

US 50 West: Wills Boulevard to McCulloch Boulevard (Milepost 313 to Milepost 307)

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Air Quality Technical Report

Prepared for:

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List of Acronyms and Abbreviations

Ave	Avenue
Blvd	Boulevard
CBC	concrete box culvert
CDOT	Colorado Department of Transportation
CO ₂	carbon dioxide
EA	environmental assessment
EPA	United States Environmental Protection Agency
FHWA	Federal Highway Administration
GHG	greenhouse gas
MMT	million metric tons
MSAT	mobile source air toxics
NAAQS	National Ambient Air Quality Standards
PEL	Planning and Environmental Linkages
PM _{2.5}	particulate matter smaller than 2.5 microns
PM ₁₀	particulate matter smaller than 10 microns
PWMD	Pueblo West Metropolitan District
Rd.	Road
ROW	right-of-way
US 50	United States Highway 50
VMT	vehicle miles traveled

1. Introduction

2 This environmental assessment (EA) is for safety and capacity improvements to US Highway 50
3 (US 50) between Wills Boulevard (Blvd) and McCulloch Blvd that the Colorado Department of
4 Transportation (CDOT) is proposing, in consultation with and Federal Highway Administration
5 (FHWA), within the City of Pueblo, Pueblo County, and Pueblo West Metropolitan District
6 (PWMD). This project is the third in a sequence of improvements that CDOT is making to US 50,
7 all under the framework of the *US 50 West Planning and Environmental Linkages (PEL) Study* (CDOT,
8 2012a). The US 50 West PEL established the purpose and need, evaluated a full range of
9 alternatives, and developed the *US 50 West PEL Implementation Plan* (CDOT, 2012b) for the PEL
10 recommended Preferred Alternative within a 12-mile corridor from Swallows Road to Baltimore
11 Avenue. Safety and capacity improvements included in the PEL recommended Preferred Alternative
12 generally consist of widening US 50 from four lanes to six lanes from McCulloch Blvd to Wills Blvd
13 and establishing grade-separated interchanges at McCulloch Blvd, Purcell Blvd, and Pueblo Blvd. US
14 50 would remain a four-lane highway west of McCulloch Blvd.

15 At the completion of the PEL Study, funds were not available to construct the recommended
16 improvements for the entire PEL Corridor, leading CDOT to implement a sequence of
17 improvement projects in coordination with FHWA. The following summarizes the sequence of
18 completed National Environmental Policy Act (NEPA) studies and recent improvements for US 50
19 that have led to this *US 50 West Wills Blvd to McCulloch Blvd EA*, as shown in **Figure 1**:

- 20 ■ The *US 50 West Purcell Blvd to Wills Blvd EA* (CDOT, 2014) provides widening 3.4 miles of
21 eastbound US 50 from two lanes to three lanes from Purcell Blvd to Wills Blvd to establish
22 five lanes (three eastbound and two westbound). Safety improvements include adding
23 northbound right turns onto US 50 at McCulloch Blvd and Purcell Blvd and establishing
24 two water quality ponds on the east and west sides of Wild Horse Dry Creek. In addition,
25 widening the eastbound bridge at Wild Horse Dry Creek accommodates a future
26 pedestrian/bicycle path. Construction of these improvements is scheduled for completion in
27 2016.
- 28 ■ The *US 50 West Wills Blvd to BNSF Acceleration Lane Categorical Exclusion* (CDOT, 2015),
29 recently approved by CDOT, establishes a westbound acceleration lane on US 50 from Wills
30 Blvd to the BNSF right-of-way (ROW), east of the BNSF bridge, shown on **Figure 1**.
31 Construction of the acceleration lane is scheduled for 2016.
- 32 ■ CDOT and FHWA are currently undertaking the *US 50 West Wills Blvd to McCulloch Blvd EA*
33 to provide additional safety and capacity improvements to US 50. Improvements include
34 widening 3.4 miles of westbound US 50 between Wills Blvd and Purcell Blvd, from two
35 lanes to three lanes; and widening 2.4 miles of westbound and eastbound US 50 between
36 Purcell Blvd and McCulloch Blvd, from two lanes to three lanes in each direction. Grade-
37 separated interchanges would be established within the US 50 ROW at Purcell Blvd and
38 Pueblo Blvd. A future pedestrian/bicycle path would also be accommodated between Wills
39 Blvd and Pueblo Blvd. A regional water quality pond is proposed to treat US 50 runoff and
40 PWMD municipal runoff.

1 The Proposed Action, in combination with the improvements under construction from Purcell Blvd
2 to Wills Blvd, would establish six-lane capacity (three lanes in each direction) in the most congested
3 portion of the PEL Corridor, between Wills Blvd and McCulloch Blvd.

4 For this EA, the existing features of US 50, including the improvements approved through the *US*
5 *50 West Purcell Blvd to Wills Blvd EA* (CDOT, 2014) and the *US 50 West Wills Blvd to BNSF*
6 *Acceleration Lane Categorical Exclusion*, represent the No Action Alternative. The No Action
7 Alternative assumes that no other major capacity improvements would be made to US 50. The No
8 Action Alternative also includes routine maintenance to keep the existing transportation network in
9 good operating condition.

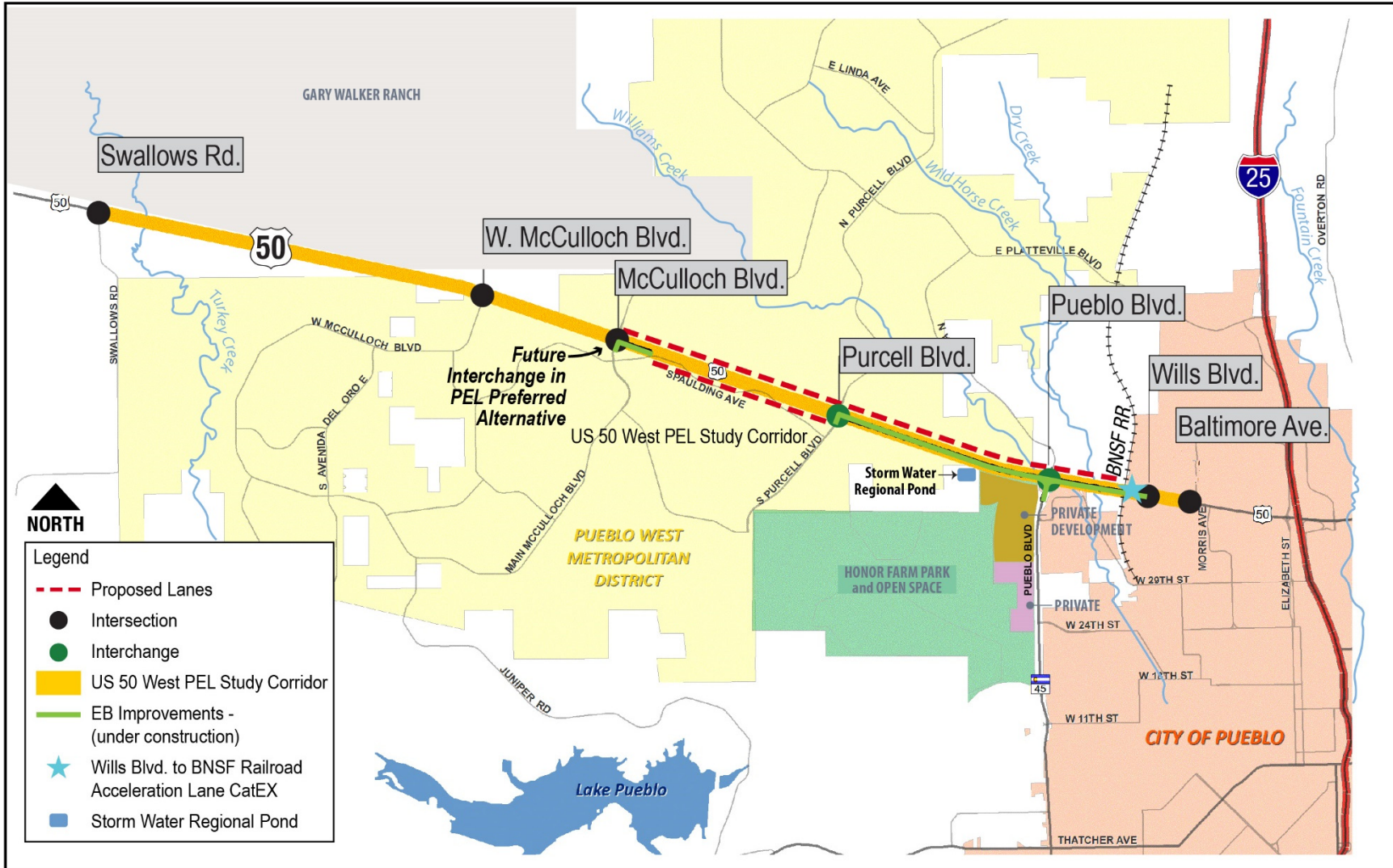
10 CDOT and FHWA prepared this EA to evaluate the Proposed Action benefits and environmental
11 impacts, relevant to the No Action Alternative. This EA will also ensure that the Proposed Action
12 would have logical termini and independent utility but not restrict other reasonably foreseeable
13 transportation improvements identified in the PEL recommended Preferred Alternative.

14 Future elements of the PEL recommended Preferred Alternative will undergo NEPA analysis as
15 funding for design, ROW, and construction becomes available.

16 An air quality evaluation has been conducted in support of the *US 50 West: Wills Blvd to McCulloch*
17 *Blvd EA*.

US 50 West Environmental Assessment

1 Figure 1. Proposed Action and PEL Study Corridor



3

2. Project Description

2.1 Proposed Action

The Proposed Action involves widening 3.4 miles of westbound US 50 from two lanes to three lanes to include a third westbound lane from Wills Blvd (Milepost 313.15) to Purcell Blvd (Milepost 309.78) and widening 2.4 miles of both westbound and eastbound US 50 from Purcell Blvd (Milepost 309.78) to McCulloch Blvd (Milepost 307.34). Grade-separated interchanges would be established at Pueblo Blvd and at Purcell Blvd. The Proposed Action from Wills Blvd to McCulloch Blvd, in combination with the eastbound improvements under construction from Purcell Blvd to Wills Blvd, would establish six lanes within three eastbound lanes and three westbound lanes for 5.8 miles of US 50, consistent with the *US 50 West PEL Implementation Plan* (CDOT, 2012b).

CDOT is proposing the following transportation improvements between Wills Blvd and McCulloch Blvd:

- **Wills Blvd Intersection to BNSF Railroad Bridge (Milepost 313.15 to Milepost 312.87)** – A third westbound lane would be established by restriping the Wills Blvd to BNSF acceleration lane (*US 50 West Wills Blvd to BNSF Acceleration Lane Categorical Exclusion*; CDOT, 2015) and by extending the westbound lane through the BNSF railroad bridge underpass to Pueblo Blvd.
- **BNSF Railroad Bridge through Pueblo Blvd Intersection (Milepost 312.87 to Milepost 312.65)** – The westbound lanes of US 50 in the vicinity of Pueblo Blvd would be realigned to be parallel to the eastbound lanes from Milepost 311.45 to Milepost 312.65, and the existing westbound bridge over Wild Horse Dry Creek would be replaced. A grade-separated interchange would be established, with Pueblo Blvd crossing over US 50. The Williams Creek concrete box culvert (CBC) under the eastbound US 50 lanes would be extended to accommodate the realigned westbound lanes, including the westbound third-lane widening. Pueblo Blvd would be widened to accommodate two additional left turn lanes onto westbound US 50 via a right-side exit ramp. The existing westbound US 50 lanes would be retained and modified to provide access from US 50 onto southbound Pueblo Blvd. The *US 50 West PEL Implementation Plan* (CDOT, 2012b) identifies the Proposed Action at US 50 at Pueblo Blvd to be implemented as phased improvements over time. The Proposed Action would implement a diamond-type interchange at Pueblo Blvd. The PEL recommends a Diverging Diamond Interchange configuration, which would be implemented at some time in the future when the Pueblo Blvd Extension is developed as an expressway between US 50 and I-25 (CDOT, 2012a).
- **Pueblo Blvd to Purcell Blvd Intersection (Milepost 312.65 to Milepost 309.78)** – The westbound third lane would extend from Pueblo Blvd to Purcell Blvd, and a full six-lane grade-separated interchange would be developed, with US 50 crossing over Purcell Blvd. A CBC under Purcell Blvd would be extended to accommodate a future pedestrian/bicycle trail and future widening of Purcell Blvd.
- **Purcell Blvd to McCulloch Blvd (Milepost 309.78 to Milepost 307.34)** – The Proposed Action would include a third westbound lane extending from Purcell Blvd and terminating at

1 a right turn onto northbound McCulloch Blvd; and a third eastbound lane extending from
2 the newly established northbound right turn from McCulloch Blvd and terminating at
3 Purcell Blvd.

4 ■ **Pedestrian/Bicycle Path** – The Proposed Action would accommodate a future
5 pedestrian/bicycle path within CDOT ROW along the south side of US 50 from Wills Blvd
6 to Pueblo Blvd, which is an element of the PEL recommended Preferred Alternative
7 (CDOT, 2012a). The slope paving adjacent to the eastbound lanes at the BNSF railroad
8 underpass would be modified to accommodate the pedestrian/bicycle path.

9 ■ **MS4 Improvements/Regional Pond** - The Proposed Action would include water quality
10 improvements and a regional pond. Stormwater runoff for the westbound lane widening and
11 interchange improvements between Wills Blvd and the Pueblo Blvd (Milepost 313.15 to
12 Milepost 311.5) would be directed to the two extended detention basins under construction
13 on the east and west sides of Wild Horse Dry Creek. Stormwater runoff for the westbound
14 and eastbound lanes between Pueblo Blvd and McCulloch Blvd (Milepost 311.5 to
15 Milepost 307.34) would be directed to a proposed regional pond site within a private parcel
16 west of Pueblo Blvd and south of US 50.

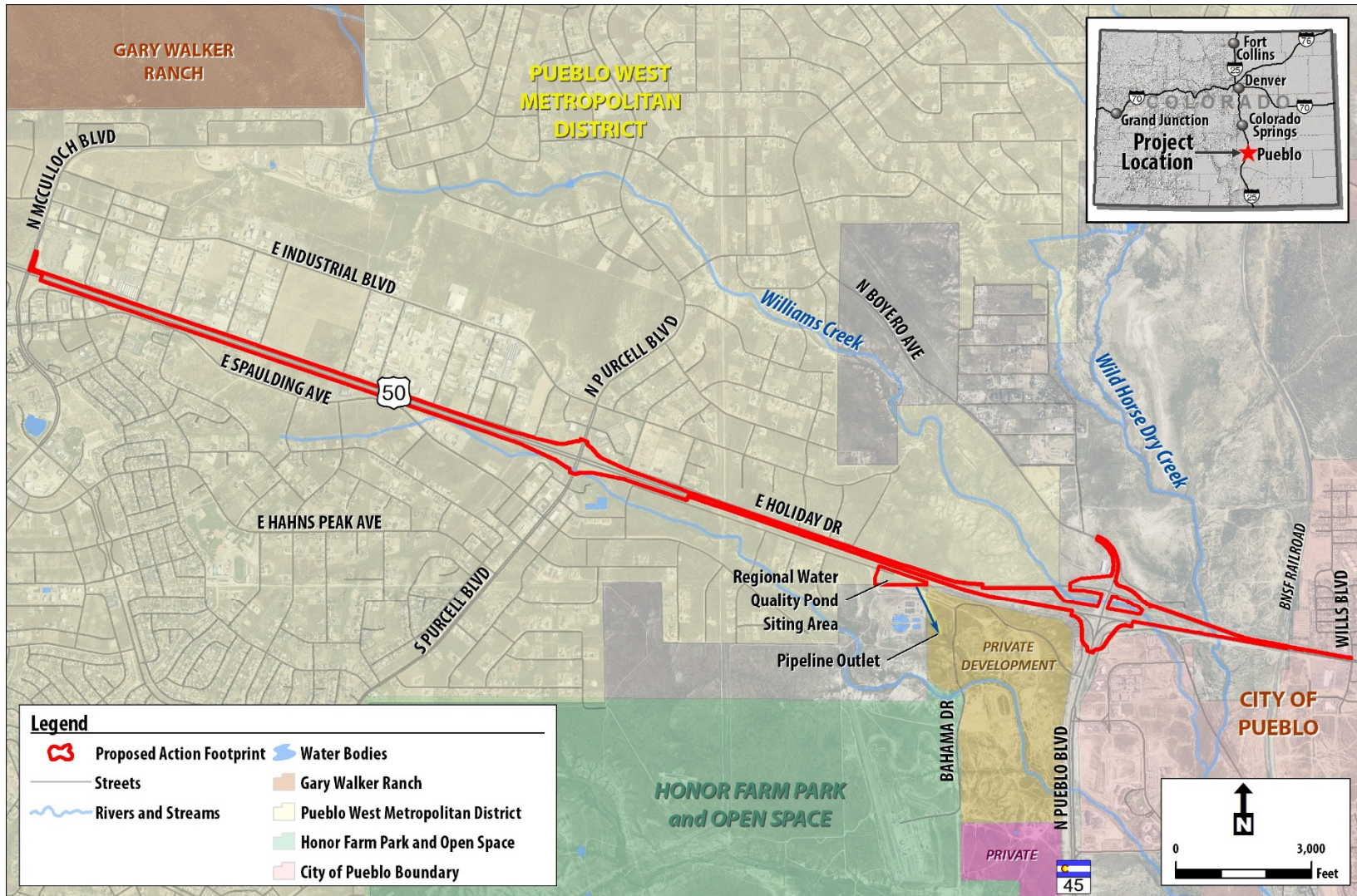
17 **Figure 2** provides a general map of the Proposed Action.

18 2.2 No Action Alternative

19 The existing features of US 50, including the improvements approved through the *US 50 West Purcell*
20 *Blvd to Wills Blvd EA* (CDOT, 2014) and the *US 50 West Wills Blvd to BNSF Acceleration Lane*
21 *Categorical Exclusion*, represent the No Action Alternative. The No Action Alternative assumes that
22 no other major capacity improvements would be made to US 50. The No Action Alternative also
23 includes routine maintenance to keep the existing transportation network in good operating
24 condition.

50 US 50 West Environmental Assessment

1 Figure 2. Proposed Action



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3. Air Quality Assessment

3.1 Criteria Pollutants

Pueblo County is in attainment for all criteria pollutants identified and monitored by the United States Environmental Protection Agency (EPA) as important sources of human and environmental health concern when they occur in ambient concentrations above the National Ambient Air Quality Standards (NAAQS). These pollutants include carbon monoxide, particulate matter smaller than 10 microns (PM₁₀) or 2.5 microns (PM_{2.5}), nitrogen dioxide, sulfur dioxide, lead, and ground level ozone. PM₁₀ and PM_{2.5} are currently monitored in Pueblo. Neither is above its respective NAAQS limit. Because the Proposed Action would improve traffic flow, fewer emissions would be generated when compared to the No Action Alternative, thus criteria pollutant concentrations are expected to remain below the NAAQS.

3.2 Mobile Source Air Toxics

The purpose of the US 50 West Project is to improve the safety of the corridor, increase the mobility and relieve traffic congestion on US 50, and maintain reasonable access to future growth. This evaluation has been determined to generate minimal air quality issues for Clean Air Act criteria pollutants and has not been linked with any special mobile source air toxics (MSAT) pollutant concerns. As such, this project will not result in changes in traffic volumes, vehicle mix, or any other factor that would cause an increase in MSAT project concerns. The project is not expected to change the number or percentage of diesel trucks using the PEL Corridor.

Moreover, EPA regulations for vehicle engines and fuels will cause overall MSAT emissions to decline significantly over the next several decades. Based on regulations now in effect, an analysis of national trends with EPA's MOVES2010b model forecasts a combined reduction of 83 percent in the total annual emission rate for the priority MSAT from 2010 to 2050, while vehicle miles traveled (VMT) are projected to increase by 102 percent. This will reduce the background level of MSATs and the possibility of even minor MSAT emissions from this project.

3.3 Fugitive Dust

Fugitive dust (also known as sand re-entrainment) is generated when surface sediments (sand) are incorporated into a fluvial flow (air) when cars drive over the roadway surface. Fugitive dust is typically only a concern in PM₁₀ non-attainment or maintenance areas. The Proposed Action would be in a PM₁₀ attainment area as described in **Section 3.1**. The overall amount of sand re-entrainment depends on several factors, including the VMT and the frequency of sanding. The VMT for the No Action Alternative is expected to be the same as that for the Proposed Action in the study area; therefore, no additional fugitive dust would be generated as a result of a VMT increase from the Proposed Action. The Proposed Action would increase the paved surface of US 50, but any increase in sand re-entrainment from that would be inconsequential.

3.4 Greenhouse Gases

The issue of global climate change is an important national and global concern that the federal government is addressing in several ways. The transportation sector is the second largest source of total greenhouse gases (GHGs) in the United States and the greatest source of carbon dioxide (CO₂) emissions—the predominant GHG. In 2004, the transportation sector was responsible for 31 percent of all CO₂ emissions in the United States. The principal man-made source of carbon emissions is the combustion of fossil fuels, which accounts for approximately 80 percent of man-made emissions worldwide. Almost all of the transportation-sector emissions (98 percent) 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 United States Department of Transportation Center for Climate Change and Environmental Forecasting to develop strategies to reduce transportation's contribution to GHGs—particularly CO₂ emissions—and to assess the risks to transportation systems and services from climate changes.

At the state level, several programs are underway in Colorado to address transportation GHGs. The *Colorado Climate Action Plan* (Ritter, 2007) includes measures to adopt vehicle CO₂ emissions standards and to reduce vehicle travel through transit, flex time, telecommuting, ridesharing, and broadband communications. CDOT issued Policy Directive 1901 on air quality (CDOT, 2009). This Policy Directive was developed with input from other agencies, including the State of Colorado's Department of Public Health and Environment, EPA, FHWA, the Federal Transit Administration, the Denver Regional Transportation District, and the Denver Regional Air Quality Council. This Policy Directive addresses unregulated MSAT and GHGs produced from Colorado's state highways, interstates, and construction activities.

As a part of CDOT's commitment to addressing MSAT and GHGs, some of CDOT's program-wide activities include:

- Developing truck routes/restrictions with the goal of limiting truck traffic in proximity to facilities, including schools, with sensitive receptor populations.
- Continuing to research pavement durability opportunities with the goal of reducing the frequency of resurfacing and/or reconstruction projects.
- Developing air quality educational materials, specific to transportation issues, for citizens, elected officials, and schools.
- Offering outreach to communities to integrate land use and transportation decisions to reduce growth in VMT, such as smart growth techniques, buffer zones, transit-oriented development, walkable communities, access management plans, etc.
- Committing to research additional concrete additives that would reduce the demand for cement.
- Expanding Transportation Demand Management efforts statewide to better use the existing transportation mobility network.
- 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

1 hybrids, and purchasing cleaner burning fuels through bidding incentives where feasible.
 2 Incentivizing is the likely mechanism for this.

- 3 ■ Funding truck parking electrification (Note: Mostly by exploring external grant
- 4 opportunities).
- 5 ■ Researching additional ways to improve freight movement and efficiency statewide.
- 6 ■ Committing to incorporate ultra-low sulfur diesel for non-road equipment statewide.
- 7 ■ Developing a low-volatile organic compounds emitting tree landscaping specification.

8 Because climate change is a global issue and because the emissions changes due to project
 9 alternatives are very small compared to global totals, the GHG emissions associated with the
 10 alternatives were not calculated. Because GHGs are directly related to energy use, the changes in
 11 GHG emissions would be similar to those in energy consumption presented in the EA.

12 **Table 1** presents the relationship of current and projected Colorado highway emissions to total
 13 global CO₂ emissions. Colorado highway emissions are expected to increase by 4.7 percent between
 14 now and 2035. The benefits of the fuel economy and renewable fuels programs in the 2007 Energy
 15 Bill are offset by growth in VMT; the draft 2035 statewide transportation plan predicts that
 16 Colorado VMT will double between 2000 and 2035. **Table 1** also illustrates the relatively small size
 17 of the project corridor compared to total Colorado travel activity.

18 **Table 1. Carbon Dioxide Emissions Data**

Global CO ₂ Emissions, 2005, in MMT ¹	Colorado Highway CO ₂ Emissions, 2005, in MMT ¹	Projected Colorado 2035 Highway CO ₂ Emissions, in MMT ¹	Colorado Highway Emissions, Percent of Global Total (2005) ¹	Project Corridor VMT, Percent of Statewide VMT (2005)
27,700	29.9	31.3	0.108	0.2

¹ Data provided by FHWA Resource Center (CDOT, 2010)

CO₂ = carbon dioxide

MMT = million metric tons

VMT = vehicle miles traveled

19

1 **3.5 Construction Impacts**

2 Overall construction of the Proposed Action will last less than 5 years, but construction may last
3 several months at any one location. Construction activities may be sources of temporary air quality
4 impacts from fugitive dust or equipment emissions. Adjoining properties in the study area would be
5 near construction activities when the Proposed Action is built. Construction emissions differ from
6 regular traffic emissions in several ways:

- 7 ▪ Construction emissions last only for the duration of the construction period.
- 8 ▪ Construction activities generally are short term, and depending on the nature of the
9 construction operations, could last from seconds (for example, a truck passing) to months
10 (for example, constructing a bridge).
- 11 ▪ Construction can involve other emission sources, such as fugitive dust from ground
12 disturbance.
- 13 ▪ Construction emissions tend to be intermittent and depend on the type of operation,
14 location, and function of the equipment, and the equipment usage cycle; traffic emissions are
15 present in a more continuous fashion after construction activities are completed.
- 16 ▪ Construction emissions tend to be from mobile sources with diesel engines.

17 Construction emission impacts will be minimized somewhat because much of the project
18 improvements do not abut sensitive areas such as residences. Even so, people in neighboring areas
19 could be exposed to construction-related emissions. The Proposed Action would be similar in
20 nature to other highway projects and the construction emissions should be representative of projects
21 of this type and magnitude. These types of projects generally do not cause meaningful air quality
22 impacts.

1 4. Mitigation

2 Standard emission minimization measures for construction activities are recommended. Areas
3 neighboring the Proposed Action could be exposed to construction-related emissions and particular
4 attention will be given to minimizing total emissions near sensitive areas such as homes. To address
5 the temporary elevated air emissions that may be experienced during construction, standard
6 construction mitigation measures shall be incorporated into construction contracts where feasible.
7 These include following best management practices and relevant CDOT construction specifications,
8 such as:

- 9 ▪ Maintain equipment on a regular basis. Equipment will be subject to inspection by the
10 project manager to ensure maintenance.
- 11 ▪ Control fugitive dust by implementing CDOT's Standard Specifications for Road and Bridge
12 Construction, particularly Sections 107.24, 209, and 250, and the Air Pollution Control
13 Division Air Pollutant Emission Notification requirements.
- 14 ▪ Prohibit excessive idling of inactive equipment or vehicles.
- 15 ▪ Locate stationary equipment as far from sensitive receivers as possible (when conditions
16 allow).

17 5. References

- 18 Colorado Department of Transportation (CDOT), 2009. *CDOT Policy Directive 1901, CDOT Policy on*
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