the EPA, the FHWA, the Federal Transit Administration, RTD, and the Denver Regional Air Quality Council. This Policy Directive addresses unregulated mobile source air toxics (MSAT) and GHG produced from Colorado's state highways, interstates, and construction activities. As a part of CDOT's commitment to addressing MSATs and GHGs, some of CDOT's program-wide activities include:

1. Continuing researching pavement durability opportunities with the goal of reducing the frequency of resurfacing and/or reconstruction projects.

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2. Developing air quality educational materials, specific to transportation issues, for citizens, elected officials, and schools.
3. Offering outreach to communities to integrate land use and transportation decisions to reduce growth in vehicle miles traveled (VMT), such as smart growth techniques, buffer zones, transit-oriented development, walkable communities, access management plans, etc.
4. Promoting effective, sustained idling reduction programs for schools, commercial fleets and communities throughout the state.
5. Expanding Transportation Demand Management efforts statewide to better utilize the existing transportation mobility network.
6. Continuing to diversify the CDOT fleet by retrofitting diesel vehicles, specifying the types of vehicles and equipment contractors may use, purchasing low-emission vehicles, such as hybrids, and purchasing cleaner burning fuels through bidding incentives where feasible. Incentivizing is the likely vehicle for this.
7. Funding truck parking electrification (note: mostly via exploring external grant opportunities).
8. Researching additional ways to improve freight movement and efficiency statewide.
9. Developing a low-volatile organic compound emitting tree landscaping specification.

Because climate change is a global issue, and the emissions changes due to project alternatives are very small compared to global totals, the GHG emissions associated with the Proposed Action were not calculated. Because changes in energy consumption are not expected as a result of this project, they were not evaluated in this EA. The relationship of current and projected Colorado highway emissions to total global CO₂ emissions is presented in the table below (Table 1). Colorado highway emissions are expected to increase by 4.7 percent between now and 2035. The benefits of the fuel economy and renewable fuels programs in the 2007 Energy Bill are offset by growth in VMT; the draft 2035 statewide transportation plan predicts that Colorado VMT will double between 2000 and 2035. Table 3 also illustrates the size of the project corridor relative to total Colorado travel activity.

Table 1. Greenhouse Gas

Global CO₂ emissions, 2005, million metric tons (MMT)¹	Colorado highway CO₂ emission 2005, MMT²	Projected Colorado 2035 CO₂ emissions, MMT²	Colorado highway, % global total (2005)²	Project Corridor VMT⁴, % of statewide VMT (2005)³
27,7000	29.9	31.3	0.108%	0.00008%

Notes:

1 EIA, *International Energy Outlook 2007*

2 Calculated by FHWA Resource Center

3 Statewide VMT was 47.9 billion in 2005, based on the Colorado Department of Transportation’s Fact Book 2006–2007, *Transportation Facts (CDOT 2007)*.

4 VMT for the project corridor was approximately 40,000 in 2005 (FHU, 2009)

Cumulative effects to air quality would be negligible as the difference in emissions at a local level generated by the Proposed Action, compared to changes at the regional level due to growth and increased travel demand with or without the project, would be inconsequential.

MITIGATION MEASURES

Mitigation measures for cumulative impacts are listed in Table 2.

Table 2. Cumulative Impact Mitigation Measures

Impact	Mitigation Measures
ROW Property Acquisitions / Existing-Business Relocations (Pre-Construction)	<p>All property acquisitions and business relocations will adhere to State and Federal guidelines regarding acquisition policies and relocation assistance, including the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended, and applicable Colorado statutes. Numerous State and Federal requirements create procedures designed to ensure that land owners are paid “just compensation” for necessary acquisitions. Certain relocation benefits will be provided for all eligible businesses displaced by property acquisitions.</p> <p>The CCD will work with CDOT to develop a Construction and Business Outreach Plan designed to assist individuals and businesses along Federal Boulevard prior to construction, to assist them in maintaining business operations during construction, and to work with those individuals and businesses that will be displaced. In addition, the CCD and CDOT will actively pursue partnership opportunities with other organizations that might be able to provide additional assistance and resources to individuals and businesses impacted by the Project.</p> <p>The CCD and CDOT will identify programs and services to assist business and property owners impacted by the Project; some activities could occur after the ROW property is acquired. This assistance will focus on the following efforts and measures:</p> <ul style="list-style-type: none"> The CCD and CDOT will hold at least one business-to-construction outreach forum with affected property owners and businesses to determine the assistance needed and general resources available.

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Impact	Mitigation Measures
	<ul style="list-style-type: none"> • Site-selection assistance, and technical and regulatory assistance will be provided through the relocation process. • Workforce development, and financing assistance will be provided by Business Assistance Programs. • The CCD will recommend potential sources of financing for small businesses needing funding above and beyond their relocation benefits. • Neighborhoods in the region with similar demographic profiles to the displaced businesses will be identified to determine whether these areas will be suitable for relocation. • Translation services will be provided as needed during the ROW property acquisition process.
ROW Acquisition	<p>ROW Acquisition:</p> <p>For any person(s) whose real property interests may be impacted by this project, the acquisition of those property interests will comply fully with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended, (Uniform Act). The Uniform Act is a federally mandated program that applies to all acquisitions of real property or displacements of persons resulting from Federal or federally assisted programs or projects. It was created to provide for and insure the fair and equitable treatment of all such persons. To further ensure that the provisions contained within this act are applied "uniformly," CDOT requires Uniform Act compliance on any project for which it has oversight responsibility regardless of the funding source. Additionally, the Fifth Amendment of the United States Constitution provides that private property may not be taken for a public use without payment of "just compensation." All impacted owners will be provided notification of the acquiring agency's intent to acquire an interest in their property including a written offer letter of just compensation specifically describing those property interests. A-Right-of-Way Specialist will be assigned to each property owner to assist them with this process.</p> <p>Relocation:</p> <p>In certain situations, it may also be necessary to acquire improvements that are located within a proposed acquisition parcel. In those instances where the improvements are occupied, it becomes necessary to "relocate" those individuals from the subject property (residential or business) to a replacement site. The Uniform Act provides for numerous benefits to these individuals to assist them both financially and with advisory services related to relocating their residence or business operation. Although the benefits available under the Uniform Act are far too numerous and complex to discuss in detail in this document, they are available to both owner occupants and tenants of either residential or business properties. In some situations, only personal property must be moved from the real property and this is also covered under the relocation program. As soon as feasible, any person scheduled to be displaced shall be furnished with a general written description of the displacing Agency's relocation program which provides at a minimum, detailed information related to eligibility requirements, advisory services and assistance, payments, and the appeal process. It shall also provide notification that the displaced person(s) will</p>

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Impact	Mitigation Measures
	not be required to move without at least 90 days advance written notice. For residential relocatees, this notice cannot be provided until a written offer to acquire the subject property has been presented, and at least one comparable replacement dwelling has been made available. Relocation benefits will be provided to all eligible persons regardless of race, color, religion, sex or national origin. Benefits under the Act, to which each eligible owner or tenant may be entitled, will be determined on an individual basis and explained to them in detail by an assigned Right-of-Way Specialist.
Noise Impacts at Commercial Receptors in 2035	Noise mitigation in the form of walls or berms has been evaluated and found not to be feasible based on CDOT noise abatement criteria. Therefore, no mitigation is required for traffic noise.

CONCLUSION

The effects of the Proposed Action when added to the past, present, and reasonably foreseeable future actions in the Cumulative Impacts Study Area will not result in major cumulative impacts.

STAKEHOLDER COORDINATION

The CCD has continued to provide opportunities for public involvement between the PEL Study in 2009 and initiation of this EA. A public meeting was held in August 14, 2014 prior to the completion of this EA to solicit further comment on and discussion of the Project. A Spanish-speaking translator was present at the open house, and materials were presented in both English and Spanish; Korean translation was available upon request. Stakeholder coordination will continue to take place throughout the Project's development and construction.

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