

DRAFT FOR INTERNAL REVIEW

ENVIRONMENTAL ASSESSMENT

I-270 CORRIDOR IMPROVEMENTS PROJECT

Adams County, Commerce City, and City and County of Denver, Colorado

PROJECT NUMBER: 23198
PROJECT CODE: STU 2706-043
December 2022

LEAD AGENCIES



COLORADO
Department of Transportation

Environmental Assessment

I-270 Corridor Improvements Project

December 2022

Prepared For:

Adams County, Commerce City, and City and County of Denver, Colorado

CDOT Project No.

STU 2706-043

CDOT Project Code

23198

Lead Agencies

Federal Highway Administration



Colorado Department of Transportation



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2 Public Comment Period

3 The public comment period for this document begins **INSERT DATE** and ends **INSERT DATE**. Written comments on this document can be submitted through
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5 **INSERT CONTACT INFORMATION**

6 A public **SELECT: MEETING OR HEARING** for this project will be held at **LOCATION** on **DATE** from **INSERT START AND END TIMES**.

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18	A2	Traffic Technical Report
19	A3	Community Understanding Report
20	A4	Air Quality Technical Report
21	A5	Phase II Environmental Site Assessment
22	A6	Traffic Noise Technical Report
23	A7	CDOT Visual Impact Assessment Memorandum
24	A8	Multimodal Technical Report
25	A9	Water Quality Technical Memorandum
26	A10	Wetland & Aquatic Resources Technical Report
27	A11	Floodplains Technical Report and Hydraulics Addendum
28	A12	Biological Resources Report
29	A13	Class III Cultural Resources Inventory (Historic)
30	A14	Archaeological Assessment Technical Report
31	A15	Section 4(f) and Section 6(f) Resources Technical Memorandum
32	A16	Cumulative Resources Technical Report
33	A17	Paleontological Technical Memorandum

- 1 A18 Stakeholder, Public, and Agency Outreach
- 2 B1 Proposed Action Development Technical Report
- 3 B2 Project Setting and Description of Alternatives
- 4 B3 Proposed Action Mapbook

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1 Acronyms and Abbreviations

Acronym	Definition
AASHTO	American Association of State Highway and Transportation Officials
ACHP	Advisory Council on Historic Preservation
ACM	asbestos-containing material
APE	Area of Potential Effects
AQCC	Air Quality Control Commission
BMP	best management practice
BNSF	BNSF Railway
BRT	bus rapid transit
CDOT	Colorado Department of Transportation
CDPHE	Colorado Department of Public Health and Environment
CFR	Code of Federal Regulations
CHPTE	Colorado High Performance Transportation Enterprise
CLOMR	Conditional Letter of Map Revision
CMCA	Colorado Motor Carriers Association
CO	carbon monoxide
COVID-19	novel coronavirus of 2019
CPW	Colorado Parks and Wildlife
C.R.S.	Colorado Revised Statutes
CTIO	Colorado Transportation Investment Office
dBA	A-weighted decibel(s)

Acronym	Definition
DC	direct connect
DDD	dichlorodiphenyldichloroethane
DI	disproportionately impacted
DL	drivability life
DM	Denver Metro
DRCOG	Denver Regional Council of Governments
EA	Environmental Assessment
EJ	environmental justice
EPA	Environmental Protection Agency
ESA	Environmental Site Assessment
FAQ	frequently asked question
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FIRM	Flood Insurance Rate Maps
FIS	Flood Insurance Study
GP	general purpose
HOV	high occupancy vehicle
I-	Interstate
IAR	Interstate Access Request
ITS	Intelligent Transportation System
LOMR	Letter of Map Revision
LOSS	Level of Service of Safety

Acronym	Definition
LWCF	Land and Water Conservation Fund
MBTA	Migratory Bird Treaty Act
MHFD	Mile High Flood District
ML	mainline
MOE	measures of effectiveness
MP	mile post
MS4	Municipal Separate Storm Sewer System
MSATs	mobile source air toxics
NAAQS	National Ambient Air Quality Standards
NAC	Noise Abatement Criteria
NEPA	National Environmental Policy Act
NFR	North Front Range
NRHP	National Register of Historic Places
NWP	Nationwide Permit
OHWM	ordinary high water mark
OTIS	Online Transportation Information System
OWJ	Official with Jurisdiction
PCS	potentially contaminated soil
PD	Policy Directive
PEL	Planning and Environmental Linkages
PLT	Project Leadership Team
PM _{2.5}	particulate matter with a diameter less than or equal to 2.5 microns

Acronym	Definition
PM ₁₀	particulate matter with a diameter less than or equal to 10 microns
POAQC	Project of Air Quality Concern
PW	Parks and Wildlife
RAC	Regional Advisory Committee
RAQC	Regional Air Quality Council
RCRA	Resource Conservation and Recovery Act
REC	Recognized Environmental Conditions
ROW	right-of-way
RTD	Regional Transit District
RTP	Regional Transportation Plan
SB	Senate Bill
SHPO	State Historic Preservation Office
SW	southwest
SWMP	Stormwater Management Plan
TIP	Transportation Improvement Program
TNM	Traffic Noise Model
U.S.C.	United States Code
UPRR	Union Pacific Railroad
US	U.S. Highway
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
VHD	vehicle hours of delay

Acronym	Definition
VHT	vehicle hours traveled
VMT	vehicle miles traveled

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1.0 Introduction and Background

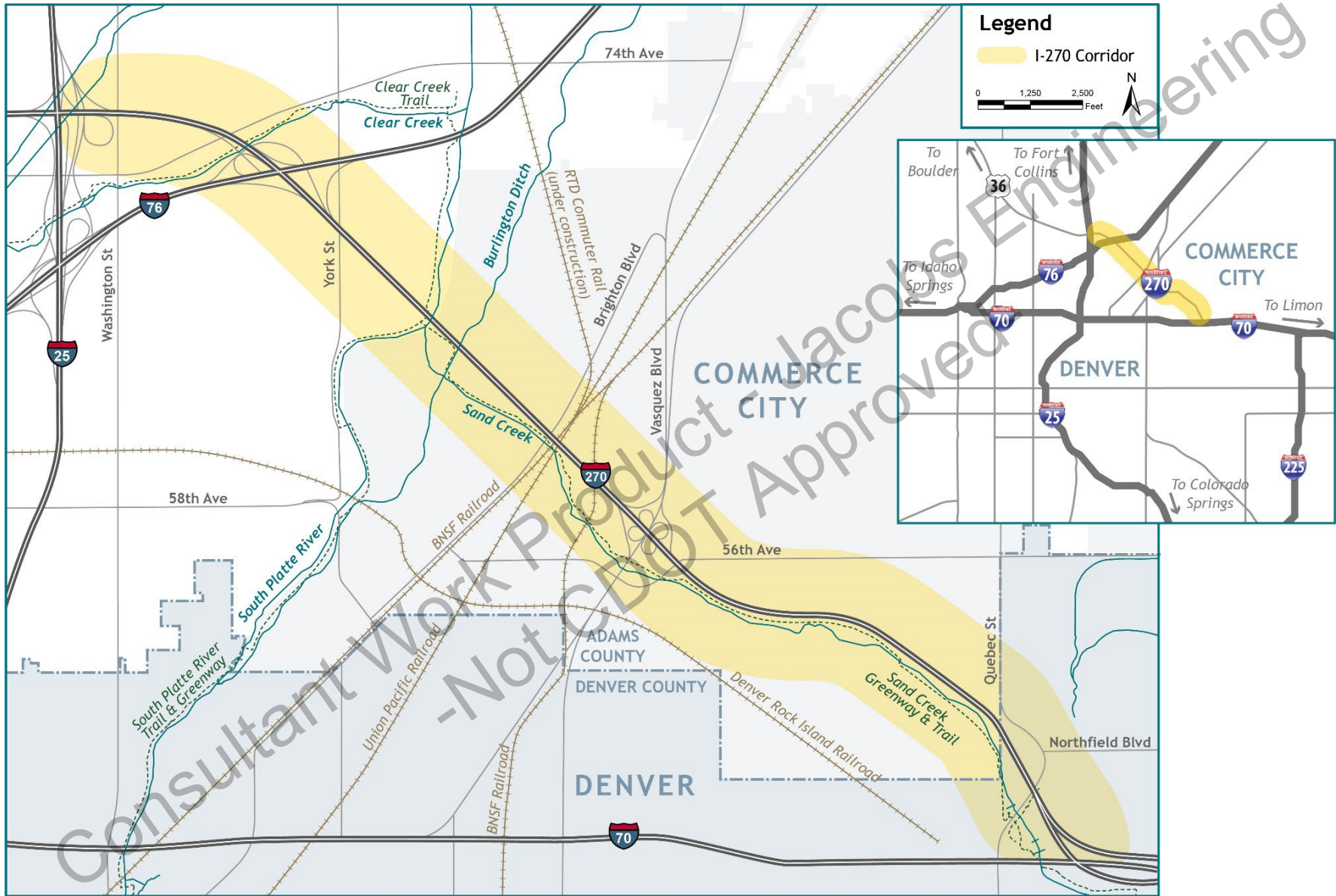
The Colorado Department of Transportation (CDOT) and the Federal Highway Administration (FHWA), in conjunction with local partners Adams County and Commerce City, are proposing improvements to Interstate 270 (I-270) in Adams County, Commerce City, and the City and County of Denver. This Environmental Assessment (EA) describes the purpose and need, alternatives considered, Proposed Action, environmental effects and mitigation, and public and agency involvement process for the I-270 Corridor Improvements project (Project), under the requirements of the National Environmental Policy Act (NEPA).

I-270 is a controlled-access interstate highway with two through lanes in each direction, connecting approximately 6.5 miles between Interstate 25 (I-25) and Interstate 70 (I-70) (Figure 1-1). Between I-25 and I-70, I-270 has interchanges at Interstate 76 (I-76), York Street, Vasquez Boulevard, and Quebec Street. The posted speed limit on I-270 is 55 miles per hour (mph). The highway crosses over both the Union Pacific Railroad (UPRR) and BNSF Railway (BNSF) rail lines, as well as the South Platte River, Clear Creek, and Burlington Ditch, and parallels Sand Creek. Adjacent land uses are primarily industrial, with clusters of residential and commercial. Regional trails that parallel the waterways also cross under the interstate and parallel the south side of I-270 east of Vasquez Boulevard.

I-270 connects the U.S. Highway 36 (US 36), I-25, and I-70 corridors, all of which have been updated in recent years to offer express lanes as an option to the traveling public. The I-270 corridor provides a key transportation link to the Denver International Airport for communities in the north Denver metropolitan area and serves large business clusters from the energy, manufacturing, and logistics and distribution industry sectors. I-270 is a critical freight corridor for the region, providing access to adjacent industrial areas and serving as a designated route for transport of hazardous materials.

Constructed between 1965 and 1970, I-270 no longer meets local and regional transportation demands. Proposed expansion of I-270 was included in the Denver Regional Council of Governments (DRCOG) *2040 Fiscally Constrained Regional Transportation Plan (RTP)* adopted on February 18, 2015. The 2040 RTP defines transportation elements and services to be provided over the next 25 years based on reasonably expected revenues. Funding for the I-270 Corridor Improvements EA and conceptual design was subsequently programmed in DRCOG's Transportation Improvement Program, and then in CDOT's Statewide Transportation Improvement Program.

Prior to initiating the I-270 Corridor Improvements EA, CDOT conducted two studies that explored preliminary alternatives for improving the I-270 corridor. The I-270 Traffic Study (Atkins 2019) was prepared to document existing traffic conditions on I-270, develop a calibrated traffic model to use for alternatives analysis, forecast design year (2040) traffic, and analyze potential mainline alternatives. In 2018, CDOT completed the Vasquez Boulevard Planning and Environmental Linkages (PEL) study (CDOT 2018a), which developed and evaluated a range of improvements to address mobility and safety needs on Vasquez Boulevard including the interchange of Vasquez Boulevard and I-270. Both studies informed development of the Proposed Action evaluated in this EA.



1

2 Figure 1-1. Location Map

2.0 Purpose and Need

2.1 Project Purpose and Need

The purpose of the I-270 Corridor Improvements project is to implement transportation solutions that modernize the I-270 corridor to accommodate transportation demands.

The identified transportation needs are as follows:

- Improve safety by reducing the rate of vehicle crashes.
- Improve travel time reliability and reduce delays.
- Update obsolete and deficient bridges and highway infrastructure.
- Improve truck freight movement efficiency.

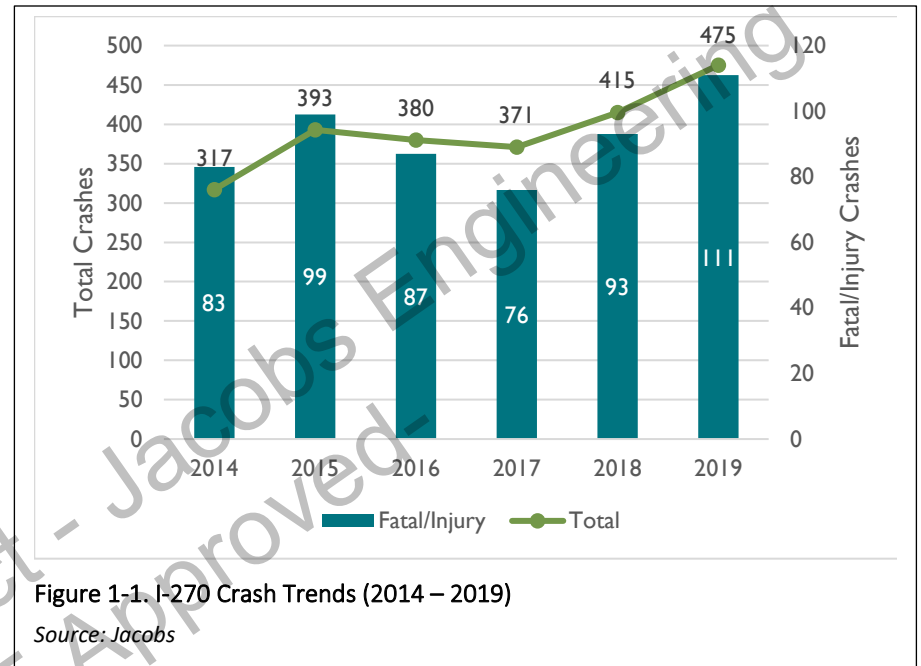
Supplemental project goals include the following:

- Accommodating existing and planned multimodal routes
- Consideration of the natural and human environment
- Consideration of approved local and regional transportation plans

2.2 Explanation of Identified Needs for the Project

2.2.1 Improve Safety by Reducing the Rate of Vehicle Crashes

The *I-270 Existing Safety Conditions Report* (Safety Technical Report; Appendix A1) shows that the rate of fatal crashes and the frequency of crashes is higher on I-270 compared to average crash rates and frequencies for urban four-lane freeways in Colorado. Between 2014 and 2019, 2,351 crashes occurred in the corridor, with 88 percent of the crashes occurring on the I-270 mainline and 12 percent occurring on ramps at interchanges. Of the 2,351 crashes over that 6-year period, 23 percent involved injuries or fatalities. Figure 1-1 shows the trend of total crashes and fatal/injury crashes on I-270, both of which have been increasing in recent years. The trend line shows total crashes, while the bars show fatal and injury crashes corresponding to the right axis.



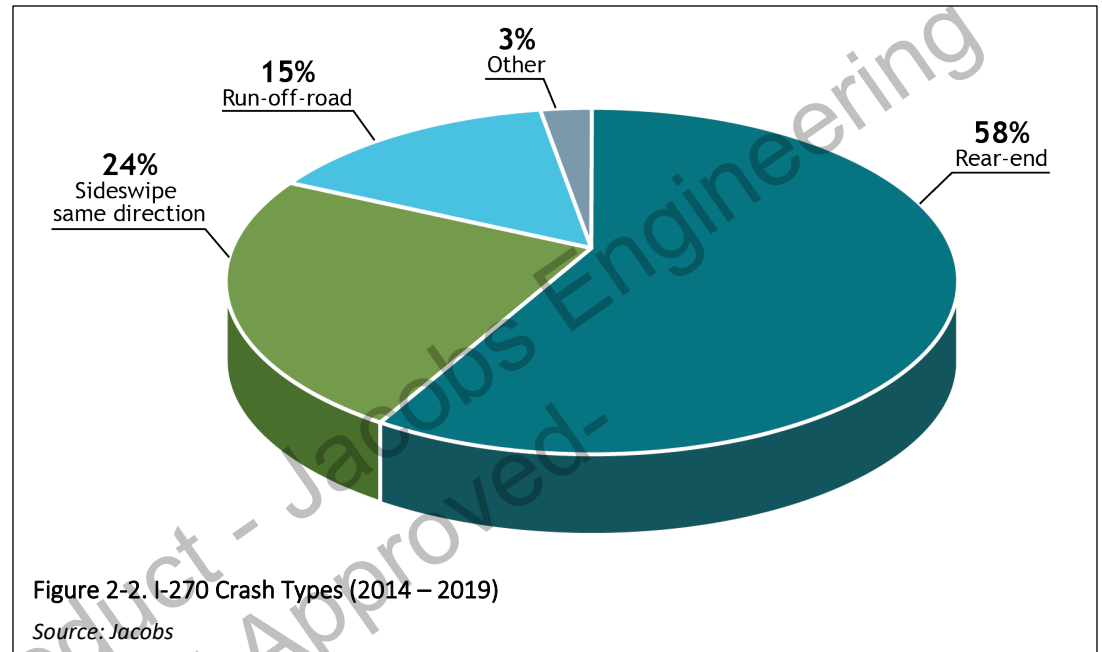
1 **Prevalent Crash Types**

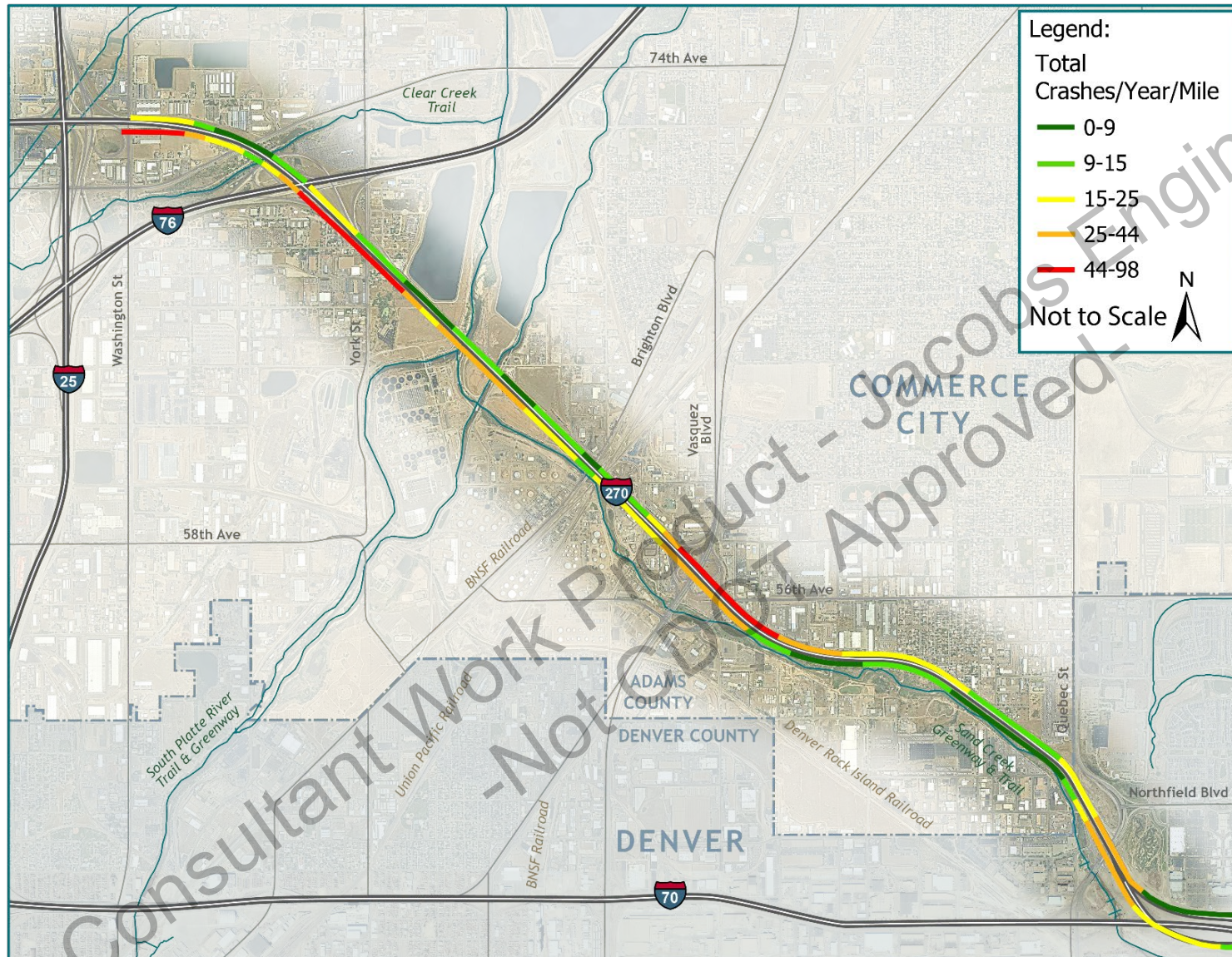
2 As shown on Figure 2-2, rear-end crashes are the most
3 frequent type of crash, followed by same-direction sideswipe
4 crashes and run-off-road crashes. Rear-end and same-
5 direction sideswipe crashes often occur during congested
6 traffic conditions, when speed differentials between vehicles
7 are more likely to exist. These conditions require drivers to
8 react more quickly; in many cases, non-attentive drivers do
9 not perceive and react fast enough to avoid crashes.

10 **High Crash Locations**

11 Several locations along I-270 are defined as safety hotspots
12 that experience higher than average crashes. The color
13 coding on Figure 2-3 indicates the number of annual crashes
14 per mile along the I-270 mainline from 2014 through 2019
15 with orange and red indicating locations where more crashes
16 occurred. Safety hotspots include the following five
17 eastbound and two westbound segments of the corridor,
18 and are primarily concentrated at interchanges where traffic
19 is merging to and from connecting routes:

- 20
- 21 • Eastbound and westbound I-270 near Vasquez Boulevard
 - 22 • Eastbound I-270 east of I-25
 - 23 • Eastbound I-270 between I-76 and east of York Street
 - 24 • Eastbound and westbound I-270 at Quebec Street
 - Eastbound I-270 in the vicinity of the Burlington Ditch





1
2 Figure 2-3. I-270 Mainline Crashes Per Year Per Mile (2014 to 2019) – Total Crashes
3 Source: Jacobs

Heavy Vehicle Crashes

The 2019 Colorado Freight Plan identifies I-270 as a critical truck route that had higher than statewide average truck crash rates for 5 consecutive years during the period between 2008 and 2014 (CDOT 2019a). Trucks account for 11.7 percent of the I-270 traffic volumes on average, and are involved in 14.8 percent of the crashes in the corridor. This over-representation of truck-related crashes results from the large volume of trucks in the corridor and infrastructure that is not designed to accommodate efficient movement of large, heavy vehicles. The highest concentration of heavy vehicle crashes on I-270 occur westbound at Quebec Street and Vasquez Boulevard and eastbound east of I-25 and between I-76 and York Street. This concentration of crashes at interchanges is indicative of the operational issues related to merge and weaving areas on I-270. As discussed in Section 2.2.4, these areas are particularly challenging for large, heavy vehicles that need additional ramp lengths at interchanges to accelerate and decelerate.

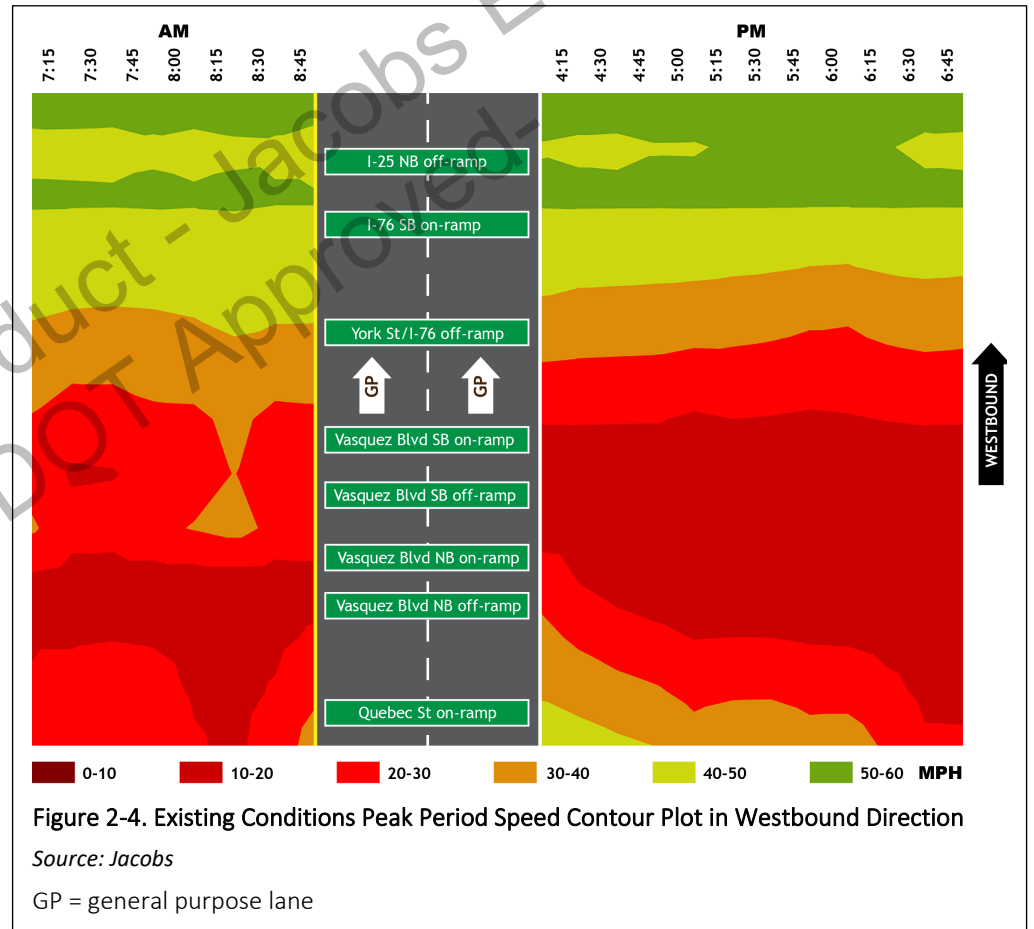
2.2.2 Improve Travel Time Reliability and Reduce Delays

Travel Delays

The I-270 corridor is currently operating at or near capacity and drivers experience substantial travel delays during the peak travel periods of 7 to 9 a.m. and 4 to 7 p.m. Traveling at the posted speed limit of 55 mph, it takes roughly 6 minutes to travel the I-270 corridor from end to end. During peak travel periods, travel times on I-270 are currently between 12.3 and 17.6 minutes, with vehicle speeds ranging from 22 to 30 mph (Atkins 2019). The following sections summarize the existing westbound and eastbound traffic conditions.

Westbound Peak Period Traffic

Figure 2-4 shows speed contour plots that identify where the bottlenecks (slower speeds) occur in the westbound direction during a.m. and p.m. peak periods. In the a.m. peak period, bottlenecks are observed at the Vasquez Boulevard interchange, the I-76 off-ramp, and the Quebec Street on-ramp. Traffic congestion develops early in the a.m. peak period and do not dissipate until after 9 a.m. In the p.m. peak period, bottlenecks are observed at the Vasquez Boulevard interchange and the I-76 off-ramp. The traffic queue develops early in the p.m. peak period,



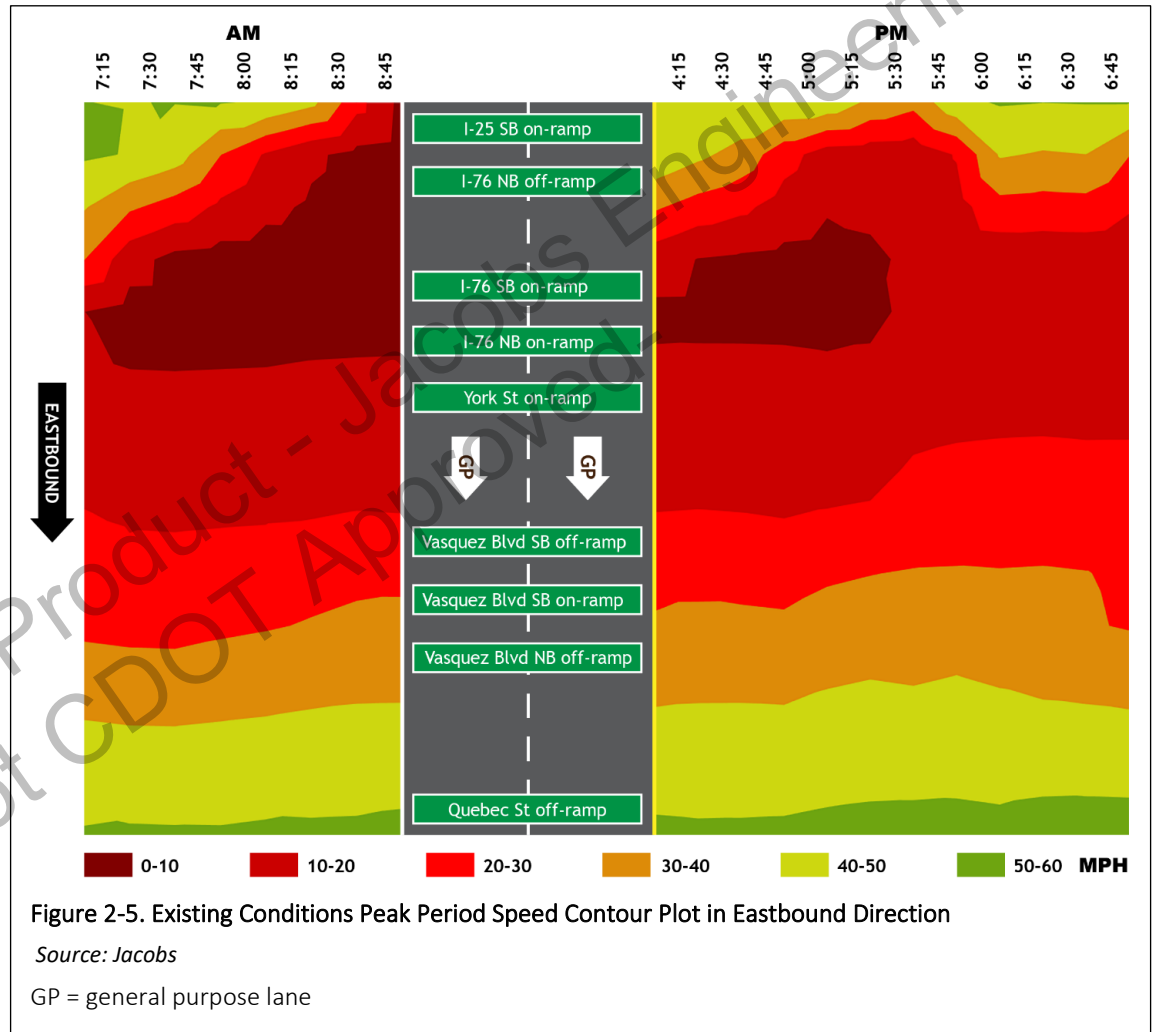
1 starting at 4 p.m., and does not dissipate until after 7 p.m. The congestion from these bottlenecks spills back to I-70 with speeds as low as 10 to 20 mph.

2 **Eastbound Peak Period Traffic**

3 Figure 2-5 shows the speed contour plot for the a.m.
 4 and p.m. peak periods in the eastbound direction. In the
 5 a.m. peak period, bottlenecks occur at the York Street
 6 on-ramp and the Vasquez Boulevard interchange. Traffic
 7 congestion develops early in the a.m. peak period and
 8 continues after 9 a.m. Traffic congestion from these
 9 bottlenecks spill back to the I-25 interchange, with
 10 speeds as low as 0 to 20 mph. In the p.m. peak period,
 11 bottlenecks are observed at the same locations with the
 12 traffic queue developing early in the p.m. period starting
 13 at 4 p.m. and continuing until after 7 p.m. The
 14 congestion from these bottlenecks in the p.m. peak
 15 period spills back to the I-25 on-ramp with speeds as
 16 low as 10 to 20 mph.

17 **Projected 2040 Traffic Conditions**

18 With no major improvements to I-270, the travel times
 19 and bottleneck locations observed on Figure 2-4 and
 20 Figure 2-5 are projected to worsen over time as a result
 21 of increased traffic volumes associated with regional
 22 population increases. Traffic projections for the year
 23 2040 in the Traffic Technical Report (Appendix A2)
 24 indicate longer periods of congestion, longer traffic
 25 queue lengths, reduced vehicle speeds, and increased
 26 travel times as compared with existing conditions.
 27 Figure 2-6 through Figure 2-9 compare travel times and
 28 vehicle speeds between current and future (2040)
 29 conditions if no major improvements are made to I-270.
 30 Over the next 20 years, traffic projections show a
 31 substantial deterioration in traffic conditions for westbound a.m. and eastbound p.m. peak period travel.



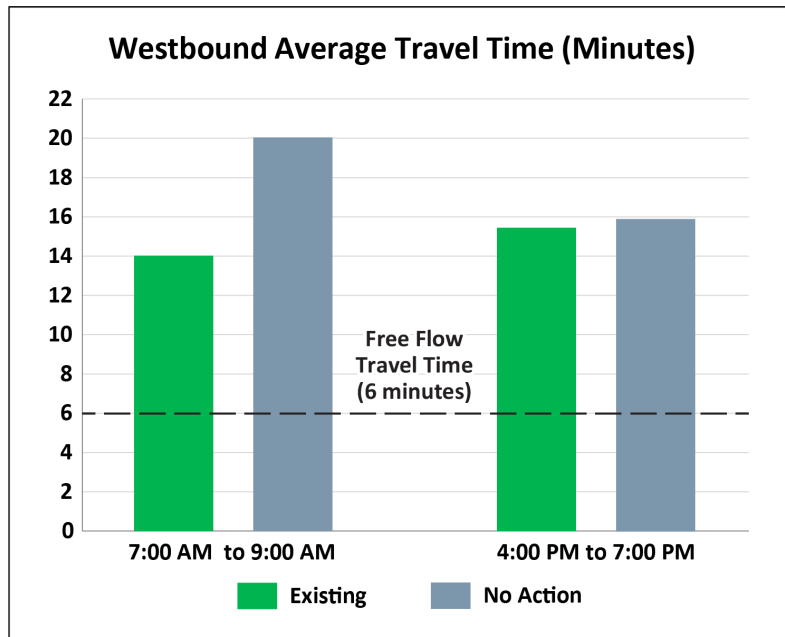


Figure 2-6. Projected Change in Average Travel Time on I-270 Westbound
Source: Jacobs

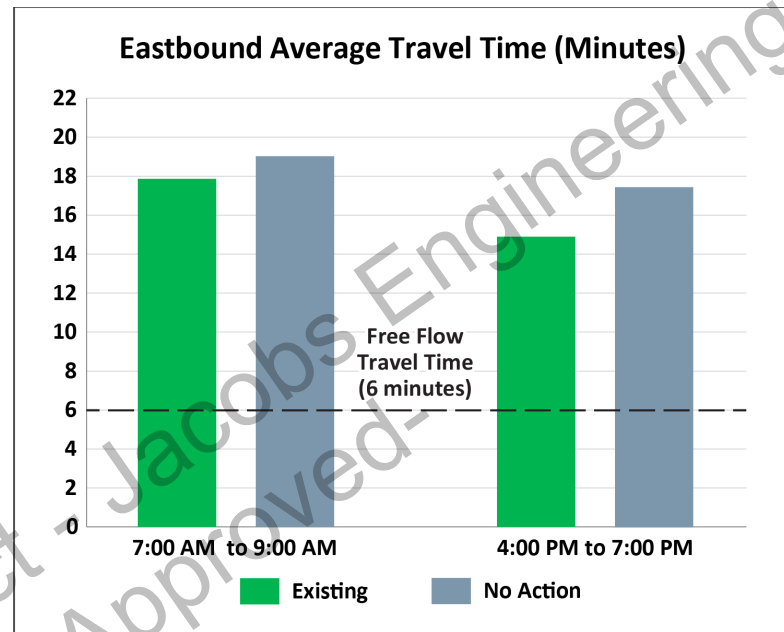


Figure 2-7. Projected Change in Average Travel Time on I-270 Eastbound
Source: Jacobs

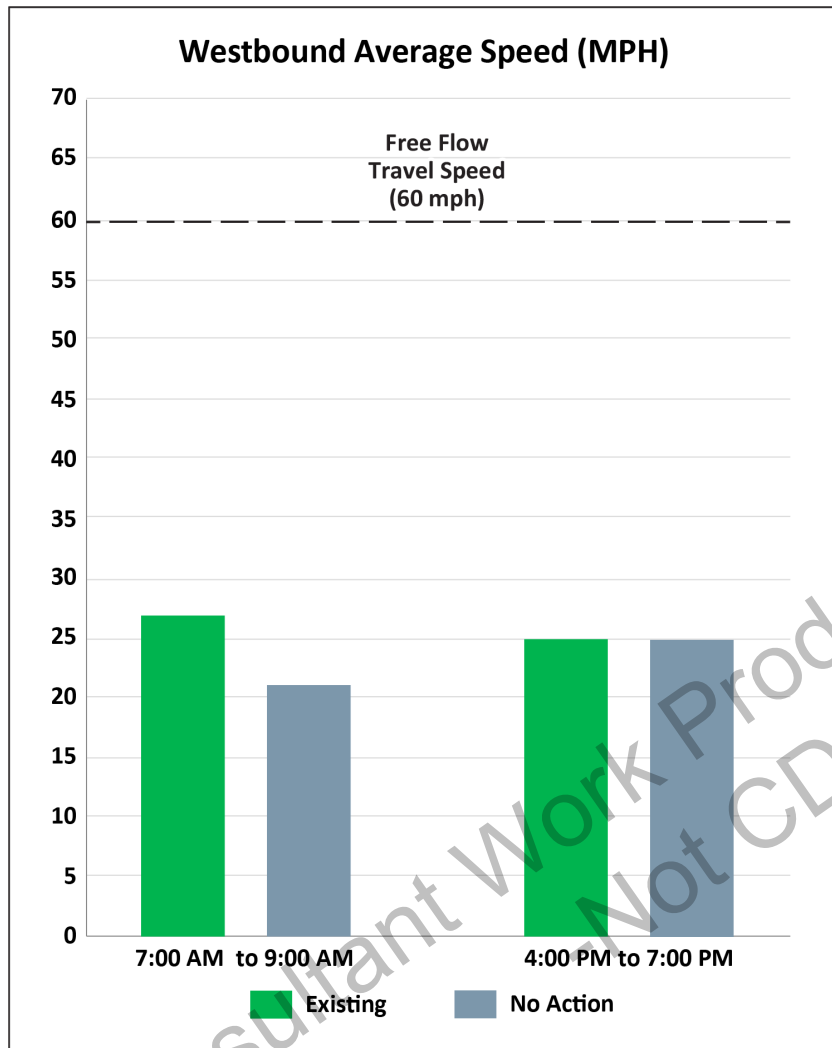


Figure 2-8. Projected Change in Average Speed on I-270 Westbound
Source: Jacobs

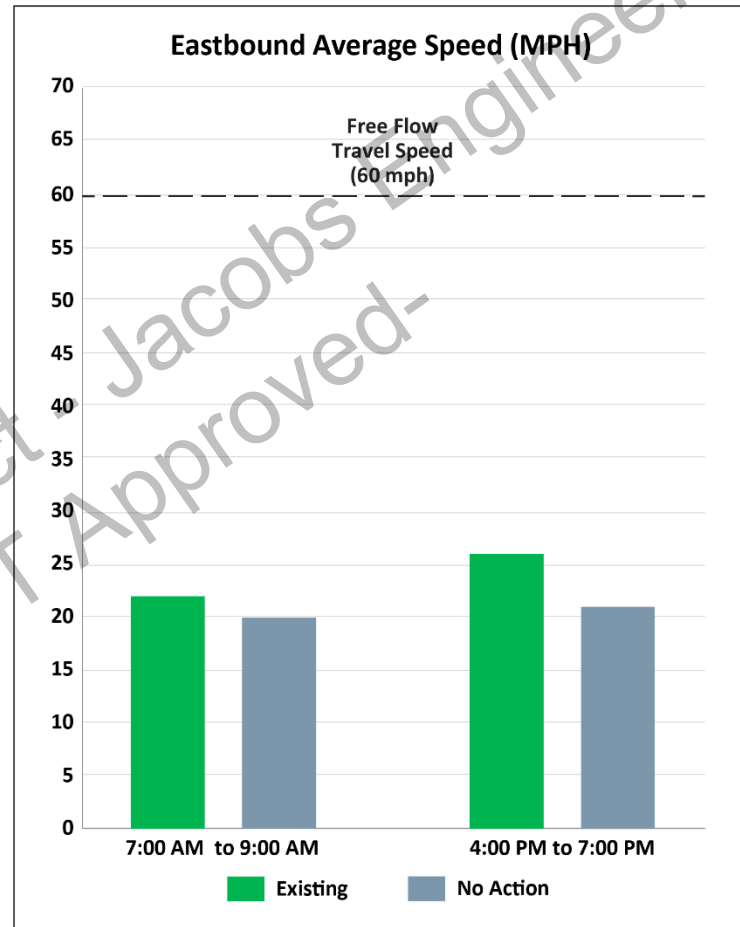
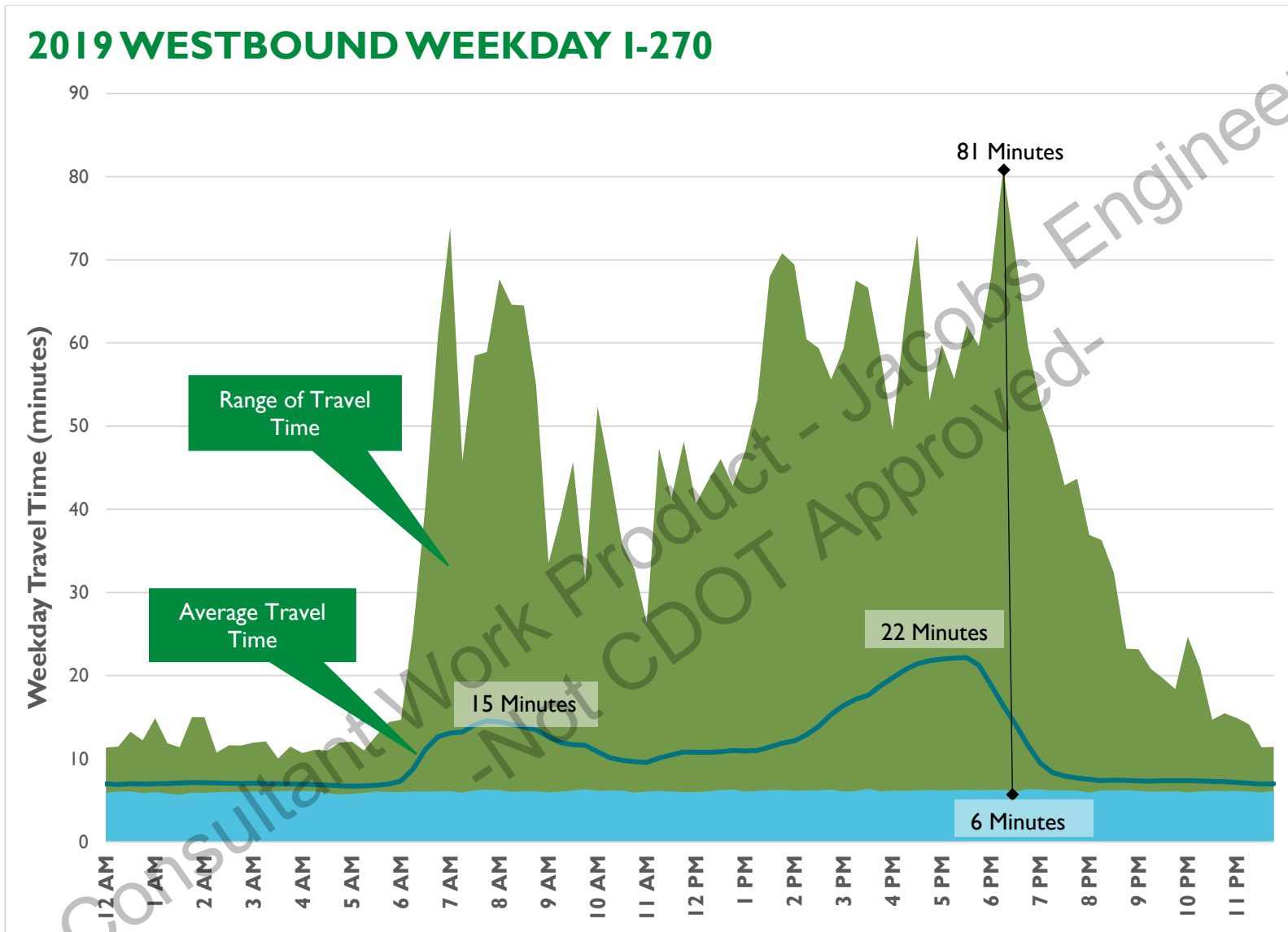


Figure 2-9. Projected Change in Average Speed on I-270 Eastbound
Source: Jacobs

1 **Travel Time Reliability**

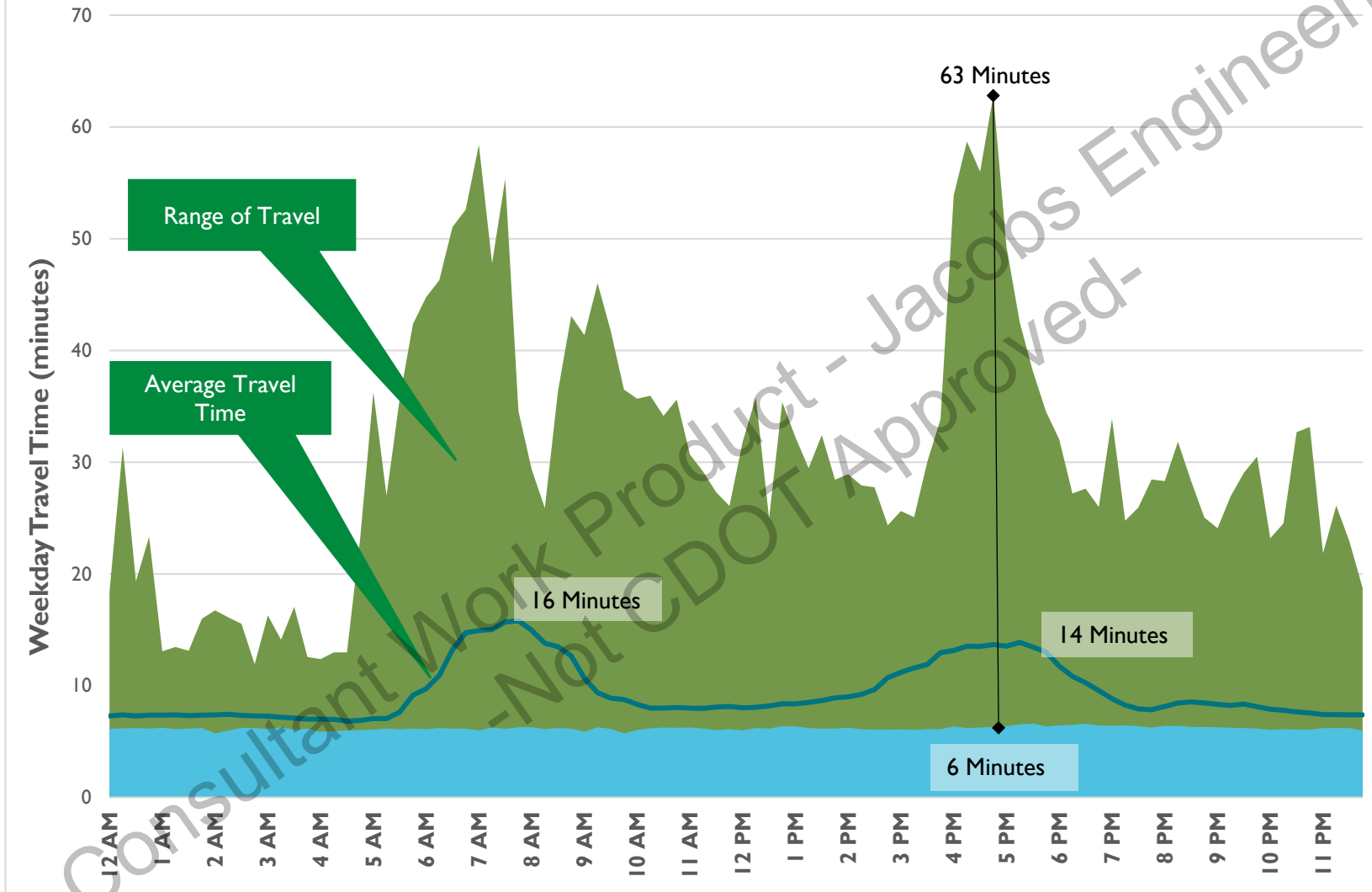
2 FHWA defines travel time reliability as “the consistency or dependability of travel times, as measured from day to day and across different times of the
3 day” (FHWA 2017a). While drivers frequently plan their trips to account for traffic, unexpected travel delays from traffic incidents, weather, road
4 maintenance, special events, or other factors can also prevent drivers from reaching their destination on time. The Traffic Technical Report (Appendix A2)
5 documents the travel time reliability evaluation for the I-270 corridor. The evaluation shows reliability problems in the eastbound and westbound
6 directions, with the westbound p.m. peak period having the lowest reliability ratings. In 2019, travel time reliabilities through the corridor during a.m. and
7 p.m. peak travel periods were rated either fair or poor between 77 and 87 percent of the time. Figure 2-10 and Figure 2-11 illustrate the average weekday
8 travel times through the I-270 corridor (blue line) versus the range of travel times through the corridor (light green shading). For westbound travel, the
9 morning and afternoon peak travel times vary from about 15 minutes to 22 minutes. However, the total range of travel times during these peak travel
10 periods are as low as 6 minutes and as high as 81 minutes. This 75-minute difference between the best and worst travel times is what makes planning for
11 trips on I-270 so unpredictable. Eastbound travel times also are unpredictable, ranging between 6 and 63 minutes.

12 Days with fair or poor travel time reliability were investigated to determine if any specific factor contributed to the decreased reliability. Factors
13 contributing to decreased reliability include such things as traffic incidents, planned events, roadwork, and weather. Days demonstrating multiple
14 15-minute periods of fair or poor travel time reliability and more than one apparent contributing factor were categorized as “multiple events.” In 2019,
15 the reliability evaluation showed that multiple events were impacting reliability of travel times between 55 and 66 percent of the time. The second most
16 common factor documented was roadwork, which can be partly attributed to the poor condition of infrastructure on I-270 requiring frequent
17 maintenance and emergency repairs.



1
2 Figure 2-10. I-270 Westbound Weekday Frequency of Congestion (2019)
3 Source: Jacobs

2019 EASTBOUND WEEKDAY I-270



1
2 Figure 2-11. I-270 Eastbound Weekday Frequency of Congestion (2019)

3 Source: Jacobs

1 **2.2.3 Update Obsolete and Deficient Bridges and Highway Infrastructure**

2 Built between 1965 and 1970, I-270 has obsolete and deficient bridges and highway infrastructure compared to modern interstate standards (CDOT
 3 2020b). These conditions create long-term maintenance issues, require emergency repairs, and contribute to the safety and travel delays discussed in
 4 Sections 2.2.1 and 2.2.2.

5 **Bridge Structure Conditions and Deficiencies**

6 Several bridge structures in the I-270 corridor are rated as structurally deficient, have low sufficiency ratings, or both. Under FHWA guidelines, highway
 7 bridges are prioritized for replacement or rehabilitation projects when they meet both the primary criteria of being rated as structurally deficient¹
 8 combined with the secondary criteria of a sufficiency rating² of 80 or less. Table 2-1 shows the bridge structures in the I-270 corridor that need
 9 replacement or rehabilitation based on FHWA guidelines.

10 **Table 2-1. I-270 Corridor Bridge Structure Ratings**

Structure Number	Crossing	Year Constructed	Sufficiency Rating	CDOT Structure Ratings		
				Deck	Superstructure	Substructure
E-17-IC ^a	York Street over I-270	1970	78.2	5	5	6
E-17-ID	Westbound I-270 over S. Platte River	1969	62.6	6	6	4
E-17-IE	Eastbound I-270 over S. Platte River	1969	81.4	4	6	5
E-17-IF ^a	Westbound I-270 over Burlington Ditch	1969	75.2	3	5	6
E-17-IG	Eastbound I-270 over Burlington Ditch	1969	76.1	4	5	6
E-17-IH	Westbound I-270 over Brighton Boulevard/UPRR/BNSF	1969	87.3	4	6	6
E-17-IJ	Westbound I-270 over 60th Avenue/BNSF	19	77.0	4	6	5
E-17-AT	Vasquez Boulevard over Sand Creek	1940	55.7	4	4	5
E-17-II	Eastbound I-270 over Brighton Boulevard/UPRR/BNSF	1969	72.0	5	6	5
E-17-IK	Eastbound I-270 over 60th Avenue/BNSF	1970	75.1	5	7	5

¹ A bridge is considered structurally deficient if the condition of different parts of the structure (such as the deck, superstructure, or substructure) score less than or equal to 4. While a structurally deficient bridge may be safe enough to remain open to traffic, it may be required to be posted, if necessary, with reduced weight limits that restrict the gross weight of the vehicles using the structure.

² A bridge's sufficiency rating is calculated based on a formula developed by the U.S. Department of Transportation that considers structural evaluation, design obsolescence, and importance to the public.

Structure Number	Crossing	Year Constructed	Sufficiency Rating	CDOT Structure Ratings		
				Deck	Superstructure	Substructure
E-17-IN	Westbound I-270 over 56th Avenue	1968	71.5	5	5	6
E-17-IO	Eastbound I-270 over 56th Avenue	1968	84.7	5	6	6

1 Source: Structure Inventory and Appraisal reports (CDOT 2018b, 2020d, and 2022).

2 ^a Bridges with only 2018 data

3 Note: Structure ratings scoring 4 or lower are structurally deficient.

4 **Pavement and Settling Conditions**

5 CDOT assesses the condition of pavement using a metric called drivability life (DL), which
 6 indicates how many years a road is anticipated to have acceptable driving conditions. The
 7 assessment is based on the presence of cracking, rutting, and roughness of the pavement.
 8 Figure 2-12 shows an example of I-270 pavement cracking. The approximately 3-mile segment of
 9 I-270 from I-76 to east of Vasquez Boulevard is asphalt assessed to have between 2 and 4 years of
 10 DL (CDOT 2020b). The eastbound asphalt section east of Quebec Street is assessed to have 2
 11 years of DL remaining. Other sections of I-270 have been upgraded to concrete with more than
 12 10 years of DL remaining.

13 Another factor impacting pavement conditions on I-270 is instability of the subgrade. Between
 14 the South Platte River and Brighton Boulevard, where I-270 travels atop an old landfill, heaving
 15 and settling has resulted in four distinct areas of relative high points (ridges) and low points
 16 (valleys) (Figure 2-13). This condition is referred to as differential settling and is caused by uneven
 17 compression of materials as the underlying landfill materials decay over time. Over the years, the
 18 pavement has been overlaid numerous times as a maintenance measure. However, repaving does
 19 not repair the source of the differential settling, which will continue to worsen if not addressed.



Figure 2-12. Example of Transverse Cracking and Deteriorating Pavement on I-270

Source: Jacobs



1
2 Figure 2-13. Differential Settling Between South Platte River and Brighton Boulevard
3 Source: Jacobs

1 **Corridor Deficiencies and Interchange Conditions**

2 Since construction of I-270 between 1965 and 1971, highway standards have changed to better protect traveling motorists. The existing I-270
 3 infrastructure does not meet current standards in many locations. This includes safety infrastructure such as guardrail, guardrail transitions, end terminals,
 4 and crash cushions, which do not meet current safety requirements in the American Association of State Highway and Transportation Officials (AASHTO)
 5 *Roadside Design Guide* (AASHTO 2011), CDOT M-standards for guardrail and barriers (CDOT 2019b), and the *Manual for Assessing Safety Hardware*
 6 (AASHTO 2016).

7 At the interchanges, ramp lengths are substandard and the Vasquez Boulevard full cloverleaf design is not sufficient for current traffic volumes. Current
 8 design policy recommends less than 1,000 vehicles travel through a full cloverleaf interchange in the peak hour (AASHTO 2018). Peak hour traffic volumes
 9 at Vasquez Boulevard are currently 2,500 vehicles per day (Atkins 2019), which exceeds the recommended capacity of this interchange design causing
 10 substantial operational problems. At other interchanges in the corridor, substandard lengths of acceleration and deceleration ramps also contribute to
 11 operational issues along the corridor. Table 2-2 lists the substandard ramp lengths as compared with current guidelines (AASHTO 2018).

12 **Table 2-2. I-270 Interchange Substandard Ramp Lengths**

Location	Existing Deceleration Length (feet)	Standard Deceleration Length (feet)	Existing Acceleration Length (feet)	Standard Acceleration Length (feet)
York Street Eastbound	N/A	N/A	450	600
Vasquez Boulevard Westbound	255	440	420	1,000
Vasquez Boulevard Westbound Loop Ramps	440 (with weave)	440	680 (from loop)	1,220
Vasquez Boulevard Eastbound Loop Ramps	430 (with weave)	440	875 (from loop)	1,220
Vasquez Boulevard Eastbound	155	440	N/A	N/A
Quebec Street Eastbound	170	500	N/A	N/A

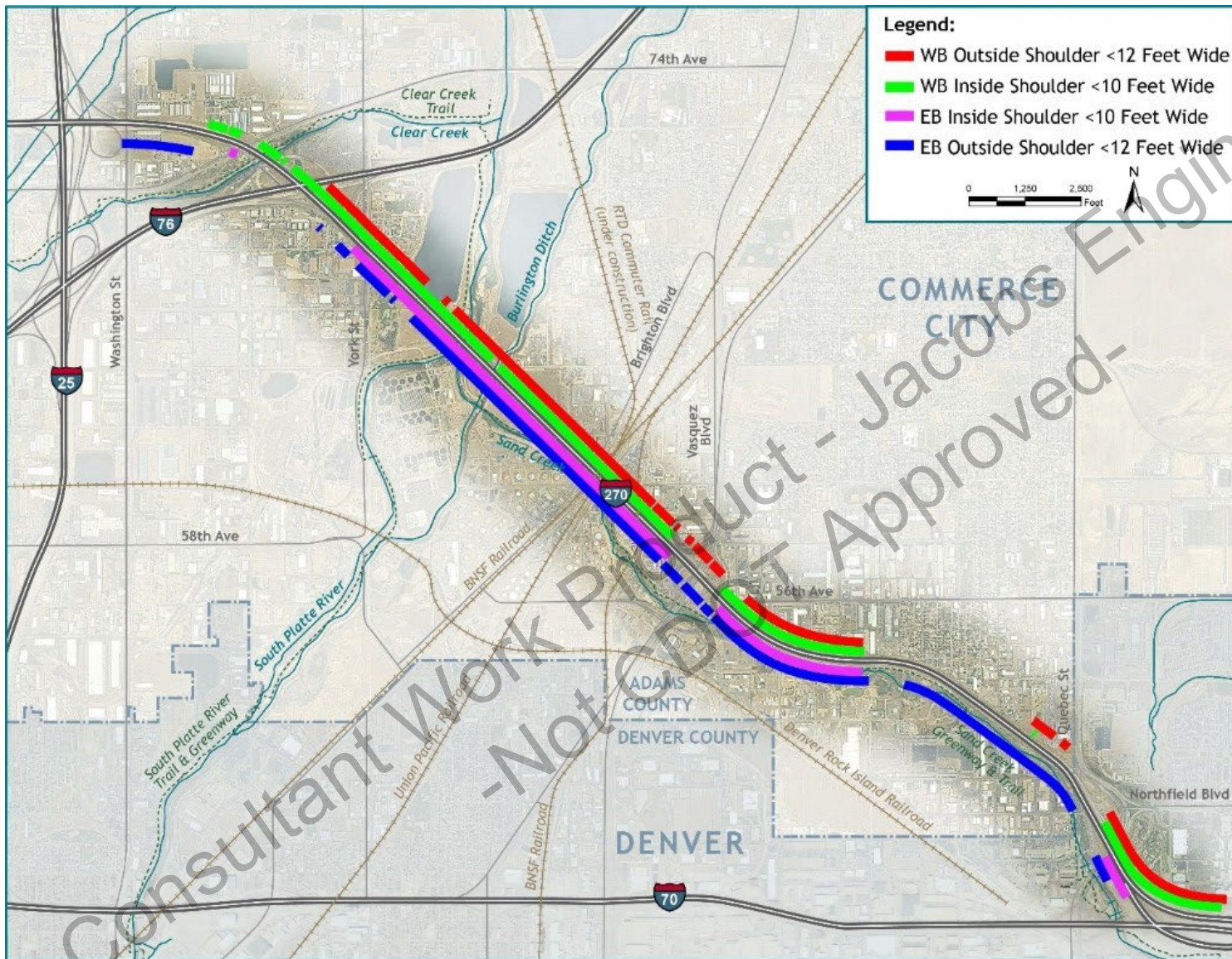
13 *Source: Current ramp lengths measured from 2020 survey data of the corridor. Standard ramp lengths are from AASHTO (2018).*

14 N/A = not applicable

15 **2.2.4 Improve Truck Freight Movement Efficiency**

16 I-270 between I-76 and I-70 is categorized as a Primary Highway Freight System, defined as “a network of highways identified as the most critical highway
 17 portions of the U.S. freight transportation system” (FHWA 2020). The percentage of traffic represented by trucks on I-270 varies between 5.4 and 13.1
 18 throughout the day (Atkins 2019). The *2019 Colorado Freight Plan* identifies Vasquez Boulevard from I-270 to 62nd Avenue as an “important freight,
 19 energy, and industrial corridor with substantial...mobility issues affecting freight movement....” The plan also lists the section of I-270 from I-76 to
 20 56th Avenue as a “congested bottleneck area” with “economic connectivity needs” (CDOT 2019a).

- 1 Multiple factors impact the efficiency of freight movement in the I-270 corridor, including short acceleration and deceleration ramps at interchanges, the
2 tight turning radius of the Vasquez Boulevard interchange ramps, narrow shoulder widths, and traffic back-ups. These issues are summarized as follows:
- 3 • Short acceleration and deceleration ramps at interchanges: Because trucks are heavier than passenger vehicles, they require additional ramp length to
4 accelerate and decelerate. As noted in Table 2-2, many of the interchange ramps along I-270 are shorter than standards in the current guidelines
5 (AASHTO 2018). This creates speed differentials between passenger vehicles and trucks, which end up using the travel lanes to complete their
6 acceleration as they enter the interstate and initiate deceleration as they exit the interstate.
 - 7 • Tight turning radii of Vasquez Boulevard interchange ramps: Because of their size, trucks require larger turning radii than passenger vehicles. At the
8 Vasquez Boulevard interchange, the loop ramps do not enable efficient truck movements through the interchange. Two truck rollovers were
9 documented at this interchange between 2014 and 2018 (CDOT 2020a). Simulations of large truck movements on these loop ramps confirm input
10 from the Colorado Motor Carriers Association (CMCA) that trucks have over-tracking issues on the loop ramps, meaning the wheels do not stay on the
11 road surface throughout the turn movement.
 - 12 • Narrow shoulder widths: Trucks hauling large loads over long distances are subject to mechanical failure and tire blowouts, resulting in the need for
13 adequate breakdown lanes or shoulders. Heavily traveled highways carrying large numbers of trucks, such as I-270, should have usable shoulder
14 widths of at least 10 feet and a preferable width of 12 feet (AASHTO 2018). As shown on Figure 2-14, most of the I-270 corridor has shoulder widths
15 below these guidelines.
 - 16 • Traffic back-ups: In addition to the freight transport delays caused by slow travel speeds on I-270, stop-and-go traffic conditions contribute to rear-end
17 and sideswipe crashes. Crash data collected from 2014 to 2019 indicates that 14.8 percent of crashes on I-270 involve trucks. These incidents impact
18 the safety and efficiency of truck operations in the corridor.

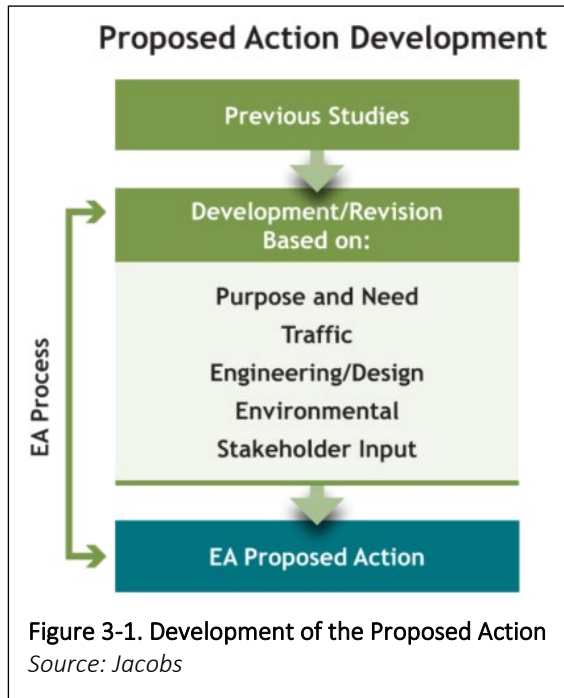


1

2 Figure 2-14. Existing Shoulder Widths along the I-270 Corridor

3 Source: Jacobs

1 3.0 Alternatives Considered



This section summarizes alternatives considered for the Project. The alternatives development relied heavily on previous studies, including the Vasquez Boulevard PEL study (CDOT 2018a), *I-270 Traffic Study* (Atkins 2019) and *Colorado Express Lane Master Plan* (CHPTE 2020). These previous efforts were building blocks for developing the Proposed Action evaluated in the EA. During the EA, the Proposed Action was refined to meet the project purpose and need, based on traffic, engineering, environmental, and stakeholder and public considerations (Figure 3-1). For details, refer to the Proposed Action Development Technical Report (Appendix B1).

3.1 Previous Studies

3.1.1 Vasquez Boulevard PEL Alternatives at the I-270 Interchange

More than 20 alternatives for the I-270 and Vasquez Boulevard interchange were evaluated in the Vasquez Boulevard PEL study. The three interchange alternatives advanced through the screening process included a partial cloverleaf, a diverging diamond, and a split diamond. These alternatives addressed operational issues at the interchange and improved travel times on I-270. The study identified near-term improvements that “address critical issues with reasonable costs using available funds” and “would integrate with any of the three alternative packages” identified for Vasquez Boulevard in the study (CDOT 2018a). The near-term improvement identified at the I-270 and Vasquez Boulevard interchange was the partial cloverleaf concept.

Further north of I-270, CDOT is advancing other near-term improvements on Vasquez Boulevard

20 identified in the study. The partial cloverleaf concept addresses the I-270 project purpose and need and would be compatible with near-term
 21 improvements on Vasquez Boulevard and any of the three interchange alternatives identified in the PEL study.

22 3.1.2 I-270 Traffic Study Alternatives

23 The I-270 Traffic Study, completed in 2019, analyzed the various alternatives to address traffic needs on I-270 shown in Table 3-1.

1 **Table 3-1. I-270 Traffic Study Alternatives**

Alternative Name	Alternative Description
Alternative 1: No Action Alternative	Baseline alternative to which other alternatives are compared. This alternative included the I-25 North project and Central 70 project improvements that were under construction at the time the I-270 Traffic Study was being prepared. This alternative also included other improvements to the road network included in DRCOG’s 2040 Fiscally Constrained RTP, including signal timing optimization at arterial intersections and additional storage at intersections to reduce the impacts of queuing vehicles.
Alternative 2: Vasquez Boulevard Interchange Improvements	Convert the Vasquez Boulevard interchange to a partial cloverleaf full access interchange, as identified by the <i>Planning and Environmental Linkages (PEL) Study for Vasquez Boulevard</i> (CDOT 2018a).
Alternative 3: 3 GP Lanes	Add a third general purpose lane in each direction on I-270 and convert the Vasquez Boulevard interchange to a partial cloverleaf full access interchange.
Alternative 4a: 2GP+1ML without DC	Add a third travel lane in each direction on I-270 that would be barrier-separated from the other travel lanes and operated as a managed lane. Convert the Vasquez Boulevard interchange to a partial cloverleaf full access interchange.
Alternative 4b: 2GP+1ML with DC (to I-70 ML)	Same as the 2GP+1ML without DC, but includes direct connections between the I-270 managed lanes and the I-70 managed lanes.
Alternative 5a: 3GP+1ML without DC	Add two travel lanes in each direction on I-270; one general purpose lane and one lane that would be barrier-separated from the other travel lanes and operated as a managed lane. Convert the Vasquez Boulevard interchange to a partial cloverleaf full access interchange.
Alternative 5b: 3GP+1ML with DC (to I-70 ML)	Same as the 3GP+1ML without DC, but includes direct connections between the I-270 managed lanes and the I-70 managed lanes.

2 Source: I-270 Traffic Study (Atkins 2019)

3 DC = direct connect

4 GP = general purpose

5 ML = mainline

6 The I-270 Traffic Study evaluated the alternatives against Measures of Effectiveness (MOEs) to quantify and compare their operational performance. The
 7 conclusions documented in the *I-270 Proposed Action Development* Technical Report (Appendix B1) were that improving the Vasquez Boulevard
 8 interchange alone (Alternative 2) would not meet the purpose and need because it would not accommodate future transportation demands and would
 9 not address the deficient bridges, shoulder widths, and pavement infrastructure corridor-wide. The three-lane alternatives (Alternatives 3, 4a, and 4b) and
 10 the four-lane alternatives (Alternatives 5a and 5b) would improve travel times and reduced delays on I-270. Compared with the three-lane alternatives,
 11 the four-lane alternatives would accommodate slightly higher volumes of traffic on I-270 at slightly increased vehicle speeds. However, it was noted the
 12 four-lane alternatives would create traffic bottlenecks at the western and eastern termini of I-270 because they would exceed the capacity of the
 13 connecting systems at US 36 and the I-70 eastbound ramps. Considering the negative impact on travel times and safety these bottlenecks would have for
 14 the four-lane alternatives, the benefits for the other MOEs were deemed modest. For these reasons, CDOT elected to evaluate improvements at the
 15 Vasquez interchange and the addition of one additional travel lane in each direction on I-270 in this EA, which is consistent with what was included in the
 16 DRCOG 2040 Fiscally Constrained RTP.

1 **3.1.3 Express Lane Master Plan**

2 In 2020, the Colorado High Performance Transportation Enterprise (CHPTE) (now operating as the Colorado Transportation Investment Office [CTIO])
3 completed the *Colorado Express Lane Master Plan* (CHPTE 2020) in conjunction with regional partners. The study found a systematic need for express
4 lanes throughout the Denver metropolitan area and established a three-tier system to prioritize express lane roadway segments, where Tier 1 is the
5 highest priority and Tier 3 is the lowest priority. The entirety of I-270 was included in the master plan as a Tier 1 priority (CHPTE 2020). The conceptual
6 plan calls for one express lane in each direction of I-270.

7 **3.2 I-270 Operational Options**

8 As part of the EA process, CDOT evaluated managing the new travel lanes along I-270 as either express lanes or general purpose lanes. Based on technical
9 studies conducted in support of this EA, the express lane operating option is preferred over the general purpose lane option and is the chosen operating
10 option for the Proposed Action. This section summarizes the factors informing this selection.

11 Both options improve safety, update obsolete and deficient infrastructure, and improve truck freight movement efficiency. The primary difference
12 between the operating options is how they address the need to improve travel time reliability and reduce delays. The traffic analysis completed for this EA
13 shows that both options would increase the average speeds in the corridor and reduce travel delays during peak morning and evening periods, when
14 compared with the No Action Alternative (see the Traffic Technical Report, Appendix A2). The traffic analysis also demonstrates that average travel times
15 during peak periods would be similarly improved for drivers in general purpose lanes under either of the two future operating options. However, reliability
16 in general purpose lanes under either option would still be impacted by peak period travel delays, with average speeds below 45 mph. The analysis for the
17 preferred express lane option shows that the average peak hour travel time through the 6-mile corridor would decrease from greater than 16 minutes in
18 the no action scenario to 8 to 10 minutes within the general purpose lanes and less than 6 minutes within the express lanes. Express lanes are managed to
19 maintain free-flow travel conditions, and the express lanes would provide reliable travel times with little to no travel delay during peak periods. Adding
20 express lanes on I-270 would also provide an opportunity to connect the express lane systems in place on I-25, US 36, and I-70, providing a regional
21 network of managed lanes consistent with the CTIO Express Lane Master Plan (CHPTE 2020). Express lanes are effective for regional corridors like I-270,
22 particularly when travelers can stay in the express lane to arrive at their destinations at a predictable time.

23 The evaluation of impacts completed for this EA demonstrates that the environmental impacts of the general purpose lane and express lane operating
24 options are very similar, with minor differences identified for corridor aesthetics and environmental justice (all of which can be mitigated). For corridor
25 aesthetics, the tolling infrastructure for the express lane option would add new vertical features that could potentially block distant views, particularly of
26 the mountains for westbound travelers. This impact is minor because the sensitivity of that viewer group (auto travelers) is low and could be mitigated
27 through sign placement that avoids blocking views. For environmental justice, CDOT is keenly aware of the equity impacts resulting from tolling of the
28 I-270 express lanes on low-income populations. CDOT desires that the I-270 project increase transportation options for all commuters, including low-
29 income commuters, to achieve relatively congestion-free travel on specific occasions. CDOT is proactively developing a program to measure the potential
30 impacts of toll fees which will ultimately lead to design of a program that is equitable to all the transportation users of I-270.

3.3 Proposed Action

The Proposed Action includes the improvements discussed in Section 3.2: adding an express lane in each direction and the partial cloverleaf concept at the I-270/Vasquez Boulevard interchange. As part of the EA, the Proposed Action was further refined to address other transportation improvement needs in the corridor as described in Chapter 2 of this EA, including improving the I-270 interchanges at I-76, York Street, and Quebec Street by replacing deficient bridges and pavement and correcting subgrade settlement; adding longer acceleration, deceleration and merge lanes; addressing substandard shoulders; and improving multimodal connectivity.

The interchange improvements would address critical geometric deficiencies, including short merge and diverge segments, tight spacing between interchange ramps, and limited uphill acceleration distance for heavy vehicles. To optimize traffic operations, design and traffic staff analyzed various scenarios consisting of different geometric configuration of ramps and acceleration/deceleration lanes. The configuration that best enhanced traffic operations and safety in the corridor and at the ramp junctions was included in the Proposed Action (see Appendix B1 for the various scenarios). The bridge and pavement improvements address the aging and deficient structures and driving surface in the corridor, as well as include measures to stabilize the underlying ground surface to ensure these improvements are long-lasting. Widened shoulders would address both safety and congestion needs, providing additional space for evasive maneuvers, vehicle breakdowns, and first responder access to incidents.

Drawing from community and stakeholder concerns about the lack of multimodal connectivity in the corridor (see Section 12.3) and community plans, new bicycle and pedestrian connections were developed along the Sand Creek Greenway Trail and at York Street, Vasquez Boulevard, and East 56th Avenue.

Environmental considerations also influenced the development of the Proposed Action. Examples include designing improvements to the highway, bridges, water quality features, and trails to avoid former landfill and wetland areas, historic resources, and other sensitive resources.

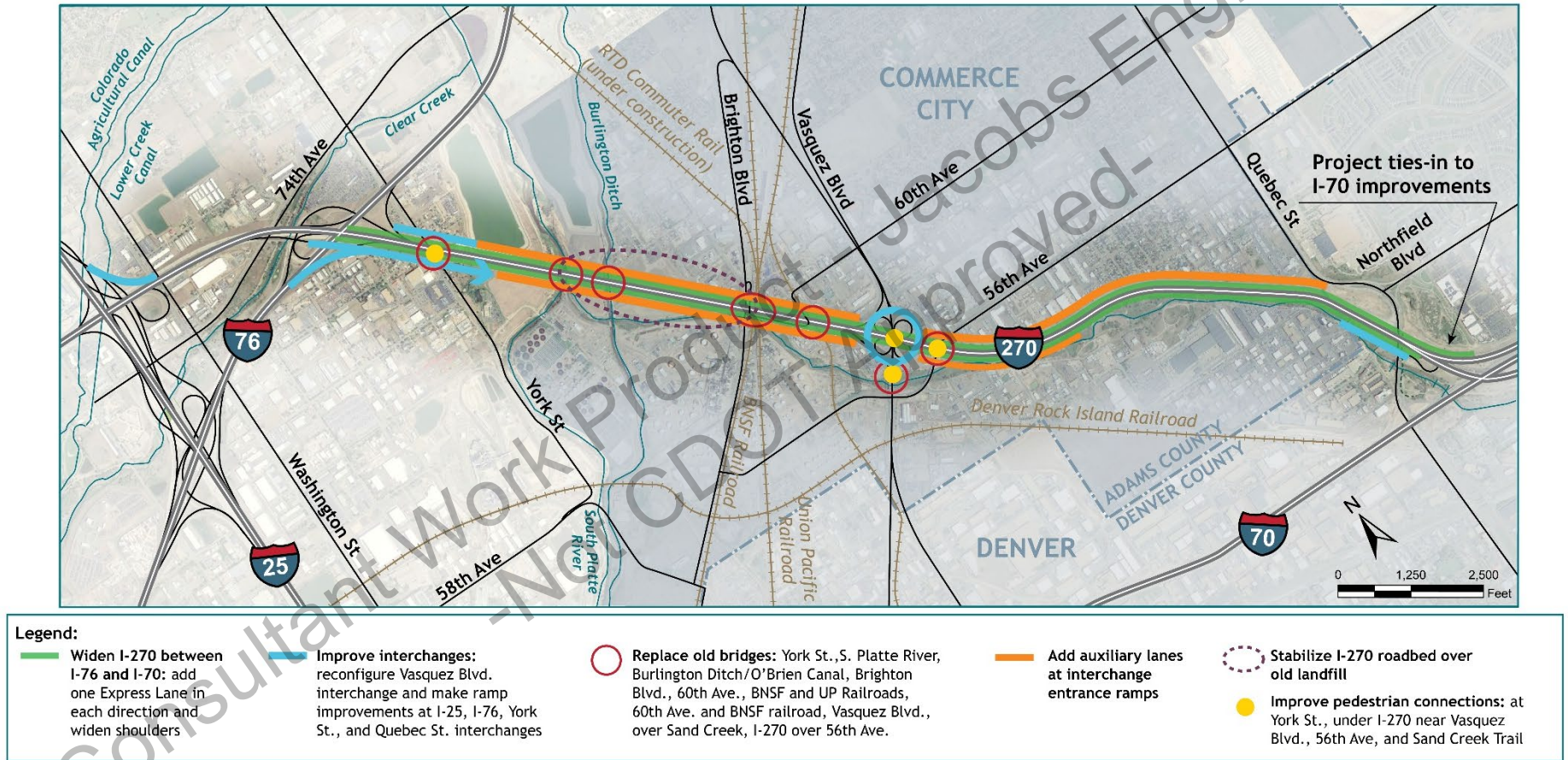
3.4 No Action Alternative

The No Action Alternative is the condition where CDOT would not proceed with the Proposed Action. The No Action Alternative includes ongoing highway and bridge maintenance and isolated pavement reconstruction. Ongoing maintenance includes work CDOT routinely performs on I-270 as part of its maintenance program, such as mill and overlay, crack sealing, maintenance of bridge, drainage and water quality structures, and guardrail replacement or repair as warranted.

Under the No Action Alternative, the current problems in the I-270 corridor would persist and become worse. The deteriorating and outdated infrastructure, including substandard bridges, would continue to cause safety issues and roadway closures for emergency repairs. Large trucks would continue to struggle at interchanges with tight curves and short ramps. Traffic at interchanges would continue to back up, creating stop-and-go conditions on I-270. Travel times would become longer and more unpredictable, with projected increases in traffic volumes contributing to congestion and higher rates of crashes. The traffic queues during peak travel periods would start earlier and take longer to dissipate.

1 4.0 Description of the Proposed Action

2 The Proposed Action includes mainline, interchange, bridge, multimodal, water quality control measures, and Intelligent Transportation System (ITS)
 3 improvements to modernize the I-270 corridor and address the identified project needs. Figure 4-1 provides an overview of the Proposed Action, which is
 4 summarized in the sections that follow. A more detailed description of the Proposed Action is included in Appendix B1. The full Proposed Action mapbook
 5 is included as Appendix B3.



6
 7 Figure 4-1. Elements of the Proposed Action
 8 Source: Jacobs

4.1 I-270 Mainline

Improvements to the I-270 mainline would include the following:

- Add one additional 12-foot-wide express lane in each direction between I-25 and I-70 to better accommodate existing and projected travel demand and provide reliable travel times. Each direction of travel would be separated by a concrete barrier.
- Widen the inside shoulders to between 10 and 12 feet and widen the outside shoulders 10 to 12 feet to accommodate vehicle breakdowns and facilitate more efficient emergency response.
- Replace asphalt pavement in poor condition from just east of the Clear Creek bridges to approximately 0.8 mile east of the Vasquez Boulevard interchange.
- Stabilize the roadbed subgrade between the South Platte River and Brighton Boulevard to prevent future settling.
- Extend the eastbound entrance ramp from I-76 and the westbound entrance ramp from Vasquez Boulevard to create auxiliary lanes between these two interchanges. These auxiliary lanes would provide cars and, especially, trucks the additional space and time they need to safely enter and exit I-270, without backing up traffic in the other lanes. The eastbound auxiliary lane will also serve as a climbing lane for large trucks to climb the uphill grade at slower speeds.
- Extend the eastbound entrance ramp from Vasquez Boulevard to create an auxiliary lane to create a lane for acceleration and merging of eastbound traffic on I-270.
- Extend the westbound entrance ramp from Quebec Street to create an auxiliary lane between the Quebec Street and Vasquez Boulevard interchanges. This ramp has one of the highest traffic volumes in the corridor and an auxiliary lane would provide more distance for vehicles to accelerate and safely merge. Add retaining walls along I-270 to avoid and minimize impacts to adjacent property and environmental resources. Approximately 11 major retaining walls are anticipated, varying in height between 5 and 30 feet. Additional walls are planned to separate I-270 eastbound from Sand Creek Drive.
- Upgrade guardrails along the mainline to current safety standards.

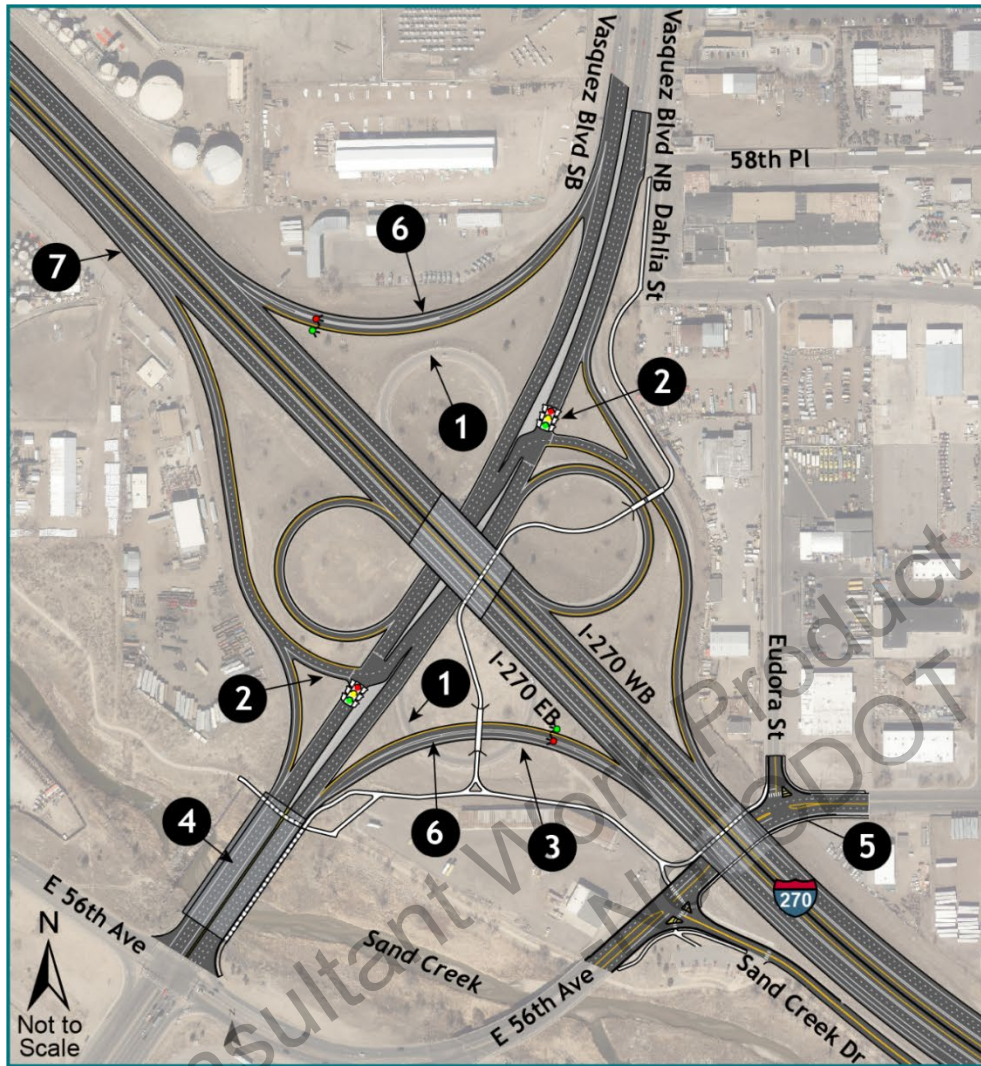
4.2 Interchanges and Local Streets

Improvements to interchanges and local streets would include the following:

- Re-stripe the I-270 westbound exit ramp to northbound I-25 to provide two lanes to better serve traffic demands.
- Merge the two I-76 ramps into one collector ramp that is barrier-separated from the I-270 mainline and merges at a single point onto eastbound I-270 to improve safety and traffic flow.
- Split the westbound I-76 and York Street shared exit ramp to eliminate driver confusion on the exits.

- 1 • Construct the I-76 westbound exit ramp as an optional double exit ramp to better serve traffic demands.
- 2 • Widen York Street over I-270 to match improvements currently planned as a separate Adams County project. York Street is planned to include four
3 12-foot travel lanes with a 16-foot center turn lane, an attached 10-foot-wide multi-use path along the east side, and a 5-foot attached sidewalk along
4 the west side.
- 5 • Reconstruct the Vasquez Boulevard interchange to improve safety and traffic operations, as shown in Figure 4-2.
- 6 • Extend the eastbound deceleration ramp at the Quebec Street exit from 800 feet to 2,500 feet to provide adequate stopping sight distance.

Consultant Work Product - Jacobs Engineering
-Not CDOT Approved-

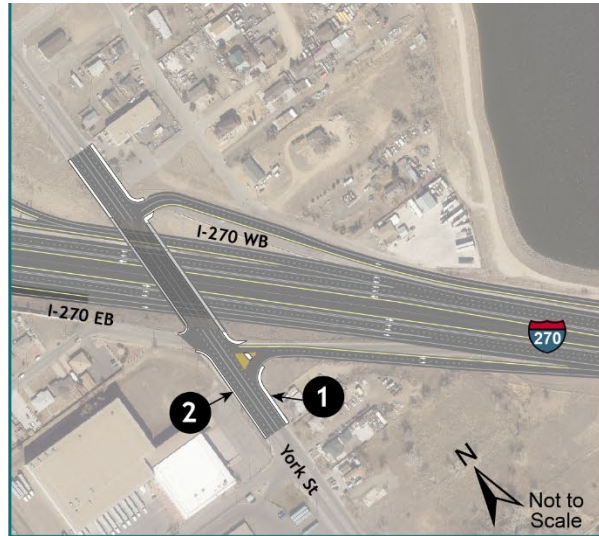


- 1 Remove existing hazardous I-270 exit loop ramps.
- 2 Update existing I-270 off-ramps to provide northbound and southbound movements with signalized intersection at Vasquez Boulevard.
- 3 Construct the missing on-ramp from northbound Vasquez Boulevard to eastbound I-270.
- 4 Reconstruct aging Vasquez Boulevard bridge over Sand Creek and provide a wider sidewalk on the bridge.
- 5 Realign and widen 56th Avenue to improve truck movement.
- 6 Add peak period truck/transit bypass ramps.
- 7 Construct the eastbound exit ramp as an optional double-exit ramp to provide more ramp capacity.

1
2 Figure 4-2. Interchange Improvements at Vasquez Boulevard
3 Source: Jacobs

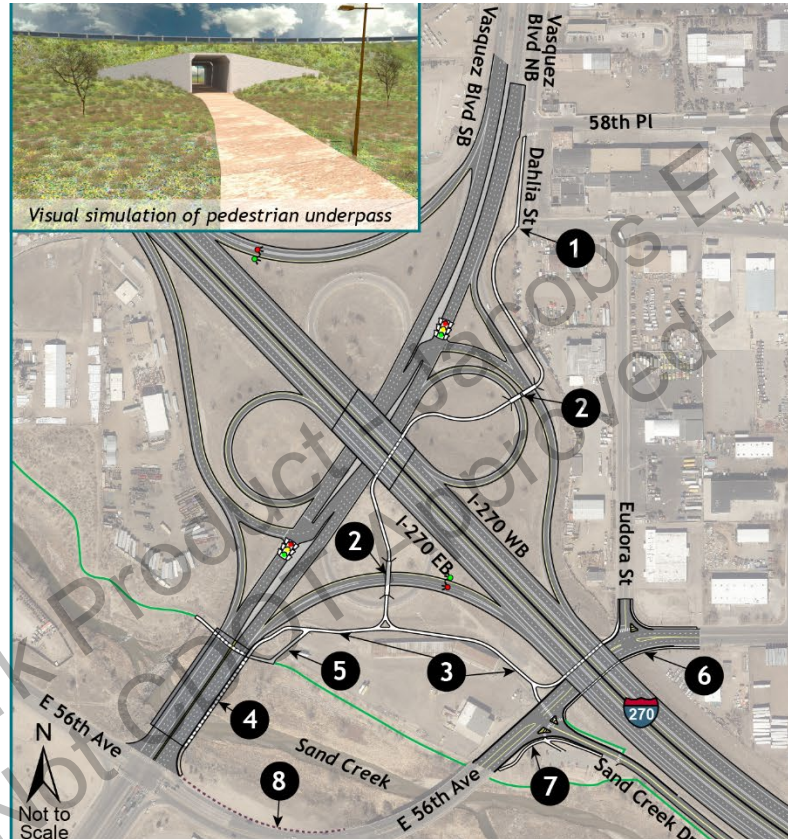
1 **4.3 Bicycle and Pedestrian Improvements**

2 Proposed improvements to pedestrian and bicycle facilities are displayed on Figure 4-3.



York Street Interchange:

- 1 Add attached 10-foot-wide multi-use path across bridge along east side of York St. (to match proposed York St. improvements planned by Adams County)
- 2 Retain existing 5-foot-wide sidewalk across bridge along west side of York St. (to match proposed York St. improvements planned by Adams County)



Vasquez Boulevard:

- 1 10-ft-wide trail through the I-270/Vasquez interchange to connect people to jobs and retail.
- 2 Lighted pedestrian underpasses at interchange ramps.
- 3 10-ft-wide trail connecting from Vasquez Blvd. to existing sidewalks on Eudora St. (crossing under I-270).
- 4 10-ft-wide sidewalk on Vasquez Blvd. bridge over Sand Creek.
- 5 Trail connection to Sand Creek Greenway.
- 6 Sidewalk extension from bridge to Sand Creek Greenway Dahlia Trailhead.
- 7 Construct missing sidewalk from E. 56th Ave. bridge to Dahlia Trailhead
- 7 Commerce City installed sidewalk between Vasquez Boulevard and Dahlia Street.

3
4 **Figure 4-3. Proposed Pedestrian and Bicycle Improvements Along I-270**

5 *Source: Jacobs*

4.4 Bridges

Improvements would include replacing the following bridges (as shown on Figure 4-1) to update structurally deficient infrastructure and accommodate the wider cross section of the interstate:

- York Street bridge over I-270
- I-270 bridges over South Platte River
- I-270 bridges over Burlington Ditch
- I-270 bridges over Brighton Boulevard, 60th Avenue, UPRR, and BNSF Railway
- I-270 bridges over BNSF Railroad and 60th Avenue
- I-270 bridges over 56th Avenue
- Vasquez Boulevard bridge over Sand Creek

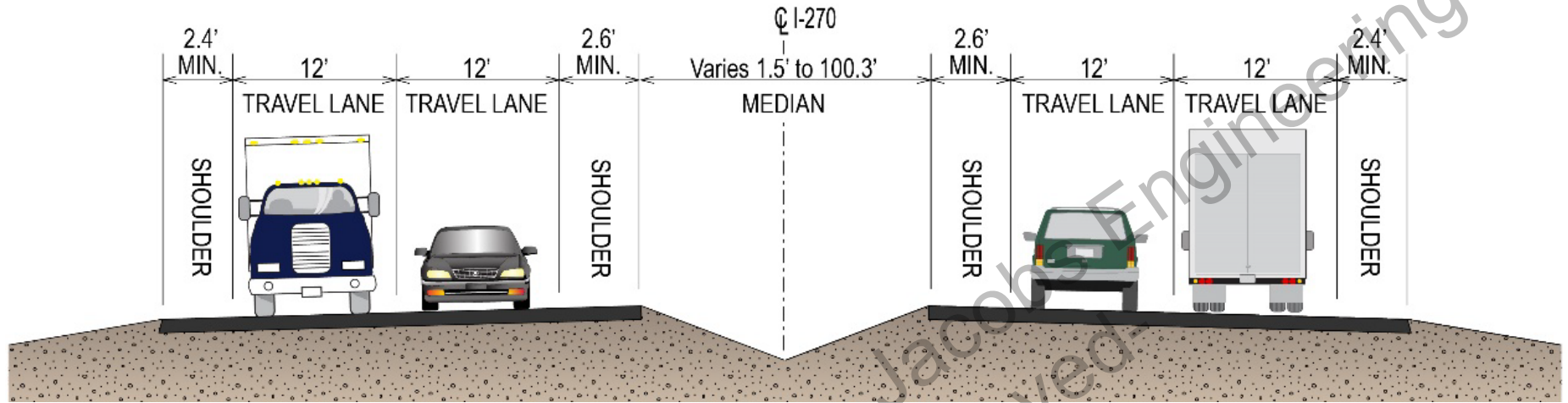
4.5 Permanent Water Quality Features

To meet CDOT's Municipal Separate Storm Sewer System (MS4) and local water quality requirements and capture stormwater runoff from the expanded roadway template, permanent water quality control measures are included in the Proposed Action. The undersized and disconnected water quality facilities that exist in the corridor would be completely replaced with a series of extended detention basins and concrete basins. Seven extended detention basins and two concrete detention basins would be constructed. The Water Quality Technical Memorandum (Appendix A9) and provides details on the anticipated size and location of the permanent water quality control measures.

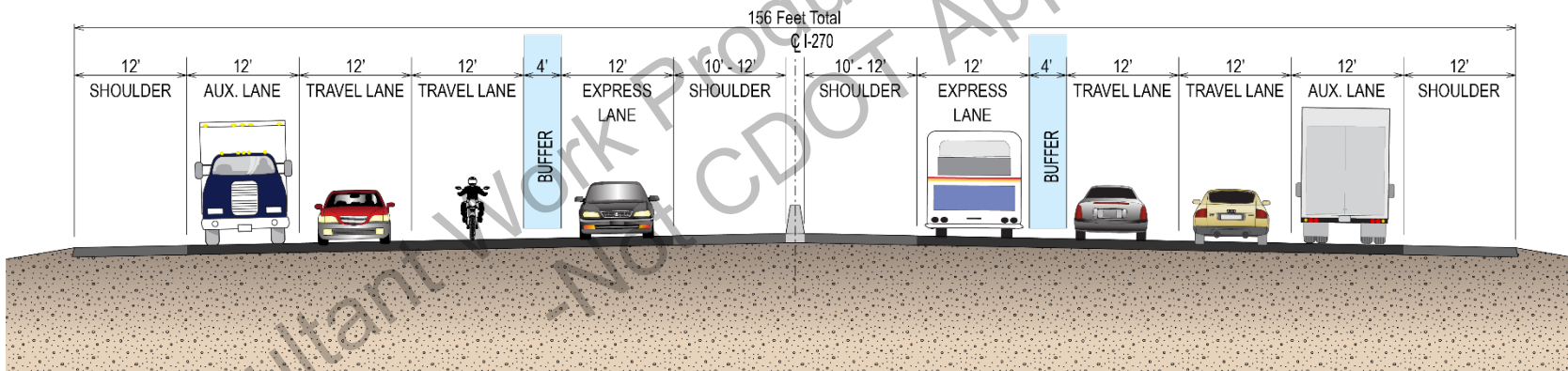
4.6 Intelligent Transportation Systems (ITS)

The Proposed Action would include ITS infrastructure to improve driver communication and maximize the effectiveness of the highway infrastructure improvements. ITS improvements would include the following elements:

- Variable message signs
- Traffic cameras
- Ramp metering
- Weather monitoring station
- Tolling infrastructure



1
 2 **Figure 4-4. Existing Typical Section**
 3 *Source: Jacobs*



4
 5 **Figure 4-5. Proposed Action Typical Section**
 6 *Source: Jacobs*

1 5.0 How Well Do the No Action Alternative and Proposed Action Meet the Purpose and Need?

2 Table 5-1 summarizes the project needs and how they are addressed by the No Action Alternative and the Proposed Action. The No Action Alternative
 3 does not provide needed infrastructure improvements along I-270 to address the project’s purpose and need. However, the No Action Alternative is
 4 assessed in this EA as a baseline against which the Proposed Action is compared.

5 Table 5-1. Purpose and Need Summary for the No Action Alternative and Proposed Action

Project Needs	No Action Alternative	Proposed Action
Improve safety by reducing the rate of vehicle crashes	Does not address identified safety concerns at interchanges or along the I-270 corridor.	<ul style="list-style-type: none"> Reconstruct the I-270 and Vasquez Boulevard interchange to create easier and safer merging of traffic on I-270 at the interchange. Implement auxiliary lanes to provide cars and trucks the additional space and time they need to safely enter and exit I-270. Add a collector ramp for the two eastbound ramps from I-76, creating a single merge point onto I-270 to reduce conflict points on the interstate. Widen shoulders to accommodate vehicle breakdowns and facilitate more efficient emergency response.
Improve travel time reliability and reduce delays	<ul style="list-style-type: none"> Travel delays would not be reduced. Travel times through the corridor during the a.m. and p.m. peak periods are generally expected to increase as compared with existing conditions (Appendix A2). Travel time reliability would not improve. Factors impacting travel time reliability would not be addressed. 	<ul style="list-style-type: none"> Add one express lane in each direction to better accommodate existing and projected travel demand and provide reliable travel times. Implement auxiliary lanes to allow vehicles to accelerate and decelerate without backing up traffic in travel lanes. Widen shoulders to allow space for disabled vehicles without impeding traffic in the travel lanes.
Update obsolete and deficient bridges and highway infrastructure	Ongoing highway maintenance would continue; however, deteriorating and outdated infrastructure such as bridges, interchange ramps, and unstable subgrade of the road would remain.	<ul style="list-style-type: none"> Replace structurally deficient bridges. Replace poor condition asphalt pavement. Stabilize the subgrade of the highway where I-270 travels atop an old landfill. Replace substandard interchange ramps to meet current standards.
Improve truck freight movement efficiency	Multiple factors impacting the efficiency of freight movement in the I-270 corridor would continue, including short acceleration and deceleration ramps at interchanges, tight turning radius of the Vasquez Boulevard interchange ramps, narrow shoulder widths, and traffic back-ups.	<ul style="list-style-type: none"> Replace substandard interchange ramps and add auxiliary lanes to allow adequate space for trucks to accelerate and decelerate. Remove exit loop ramps with tight turning radii to improve safety for truck freight movement at the Vasquez Boulevard interchange. Provide usable shoulder widths (at least 10 feet and preferably 12 feet) for trucks experiencing mechanical failure or tire blowouts.

6 Source: Jacobs

6.0 Why are FHWA and CDOT Recommending the Proposed Action?

FHWA and CDOT are recommending that the Proposed Action be implemented because it improves safety, improves travel time reliability and reduces delays, updates obsolete and deficient bridges and highway infrastructure, and improves truck freight movement efficiency. Commerce City and Adams County support the recommendation.

7.0 What Impacts are Associated with the No Action Alternative and Proposed Action?

The No Action Alternative and Proposed Action have been evaluated for impacts to various resources present within the study area. Table 7-1 provides a summary of impacts to these resources for the No Action Alternative and Proposed Action. The corresponding technical documentation in Appendix A provides more detailed information on the impacts by resource element. Resources in the table have been grouped by social resources, natural resources, and other issues or resources as follows:

Social Resources

- Land Use
- Socioeconomics
- Environmental Justice
- Right-of-way
- Air Quality
- Noise
- Visual Resources
- Parks/Recreational Resources
- Historic Resources
- Archaeological Resources

Natural Resources

- Floodplains
- Water Quality
- Wetlands and Aquatic Resources
- Vegetation and Habitat
- Noxious Weeds
- Wildlife
- Threatened and Endangered Species
- Paleontological Resources

Other Issues or Resources

- Hazardous Materials
- Traffic
- Multimodal
- Section 4(f) and 6(f) Properties
- Cumulative Impacts

No farmlands are present within the project area and this resource is not included in Table 7-1. The Proposed Action is anticipated to negligible effects to energy, geology and soils, and utilities so these resources are also not included in Table 7-1. Mitigation numbers in in the table correspond to the mitigation commitments summarized in Table 8-1. The impacts presented in Table 7-1 are based on the footprint and corresponding project description provided in Appendix B2. The footprint, which assumes use of CDOT’s full right-of-way, is larger than the Proposed Action design and therefore is a more conservative accounting of impacts (that is, likely overestimates project impacts). Mitigation will be provided only for the actual project impacts as determined through final design.

1 Table 7-1. Environmental Impacts of the No Action Alternative and Proposed Action

Resource	Context	No Action Alternative	Proposed Action	Mitigation Number
Social Resources				
<p>Land Use See Community Understanding Report (Appendix A3)</p>	<p>The study area is located primarily within Adams County and Commerce City, specifically Commerce City’s Historic City, one of the Strategic Planning Areas identified in the city’s Comprehensive Plan (Commerce City 2010). The dominant land use adjacent to I-270 is industrial. A large commercial shopping area extends south of Northfield Boulevard to I-70, and scattered commercial land uses exist throughout the study areas. Small, mostly linear swaths of open space span the area. The largest residential area, the South Rose Hill neighborhood, is located between Vasquez Boulevard and Quebec Street north of I-270. Smaller, scattered residential areas also exist near I-270.</p> <p>In general, zoning and future land use maps adhere to existing land uses within the study area, with an even greater focus on industrial land use zoning. Future local plans emphasize retaining industrial areas and land for future jobs, ensuring availability of industrial land and buildings, and improving transportation connectivity.</p>	<p>Under the No Action Alternative, undeveloped land within the study area would continue to develop in accordance with future land use plans and zoning. However, this alternative would not be consistent with future local plans, which call for addressing transportation needs on I-270.</p>	<p>Most of the changes included under the Proposed Action would occur within existing transportation right-of-way (ROW), except for 2.9 acres of land zoned mostly for industrial and open space that would be permanently acquired, representing a minor change to land use.</p> <p>Land uses in the corridor are expected to remain predominantly focused on industrial land use and transportation, as called for in local plans and consistent with existing conditions. The Proposed Action would support local plans by improving transportation to and from the area’s industrial uses, as well as residential areas. Indirectly, this beneficial effect could further heighten industrial activity, with some potential adverse effects to residents.</p> <p>The Proposed Action would address the issue related to lack of bicycle/pedestrian connectivity and limited connections across I-270 by providing multimodal improvements, notably at the I-270/Vasquez Boulevard interchange (see the Multimodal row of this table).</p> <p>The intensity and integrity, location, or pattern of land use is not expected to change. Similarly, the Proposed Action would not add new access to jobs and other facilities in the study area but would improve existing access, making it easier to reach desired destinations.</p>	
<p>Socioeconomics</p>	<p>The I-270 corridor story of community cohesion and neighborhoods is inextricably linked to the story of heavy industry. At the strategic confluence of two Class I railroad lines and three major streams, industrial development in the corridor was catalyzed in the 1930s with the construction of the Conoco oil refinery (known today as Suncor) and a major wastewater treatment plant. Other industries (such as grain elevators and manufacturing) have since spread north from Denver and along the numerous rail spurs that extend into the corridor. Creation of interstates, specifically I-76 in the late 1960s and I-270 in 1970, shifted industrial operations toward more transportation- and trucking-oriented businesses, resulting in zoning of properties along I-270 for industrial use.</p> <p>Land west of Commerce City is unincorporated Adams County. The Imagine Adams County Comprehensive</p>	<p>This alternative would not address issues and policies identified in local plans related to community cohesion and neighborhoods. The No Action Alternative would not support Adams County’s goals to promote connected growth, protect the health, safety, and welfare of the county’s inhabitants, or provide economic vitality because the existing safety and congestion issues would remain. Mobility for all travelers, including transit-dependent individuals, would continue to be impaired due to congestion and accident frequency, hindering travelers’ ability to reach their destinations, particularly the area’s key destinations. Accessing community services and facilities would continue</p>	<p>The Proposed Action would address several specific issues and policies identified in local plans related to socioeconomic conditions, such as improving traffic and transportation connections, drainage issues, infrastructure and roadways, and connectivity.</p> <p>The Proposed Action would indirectly support community vision and values, help promote connected growth and economic vitality by improving the I-270 transportation corridor, increase safety, and reduce congestion.</p> <p>Mobility would also be improved by preserving and enhancing transportation access. The key destinations on the southern side of I-270 would be better served by improvements to the highway. Key destinations on the northern side of I-270, which is also where most community facilities are located, would also benefit from replacing the interchange at Vasquez Boulevard. These changes would improve mobility for all travelers, including transit-dependent individuals, and the large percentage of commuters in the study area.</p>	

Resource	Context	No Action Alternative	Proposed Action	Mitigation Number
	<p>Plan includes the following goals that are relevant to social and economic resources (Adams County 2012):</p> <ul style="list-style-type: none"> • Promote coordinated and connected growth • Protect the health, safety, and welfare of Adams County’s inhabitants • Promote economic vitality <p>The county also includes a transportation policy that states, “The County is committed to providing an integrated and safe multimodal transportation system that enhances the quality of life for Adams County residents, encourages economic vitality, and promotes environmental stewardship” (Adams County 2012)</p> <p>In addition to the mobility issues discussed in Section 2, the study area has several at-grade highway crossings with freight railroad tracks. The Commerce City Economic Development Strategic Plan notes that “transportation access is of paramount importance to many businesses within Commerce City, particularly the large number of firms within the Transportation and Logistics sector.” The plan includes a strategy to “continue to preserve and enhance transportation access for cars and truck traffic.” Another goal of the Adams County Comprehensive Plan is to preserve parks, open space and trails and provide, create regional open space connections, and preserve water corridors and reservoirs.</p> <p>Community service providers provided feedback about issues and potential solutions for the corridor. Some of the suggested improvements include better incident response by fire and emergency responders, safety improvements to pedestrian facilities, improved transportation on I-270 for buses transporting student from sporting events and field trips, and more reliable and safe transportation for members of the Assumption of the Blessed Virgin Mary Catholic Church.</p> <p>I-270 serves, and therefore potentially influences, several businesses that affect the study area’s economic environment. The Transportation, Warehousing, and Utilities supersector is the largest employer at 29 percent, followed by Construction at 18 percent, Wholesale and Retail Trade at 17 percent, Manufacturing at 9 percent, and Professional and</p>	<p>to be adversely impacted by travel delays. Businesses would be affected by continued congestion, resulting in delays in reaching local businesses and delays in delivering products from local businesses. As a result, the No Action Alternative is likely to have an adverse impact on socioeconomic conditions in the study area.</p>	<p>The Proposed Action would benefit fire and emergency responders, who noted that incident response is affected by congestion, inadequate shoulder widths, problems at the Vasquez Boulevard interchange, and issues related to weaving and merging. New sidewalks and a bike lane would help address residents’ requests for safety improvements to pedestrian and bicycle facilities. Reaching local destinations would be easier, and bus transportation would also benefit.</p> <p>No permanent changes would occur to any recreational facilities except new trail connections included in the Proposed Action, which would improve access to several of these resources.</p> <p>Reduced congestion would support the projected growing population, particularly Adams County’s expected 90 percent increase by 2040, as well as the large percentage of the study area that is in the labor force. Reduced congestion would reduce delays to reach local businesses and delivery of the products they distribute. By improving travel through the I-270 corridor, the Proposed Action would support the Adams County Comprehensive Plan call for revitalizing older industrial areas primarily south of the I-76 corridor and support the area’s existing industrial and manufacturing base.</p> <p>Residents, emergency responders, transit providers and users, and businesses in the study area would be adversely impacted by construction activities and detours. minor trail detours would be needed at four locations along the Sand Creek Trail and one location on the South Platte Trail. Bus routes likely impacted are the Flatiron Flyer (I-270), Route 48 (Vasquez Boulevard), and Route 49 (56th Avenue under I-270). Although I-270 is expected to remain open during construction, limited overnight closures will be required to facilitate bridge construction with detours occurring on I-70 and I-25. Construction on 56th Avenue would particularly affect the Suncor refinery, which operates round-the-clock. Some business and residential accesses will be impacted during construction. Other construction impacts would include visual impacts, dust, and noise.</p>	

Resource	Context	No Action Alternative	Proposed Action	Mitigation Number
	<p>Business Services at 7 percent. The Adams County Comprehensive Plan calls for revitalizing older industrial areas primarily south of the I-76 corridor to preserve jobs and take advantage of existing infrastructure.</p>			
<p>Environmental Justice</p>	<p>Environmental justice is a federal public policy goal of promoting the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income, with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. Executive Order 12898 and FHWA Orders 5610.2 and 6640.23 require federal agencies to identify and address disproportionately high and adverse effects of their actions on minority and low-income populations. In 2021, the Colorado legislature created new requirements and definitions pertaining to equitability as part of Senate Bill (SB) 21-260; SB 260 emphasizes the equitable distribution of transportation infrastructure and “addresses inequities in transportation access and the increased exposure to transportation-related air pollution for communities, including disproportionately impacted communities, communities near major roadways, and, as documented in multiple peer-reviewed scientific studies, communities where many of the residents are Black or Hispanic” (1)(b)(IV). SB 260, now codified as Colorado Revised Statute (C.R.S.) 43-1-128, defines disproportionately impacted (DI) communities as “a community that is in a census block group... where the proportion of households that are low-income is greater than forty percent, the proportion of households that identify as minority is greater than forty percent, or the proportion of households that are housing cost-burdened is greater than forty percent” (C.R.S. 43-1-128(2)(c)(I)).</p> <p>To understand the degree to which I-270 serves minority, low-income, and housing cost-burdened populations, an origins and destinations analysis was conducted using StreetLight data (i.e., cellphone data). The origins and destinations study (conducted by Jacobs and available as part of the project record) included an equity analysis to determine the percentage of trips on I-270 that originated from or</p>	<p>Cut-through traffic on the corridor’s arterial and local roadway network would worsen as the interstate becomes more congested, exacerbating conflicts among vehicles, bicyclists, and pedestrians in environmental justice (EJ) and DI areas. Related adverse effects to community cohesion, economics, and access to public facilities and services would also continue or increase as vehicles attempt to bypass congestion on I-270 through the local street network.</p>	<p>Traffic congestion on I-270 and the corridor arterials would be reduced with the Proposed Action. Reducing congestion on I-270 and the arterial roadway network may reduce the number of vehicle accidents in the surrounding EJ and DI communities. Similarly, a reduction in arterial road traffic is expected to improve the safety of pedestrians and bicyclists by reducing vehicle conflicts. Because the origins and destinations study demonstrated a substantial (approximately 63 percent minority, 26 percent low-income, and 51 percent housing cost-burdened) percentage of trips on I-270 are generated from EJ and DI areas, improved safety on I-270 is a direct safety benefit to these communities.</p> <p>Improved crossings for pedestrians would make crossing I-270 at York Street, Vasquez Boulevard, and 56th Avenue more convenient and safer. Better facilities for pedestrians and bicycles would improve multimodal connections to destinations within the study area, particularly the grocery store, retail facilities, and Eagle Pointe Recreation Center.</p> <p>No neighborhoods extend across I-270 and therefore the additional lanes would not create a new community barrier or increase the presence of an existing barrier.</p> <p>Increased mobility and access to retail and commercial areas north of I-270 would be improved and support the economic health of corridor businesses which serve the EJ and DI communities in the corridor.</p> <p>Although there is an increase in vehicle miles traveled (VMT), criteria pollutants and mobile source air toxics (MSATs) under the Proposed Action would be lower than the No Action Alternative in the study area, except for particulate matter emissions where approximately 75 to 80 percent are attributed to re-entrained road dust. Because of the link between MSATs emissions and immune system inflammation, asthma, and chronic obstructive pulmonary disease (COPD) symptoms (that is, bodily impairment and illness), it is reasonable to assume that the Proposed Action would have less impact on the health of the surrounding community than the No Action Alternative.</p> <p>The Proposed Action would increase noise levels to sensitive receptors adjacent to I-270, which include single-family residences and recreational areas. As described in the Traffic Noise row of this</p>	<p>1, 2, 3, 4</p>

Resource	Context	No Action Alternative	Proposed Action	Mitigation Number
	<p>were destined for low-income, minority, or housing cost-burdened block groups.</p> <p>To identify and engage EJ and DI communities, CDOT conducted extensive outreach to community groups and leadership throughout the EA process. Input from these groups and individuals were carefully considered and incorporated into the project design as evidenced by the bicycle and pedestrian improvements at York Street, Vasquez Boulevard, and 56th Avenue.</p> <p>Except for two Denver block groups at the eastern limit of the study area, all US Census block groups qualify as either low-income, minority, or housing cost-burdened. In general, the I-270 corridor can be characterized as an EJ and DI area.</p>		<p>table, receptors would experience an increase in noise levels ranging from approximately 0.2 to 4.6 decibels due to the increased number of vehicles the Proposed Action accommodates. (Three decibels is considered just perceptible to the human ear). Using CDOT’s noise policy, noise impacts were identified, but noise abatement was determined to not meet the feasible and reasonable criteria. Although noise impacts would be predominantly borne by EJ communities, noise impacts are not substantial and would not appreciably exceed noise level increases for non-EJ communities in the study area.</p> <p>Adverse impacts to natural resources would occur along the I-270 corridor and therefore would be predominantly borne by EJ communities—to the extent that EJ communities experience and benefit from these resources.</p> <p>These impacts would be mitigated in accordance with state and federal permitting requirements and CDOT protocols. Proposed mitigation would restore or enhance degraded wetland and riparian areas adjacent to Sand Creek, thereby improving water quality and habitat.</p> <p>The Proposed Action also would have beneficial impacts to natural resources. Water pollution would decrease in comparison to the No Action Alternative because water quality treatment is being provided through new water quality ponds, and the number of outfalls to Sand Creek would be reduced (refer to the Water Quality row of this table). Also, any contaminated groundwater encountered in dewatering operations would be treated onsite or transported offsite. Areas of contaminated soil encountered during construction would be excavated and backfilled with clean fill, representing a minor benefit compared with the No Action Alternative.</p> <p>The Proposed Action would not result in the relocation of any businesses or access elimination and would not result in the loss of employment for any individuals. Increased mobility and access to retail and commercial areas north of I-270 would be improved and support the economic health of the community. The Proposed Action would benefit the corridor’s employment characteristics compared with the No Action Alternative.</p> <p>The Proposed Action would not result in the displacement of any persons because no residences or businesses would be displaced. CDOT recognizes that tolls represent a disproportionate financial cost to low-income individuals. Although any toll price is higher relative to income for low-income users, tolls are not expected to be cost prohibitive and would not exclude these populations from receiving the benefits associated with improved travel times</p>	

Resource	Context	No Action Alternative	Proposed Action	Mitigation Number
			<p>throughout the corridor, including the general purpose lanes. The tolled express lane would provide an additional choice for travelers when a faster, more reliable trip is necessary. To help mitigate the equity impacts and the financial burden of using tolled express lanes, CDOT will establish a program to reduce or eliminate fares for lower-income residents of the community.</p> <p>Construction of the Proposed Action would extend for several years. Ambient noise from construction could be a concern among the residents around the construction zone. As detailed in the Traffic Noise Technical Report (Appendix A5 of the EA), best management practices would be implemented during construction to minimize noise impacts. Construction would also comply with the Colorado Noise Statute (C.R.S. 25-12-102) and Commerce City and City and County of Denver noise ordinances.</p> <p>Pedestrian/trail facilities impacted by construction activities will be detoured on site and near the original trail location. Limited overnight trail closures may be needed for bridge girder erection.</p> <p>Construction of the Proposed Action would also result in the temporary increase in fugitive dust and diesel emissions from construction equipment and vehicles traveling to and from the construction site. The contractor would be required to follow the requirements of filing an Air Pollution Emission Notice, including obtaining a construction permit from the CDPHE Air Pollution Control Division if predicted emissions are greater than permit thresholds. Preparation of a fugitive dust control plan would be required for the implementation of best management practices during construction to control dust emissions. The Air Quality Technical Report (Appendix A3 of the EA) details preconstruction requirements to comply with C.R.S. 43-1-128. In March 2021, CDOT and CDPHE began a research project along the I-270 corridor to monitor criteria pollutants prior to construction and during construction, providing a dashboard for community education and awareness.</p> <p>CDOT will provide housing mitigation for residents whose homes are close enough to the project to be impacted by construction noise and dust during particularly intense construction periods. Housing mitigation includes hotel vouchers to allow residents to vacate their homes during certain phases of construction, such as over a weekend during bridge demolition.</p> <p>To help mitigate any potential short-term employment effects caused by traffic disruption and other project effects during the construction phase, the construction contractor will implement a workforce development program targeted at employing residents in the I-270 corridor. This plan will also encourage hiring on-the-job</p>	

Resource	Context	No Action Alternative	Proposed Action	Mitigation Number
			trainees and new workers into the construction industry. The I-270 contractor will also be required to make community investment during and after the construction phase.	
Right-of-way	ROW widths along I-270 are approximately 300 feet, enlarging considerably around interchanges to encompass ramps.	The No Action Alternative is not anticipated to result in ROW acquisitions, easements, relocations, or displacements.	Improvements included in the Proposed Action would mostly occur within existing CDOT ROW. However, these improvements would require temporary construction easements, permanent easements, and ROW acquisition from properties surrounding the interchange. Approximately 2.9 acres would be permanently acquired, 9.9 acres would be required for permanent easements, and 9.7 acres would be required for temporary construction easements. No residential or commercial displacements or relocations would result from the Proposed Action.	5
Air Quality See Air Quality Report (Appendix A4)	<p>The project is located in Adams County and the City and County of Denver. The study area is in the Denver Metro/North Front Range (DM/NFR) nonattainment area for the 2008 and 2015 8-hour ozone National Ambient Air Quality Standards (NAAQS). In December 2019, the U.S. Environmental Protection Agency (EPA) reclassified the DM/NFR nonattainment area to serious under the 2008 8-hour ozone NAAQS. The Colorado Air Quality Control Commission (AQCC) approved the Regional Air Quality Council (RAQC) <i>Serious State Implementation Plan for the Denver Metro and North Front Range Ozone Nonattainment Area</i> in December 2020, and it was submitted to EPA in March 2021 following legislative approval.</p> <p>The study area is in the Denver Metro maintenance area for the 1987 particulate matter with a diameter less than or equal to 10 microns (PM₁₀) NAAQS. EPA redesignated the Denver metropolitan area as an attainment/maintenance area and approved the maintenance plan, <i>Particulate Matter (PM₁₀) Redesignation Request and Maintenance Plan for the Denver Metropolitan Area</i>, on September 16, 2002, with an effective date of October 16, 2002.</p> <p>The study area is in the Denver-Boulder area for the 1971 Carbon Monoxide (CO) NAAQS. EPA redesignated the Denver-Boulder area as an attainment/maintenance area and approved the maintenance plan, <i>Carbon Monoxide Redesignation Request and Maintenance Plan for the Denver Metropolitan Area</i>, on December 14, 2001, with an effective date of January 14, 2002.</p>	The No Action Alternative would not cause exceedances of regulatory thresholds for any criteria pollutants. The total emissions from the No Action Alternative are slightly higher than the Proposed Action for most pollutants analyzed, which is attributable to the higher congestion that would remain along the corridor.	<p>The project would be subject to transportation conformity requirements (40 <i>Code of Federal Regulations</i> [CFR] 93) and needs to demonstrate regional and project-level conformity. Regional conformity for transportation projects is satisfied by the project's inclusion in a federally approved Regional Transportation Plan (RTP) and regional Transportation Improvement Program (TIP). The I-270 Corridor Improvement Project is included in the conforming RTP and TIP, which demonstrates that the project was evaluated for regional impacts, meets the planning and regional requirements for demonstration of federal conformity, and is consistent with local air quality planning efforts.</p> <p>For project-level conformity, projects in nonattainment and maintenance areas for CO, PM₁₀, and particulate matter with a diameter less than or equal to 2.5 microns (PM_{2.5}) need to evaluate whether a hot spot analysis is required. The 20-year maintenance period for the Denver-Boulder maintenance area for CO ended on January 14, 2022, and is no longer subject to conformity requirements. A CO analysis for this Proposed Action was included under NEPA and to go above and beyond the C.R.S. 43-1-128 requirements. The CO analysis demonstrates that the project would not cause violations of the CO NAAQS. The 20-year maintenance period for the Denver Metro area for PM₁₀ will end on October 16, 2022, and therefore is subject to conformity requirements until that date. Based on EPA guidance, the project would not be a Project of Air Quality Concern (POAQC); however, a PM dispersion modeling analysis was completed under NEPA and to go above and beyond the C.R.S. 43-1-128 requirements. Based on those results, the Proposed Action would not cause or contribute to new violations of the PM NAAQS. Because the Denver Metro area is in attainment for the PM_{2.5} NAAQS, conformity requirements do not apply and a hot spot analysis for PM_{2.5} is not required.</p>	6, 7, 8

Resource	Context	No Action Alternative	Proposed Action	Mitigation Number
	<p>Sensitive air quality receptors in the surrounding area include residential areas, parks and playgrounds, schools, day care centers, nursing homes, and hospitals.</p>		<p>MSATs under the Proposed Action would be lower than the No Action Alternative in the study area likely due to emissions reductions from reduced congestion and increased vehicle speeds. Also, MSATs emissions would be lower in other locations when traffic shifts from existing roadways to the improved I-270.</p> <p>Total greenhouse gas emissions would decrease in 2050 compared with the existing condition for both the No Action Alternative and Proposed Action due to improvements in vehicle emission rates, even with increased VMT in 2050. Modeled greenhouse gas emissions for the Proposed Action are slightly (less than 1 percent) higher compared with the No Action Alternative due to a combination of the effects from the increased VMT, reduced congestion, and improved vehicle economy.</p> <p>Temporary effects to the local air quality are anticipated during construction because the proposed project would likely have localized diesel-emitting sources from construction equipment and vehicles traveling to and from the construction site.</p>	
<p>Noise See Traffic Noise Technical Report (Appendix A6)</p>	<p>A noise study was required because the project meets the definition of a Type I project per 23 CFR 772. The noise study zone includes 129 noise sensitive receptors represented by 117 noise receivers (Traffic Noise Model [TNM] modeling points). Of the 129 noise sensitive receptors, 98 of the receptors are residential. Other noise sensitive receptors include Section 4(f) sites (trails), recreation, and restaurants with outdoor areas of human use. Existing noise levels range from 50.9 A-weighted decibels (dBA) to 76.9 dBA.</p>	<p>Noise levels under the No Action Alternative range from 51.8 dBA to 78.0. dBA. As traffic continues to increase in the future, noise levels would also increase.</p>	<p>Noise levels under the Proposed Action range from 52.9 dBA to 77.9 dBA. Due to the Proposed Action, 32 receptors would exceed the Noise Abatement Criteria (NAC) and therefore be impacted by traffic noise. No receivers would experience a substantial noise increase of at least 10 dBA.</p> <p>The Proposed Action would have 15 impacted areas. Of the 15 impacted areas, noise barriers were not modeled for 13 areas where a barrier is not able to benefit at least three impacted receptors because there are fewer than three impacted receptors behind the prospective barrier. (Per the CDOT Noise Analysis and Abatement Guidelines, a barrier does not need to be modeled to be determined that it is not feasible).</p> <p>Noise barriers were analyzed for two impacted areas, near the South Rose Hill neighborhood and residences along 52nd Avenue, with three or more impacted receptors behind the barrier. Both barriers were considered feasible because the barriers could achieve a 5-dBA reduction to three or more receptors and there were no design or construction factors that were fatal flaws. The walls also met the noise reduction design goal of 7 dBA for at least two benefited receptors. However, both walls exceeded the allowable cost of \$34,000 per benefited receptor; therefore, they are not reasonable and not recommended.</p> <p>Properties adjoining project construction may be exposed to noise caused by construction activities of the Proposed Action. Best management practices will be incorporated to minimize construction noise levels.</p>	<p>9</p>

Resource	Context	No Action Alternative	Proposed Action	Mitigation Number
<p>Visual Resources See CDOT Visual Impact Assessment Memorandum (Appendix A7)</p>	<p>The study area is located in a primarily industrial and transportation setting. The Suncor refinery and Excel power station, with their soaring vertical structures and expansive footprints, are distinctive even within the industrial landscape, making a vivid, but not positive, impression. I-270 and its components are a prominent visual feature. Minor exceptions to this landscape character include the South Platte River, which crosses under the highway, and Sand Creek and the Sand Creek Greenway, which parallel the south side of I-270 from the river to I-70. Riparian vegetation offers a negligible amount of vividness during leaf-on seasons. Front Range mountains are visible in the background for northbound travelers, and the downtown Denver skyline is occasionally visible in the middle ground for southbound travelers. The night sky is affected by lights from the highway, vehicles, and surrounding industrial and commercial facilities.</p> <p>A few houses within small residential areas adjacent to I-270 have views of it. These residents constitute sensitive viewers. Travelers include drivers on I-270 with views of the road, and users of the Sand Creek Greenway; the latter are also considered sensitive viewers. I-270 is not likely used for leisure driving.</p> <p>The landscape is inharmonious and lacks vividness because of its homogenous industrial setting, resulting in low overall visual quality.</p>	<p>No noticeable visual change would occur in the study area under the No Action Alternative.</p>	<p>Long-term visual changes would result primarily from widening I-270 by adding new express and auxiliary lanes, widening bridges and shoulders, and reconfiguring existing interchanges. Although the highway would occupy a wider footprint and introduce some new highway features, the proposed changes would be compatible with the visual character of the landscape.</p> <p>Reconfiguring the Vasquez Boulevard interchange would reduce the visual impact of this transportation feature and provide slight beneficial impacts. Overall, impacts at Vasquez Boulevard would be both adverse and beneficial, but negligible.</p> <p>Retaining walls would primarily affect views for I-270 travelers. Retaining walls may visually impact views for two or three residents on either side of the highway in the vicinity of York Street, but could also screen views of the highway. New drainage structures and extended detention basins may introduce some natural elements (water) to the landscape, with slight beneficial effects. ITS improvements would add new vertical features that could potentially temporarily block distant views, particularly of mountains for northbound travelers.</p> <p>Trees may be removed from the greenways to accommodate highway expansion resulting in a potential adverse impact. Landscaping within the Vasquez Boulevard interchange would introduce some natural elements to the industrial setting, with slight beneficial impacts.</p> <p>Overall, the study area would retain its industrial and transportation visual character, and visual quality in the study area would remain low.</p> <p>Temporary visual impacts would result from views of staging areas to cache construction materials, the presence of construction vehicles in the project area and temporary construction mitigation measures such as silt fences.</p>	<p>10, 11, 12, 13, 14</p>
<p>Parks/Recreational Resources</p>	<p>Recreational resources within the study area include parks, open space, and designated trails. Parks and open spaces include Wetland Park, Northfield Pond Park, Veterans Memorial Park, Pioneer Park, Leyden Park, Monaco Park, and Engineer Lake. Trails include Sand Creek Greenway, Northfield Pond Park trail system, South Platte River Trail, Fernald Trail, North Stapleton Trail, Clear Creek Trail, and Wetland Loop Trail. The South Platte River Greenway Trail, Clear Creek Trail, and Sand Creek Trails are regional facilities that provide access to surrounding metropolitan areas</p>	<p>No impacts to recreational resources in the project area would occur due to the No Action Alternative.</p>	<p>There would be no permanent impacts to recreational resources due to the Proposed Action. The Proposed Action would result in temporary impacts to the South Platte Greenway Trail and the Sand Creek Greenway Trail (See Section 4(f) resources for further discussion on temporary impacts).</p>	

Resource	Context	No Action Alternative	Proposed Action	Mitigation Number
	<p>including Aurora, Commerce City, Littleton, and Thornton.</p> <p>Planned recreational resources include the Town Center Greenway, Northern Range Loop Trail, and the O'Brien Canal Trail.</p>			
<p>Historic Resources See Historic Resources Inventory and Determination of Effects and Historic Section 4(f) Report (Appendix A13)</p>	<p>Section 106 of the National Historic Preservation Act of 1966 requires federal agencies to take into account the effects of their undertakings on historic properties, and give the Advisory Council on Historic Preservation (ACHP) a reasonable opportunity to comment.</p> <p>Twelve properties eligible, or assumed to be eligible, to be listed in the National Register of Historic Places were identified within the Area of Potential Effects (APE) for the project corridor. These include two architectural properties and ten linear resources. Of the eligible linear resources, five support the eligible linear resource, and four are non-supporting to the overall eligible linear resource. Sand Creek Railroad Junction, included with the linear properties, is determined eligible for listing in the National Register.</p> <p>The Section 106 process was initiated on February 5, 2021, when CDOT transmitted a letter to the State Historic Preservation Office (SHPO) delineating the project's APE for historic properties and providing the Section 106 (36 CFR 800) identification methodology for historic properties within the APE. In this letter CDOT requested concurrence on the eligibility of properties and the Section 106 effects determination of No Adverse Effect on these properties. CDOT received concurrence from the SHPO on March 2, 2021.</p> <p>Simultaneous to CDOT's coordination with the SHPO, CDOT also coordinated with two additional consulting parties to obtain input regarding the project's potential to impact historic properties. These two consulting parties are the Adams County Community and Economic Development and the Commerce City Planning Division. CDOT received no comment from these consulting parties.</p>	<p>No impacts to historic resources in the project area would occur from the No Action Alternative.</p>	<p>The direct or indirect effects stemming from the Proposed Action are not sufficient to diminish the integrity of the historic properties within the APE and therefore do not have potential to alter their determinations of eligibility for the National Register.</p> <p>CDOT and FHWA determined, and the SHPO concurred, that the I-270 Corridor Improvements Project would have No Adverse Effect to historic properties.</p>	
<p>Archaeological Resources See Archaeological Assessment Technical</p>	<p>A Class III archaeological survey report was prepared for the project. Six areas were identified that are conducive to containing intact sediments with the potential for subsurface cultural deposits unaffected</p>	<p>No impacts to archaeological resources would occur due to the No Action Alternative.</p>	<p>Although no archaeological properties were identified in the APE, project construction activities requiring subsurface excavation could potentially identify and disturb previously unidentified archaeological resources.</p>	<p>15</p>

Resource	Context	No Action Alternative	Proposed Action	Mitigation Number
Report (Appendix A14)	<p>by development of the I-270 corridor. Field assessment (that is, surface inspection) indicated that four of the six areas were too disturbed by development to warrant subsurface testing. Exploratory testing results in the remaining areas were negative. Although two areas of potential surface historical archaeology were identified, these areas are currently outside of the project limits/APE and were not documented. CDOT received concurrence from the SHPO on July 2, 2021.</p> <p>CDOT sent letters to eleven tribes inviting them to serve as Section 106 consulting parties. The Pawnee Nation and Northern Cheyenne Tribe accepted the invitation.</p>			
Natural Resources				
<p>Floodplains See Flood Plains Technical Memorandum (Appendix A11)</p>	<p>There are three major water features in the study area: the South Platte River, Sand Creek, and Clear Creek. These three water features all have mapped floodways and floodplains that parallel or intersect the study area.</p>	<p>No impacts to floodplains in the project area would occur from the No Action Alternative.</p>	<p>According to the effective Federal Emergency Management Agency (FEMA) floodplain data, the Proposed Action would encroach on existing floodways and floodplains at Clear South Platte River and Sand Creek. Most of the encroachment into the floodway and floodplain would occur from the widening of I-270 where it runs parallel to Sand Creek and along the west bank of the South Platte River where I-270 is widened before spanning across the river. The existing Flood Insurance Rate Maps (FIRMs) are based on outdated topography and modeling processes, and are likely inaccurate, showing 100-year events overtopping I-270 and Sand Creek Drive. As a result, a Conditional Letter of Map Revision (CLOMR)/ Letter of Map Revision (LOMR) will be initiated by CDOT in cooperation with the project partners to revise the effective FIRMs and remove I-270 from the floodplain. After revising the floodplain, the floodway and floodplain boundaries are anticipated to be contained within the channel banks during the 100-year event. Therefore, after mitigation, the Proposed Action would have minimal encroachment or no encroachment to any of the floodways or floodplains associated with Clear Creek, the South Platte River, and Sand Creek.</p>	16, 17
<p>Water Quality</p>	<p>Current drainage conditions include direct conveyance from the roadway into adjacent surface waters. Highway stormwater runoff leaves the roadway across shoulders into ditches, where water is conveyed to inlets, then piped under the roadway and ultimately discharged into the adjacent surface waters. The three major water features in the study area (Sand Creek, Clear Creek, South Platte River) are impaired for E.coli and heavy metals including cadmium, iron, and</p>	<p>No impacts to water quality would occur due to the No Action Alternative.</p>	<p>The Proposed Action would result in an increase of approximately 33 acres of impervious surface. To mitigate for this increase, the Proposed Action would modernize the I-270 drainage system by completely replacing the existing system of inlets, vaults, and outfalls with a series of nine permanent water quality control measures, consisting of seven new extended detention basins and two concrete extended detention basins. The Proposed Action meets CDOT’s MS4 water quality requirements to treat 90 percent of new impervious surface plus the existing treated areas. Extended</p>	18, 19, 20, 21

Resource	Context	No Action Alternative	Proposed Action	Mitigation Number
	manganese, which are roadway pollutants of concern. The study area crosses through or is adjacent to the following MS4 permit areas: CDOT, City and County of Denver, Adams County, and Commerce City.		detention basins are anticipated to improve water quality conditions in the adjacent waterways because they are more effective at capturing and treating roadway pollutants than the existing inlet and vault system. During construction, temporary water quality control measures will be employed as part of the Stormwater Management Plan (SWMP) to avoid and minimize the erosion and runoff of sediment and spilled materials into the adjacent waterways.	
Wetlands and Aquatic Resources See Wetland & Aquatic Resources Technical Report (Appendix A10)	Section 404 of the Clean Water Act establishes a program to regulate the discharge of dredged or fill material into waters of the United States, including wetlands and streams. The study area is located within the Middle South Platte–Cherry Creek Watershed. Field surveys have identified wetlands and waters of the United States within the study area. Wetlands are concentrated near Sand Creek, Clear Creek, the South Platte River, and stormwater drainage infrastructure.	No impacts to wetlands or waters of the United States in the project area would occur from the No Action Alternative.	Permanent wetland impacts resulting from this project are anticipated to be approximately 122,000 square feet (2.803 acres). Temporary wetland impacts are anticipated to be approximately 22,700 square feet (0.525 acre). Permanent impacts to other waters are anticipated to be approximately 2,000 square feet (0.04 acre). Temporary impacts to other waters are anticipated to be approximately 55,000 square feet (1.264 acres). Permanent impacts to presumed jurisdictional waters of the U.S. are anticipated to be 0.301 acre of wetland and 0.048 acre of other waters, for a total of 0.349 acre. To comply with Section 404 of the Clean Water Act, it is anticipated that a series of Nationwide Permits (NWP) will be used to permit the proposed work including an NWP 14 for the linear transportation project and an NWP 3 for maintenance of serviceable structures. A project-specific stormwater management plan will be developed to address the potential for construction-related soil erosion and sedimentation and include best management practices that will minimize or avoid potential indirect wetland effects.	22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33
Vegetation and Habitat See Biological Resources Report (Appendix A12)	The study area is located within the Flat to Rolling Plains sub-ecoregion within the High Plains ecoregion, as defined by EPA. The native grasslands throughout the ecoregion are dominated by blue grama and buffalo grass. Overall, natural habitat is lacking throughout the study area, which is dominated by the I-270 ROW. Also, most of the land use directly adjacent to the ROW within the study area is heavily developed and urbanized, mostly with industrial land uses. Consequently, areas with native vegetation are lacking, and much of the nondeveloped areas contain invasive or noxious vegetation.	No impacts to vegetation or habitat in the project area would occur from the No Action Alternative.	Of the 443-acre study area, approximately 328.1 acres (74 percent of the study area) would be impacted by the Proposed Action. Of the 328.1 acres, 317 acres are categorized as permanent impacts and 11.1 acres are temporary impacts. The estimated number of total impacts to disturbed and nonvegetated areas and nonporous areas (such as impervious surfaces and structures) that do not provide a habitat for wildlife would be approximately 149.6 acres, which accounts for 46 percent of the overall impacts. Approximately 95 percent of the combined impacts from the Proposed Action would be to the barren land; prairie, grassland, and natural ground cover; and impervious surface land cover types. Assuming the impervious surface and structures land cover types do not provide a general habitat to wildlife, the Proposed Action would permanently impact approximately 172.8 acres to land cover types that may offer a habitat. The permanent conversion of vegetation to impervious surfaces would reduce the number of	34, 35

Resource	Context	No Action Alternative	Proposed Action	Mitigation Number
			<p>general habitats present along I-270. However, because most impacts would occur within the CDOT ROW along a heavily trafficked transportation corridor in an urban setting, loss of highly used general habitats is expected to be minimal.</p> <p>Temporary impacts would result from staging and access for construction equipment and from construction itself, such as vegetation removal, earthmoving, grading activities, and general ground disturbance. Temporary impacts would occur throughout the study area from road widening and other road surface-related activities tying the existing roadway into the project.</p>	
<p>Noxious Weeds See Biological Resources Report (Appendix A12)</p>	<p>Noxious weeds were observed throughout the study area. A total of 19 state-designated noxious weeds were identified in the study area during the July 2019 field surveys. Of the 19 noxious weeds, 11 were List B, 5 were List C, and 3 were Watch List. No List A species were observed. Canada thistle and common teasel (List B species) and downy brome and field bindweed (List C species) were observed in high density throughout the study area.</p>	<p>No impacts from noxious weeds in the project area would occur from the No Action Alternative.</p>	<p>Soil disturbance from construction of the Proposed Action would create favorable conditions for noxious weeds to be introduced and established or to further spread.</p>	36
<p>Wildlife See Biological Resources Report (Appendix A12)</p>	<p>Native or natural habitats are limited within and adjacent to the study area. Accordingly, wildlife species potentially found within the study area include mammals and birds that are common and fairly widespread in urban and suburban environments.</p> <p>The study area is within the overall range for mule deer and white-tailed deer. Both species are considered uncommon within the study area and, when present, are likely confined to the Sand Creek, Clear Creek, and South Platte River corridors.</p> <p>Migratory bird habitats are present within the study area, primarily along the waterways in the wetland and riparian habitats. Migratory bird nesting habitat, wetland and riparian habitat are subject to SB 40 requirements,</p>	<p>No wildlife would be impacted by the No Action Alternative because no construction activities or roadway widening would occur.</p>	<p>Because project construction is anticipated to span several years, including during the nesting season, direct impacts to raptors and migratory birds as a result of the Proposed Action may occur. Specifically, construction during migratory birds' breeding or migration seasons could cause disturbances or displacement-related impacts to migratory bird nesting and/or migration near construction areas.</p> <p>The Proposed Action is not expected to result in extensive habitat loss because construction mostly would occur within the previously disturbed CDOT ROW. Furthermore, because the project would widen an existing, high-volume transportation corridor, the additional lanes would be constructed in areas where nesting and foraging are unlikely. Consequently, permanent ground disturbances are not considered substantial enough to cause population declines of migratory birds. However, vehicle-bird collisions would likely rise as the wider highway would increase traffic volumes and speeds under the Proposed Action. Impacts to riparian habitats would be limited and, in general, very few shrubs or trees would be removed that provide nesting substrate or cover to a variety of migratory birds. Indirect impacts on individual birds could occur from noise and light associated with construction; however, these indirect impacts will be temporary.</p>	37

Resource	Context	No Action Alternative	Proposed Action	Mitigation Number
<p>Threatened/ Endangered Species (MBTA) See Biological Resources Report (Appendix A12)</p>	<p>Section 7(a)(1) of the Endangered Species Act of 1973 (as amended) directs all federal agencies to participate in the conservation and recovery of threatened and endangered species.</p> <p>The federally listed species with potential to occur in the study area include the following: least tern, Mexican spotted owl, piping plover, whooping crane, pallid sturgeon, Ute-ladies'-tresses orchid, and western prairie fringed orchid.</p> <p>The study area contains potentially suitable habitat for five Colorado Special Status Species: northern leopard frog, bald eagle, western burrowing owl, black-tailed prairie dog, common garter snake.</p>	<p>No impacts to federally threatened species in the project area would occur from the No Action Alternative.</p>	<p>No direct effects to federally listed threatened and endangered species are anticipated from the Proposed Action because of a lack of a suitable habitat.</p> <p>The least tern, piping plover, whooping crane, pallid sturgeon, and western prairie fringe orchid could be indirectly impacted by water depletions to the South Platte River and its tributaries due to the Proposed Action. To address the effect of the depletion on the species, CDOT is participating in the South Platte Water Related Activities Program. In response to the need for formal consultation for the water used from the South Platte River basin, FHWA prepared a programmatic biological assessment which addresses the five species. Any water used for this project will be reported to the U.S. Fish and Wildlife Service (USFWS) at the end of the year after the completion of the project, as per the aforementioned consultation.</p> <p>The Proposed Action would result in approximately 1 acre of impacts (0.5 acre of permanent impact and 0.5 acre of temporary impact) to the preferred habitat of the northern leopard frog, such as natural floodplain depressions and streambank/riparian wetlands. No direct impacts to bald eagles or their habitat are anticipated because there is no regular bald eagle nesting or roosting within or near the study area. Direct impacts to black-tailed prairie dogs are expected to occur from the removal of the habitat and from the disturbance of active colonies located within the construction footprint. Impacts to black-tailed prairie dog burrows have the potential to directly impact western burrowing owls. Ground disturbance within and adjacent to a suitable habitat would likely disrupt the species behavior and could lead to abandonment and reduce the habitat availability post-construction. Impacts to preferred habitat of the common garter snake, such as natural floodplain depressions and streambank/riparian wetlands, would be minimal. Therefore, impacts to the common garter snake may occur but are considered unlikely and isolated in nature.</p>	<p>38, 39, 40</p>
<p>Paleontological Resources See Paleontological Technical Memorandum (Appendix A17)</p>	<p>Two previously recorded localities are known from the immediate project area. One locality is known from the Paleocene Louviers Alluvium, and a second from the Cretaceous portion of the Denver Formation. At least seven additional localities are known from nearby portions of Adams County, including Cretaceous dinosaur fossils and Pleistocene mammal fossils.</p> <p>The project area is heavily urban and previously disturbed from prior construction efforts, with appropriate landscaping on slopes. Therefore, no</p>	<p>No impact to paleontological resources would occur due to the No Action Alternative.</p>	<p>Temporary and permanent impacts to paleontological resources could occur because of the Proposed Action. Ground disturbance extending below the current disturbed ground level is highly likely to impact potentially fossil-bearing units, including Pleistocene units and Cretaceous bedrock. Two known localities are likely to be impacted, and an unknown number of additional localities may be uncovered during construction.</p>	<p>41, 42</p>

Resource	Context	No Action Alternative	Proposed Action	Mitigation Number
	exposed bedrock currently exists that would warrant a detailed on-the-ground survey prior to project construction.			
Other Issues or Resources				
Hazardous Materials See Phase II Environmental Site Assessment (Appendix A5)	<p>A Preliminary Modified Environmental Assessment was completed in 2019, prior to the EA process, that identified sites that are known to be, or may potentially be, contaminated with hazardous materials (Pinyon 2021). These sites include Sand Creek Industrial Park, the former Stapleton Airport, Weaver Electric, Multi-contractor Site, Former Anderson’s Formal Wear, Suncor Energy (USA) Inc., Chemical Sales Company, and several former landfill facilities.</p> <p>A Phase II Environmental Site Assessment (ESA) was completed as part of this EA (Appendix A5). Soil and groundwater samples were collected to determine if hazardous materials may be encountered during project activities, such as ground disturbance and excavation dewatering. In addition, the Phase II ESA evaluated whether detected chemicals of concern are at concentrations in the soil and groundwater exceeding regulatory thresholds.</p> <p>Thirty-eight borings were completed; 51 primary soil samples and 21 primary groundwater samples were collected from the boring locations. Most borings were extended to a maximum depth at approximately 30 feet below ground surface unless groundwater was encountered first. Laboratory analytical samples included volatile organic compounds, semivolatiles organic compounds, Resource Conservation and Recovery Act (RCRA) metals, total petroleum hydrocarbons, polychlorinated biphenyls and pesticides. Soil contamination and groundwater contamination were identified at several locations throughout the project.</p>	<p>The No Action Alternative would have no impact to existing areas of contamination, including sites with Recognized Environmental Conditions (RECs).</p>	<p>Construction of the Proposed Action would require excavation and subsurface drilling for potential bridge/overpass construction, noise walls, and/or signs and lighting. Grading activities could range from 2 to 4 feet depth, while drilling activities could extend to depths of up to 60 to 80 feet. Groundwater may be encountered during bridge construction or in areas where deep foundations may be needed (for example, deep retaining wall and/or pedestrian bridge foundations). Depths to groundwater are highly variable throughout the study area but groundwater will likely be encountered during construction. Therefore, the Proposed Action would result in temporary impacts to existing areas of contamination, including sites with RECs.</p> <p>Dewatering activities will be necessary during the installation of deep foundation systems for new bridge structures, retaining walls, or other features. Results of Phase II ESA sampling in various locations in the I-270 study area indicate that regional groundwater has been impacted by various contaminants to levels that exceed surface water and groundwater standards. Therefore, the water would require either treatment to meet those standards prior to discharge to State waters, or offsite disposal.</p> <p>To the extent that contaminated soils and groundwater are treated on site or removed for safe treatment or disposal, the Proposed Action would result in permanent reduction of contaminated material in the study area.</p> <p>Asbestos-containing material (ACM) was not encountered during the boring investigations associated historic landfills. However, ACM may still be encountered with buried utilities or other areas of historic landfills not fully investigated within the study area.</p>	43, 44, 45, 46, 47, 48, 49
Traffic See Traffic Technical Report (Appendix A2)	<p>The project’s traffic analysis evaluated a base year (2016) and a future design year (2040) for the No Action Alternative and Proposed Action scenarios. The traffic analysis included an evaluation of peak hour volumes, performance measures, speed, intersection operations and travel time reliability. The existing conditions operational analysis was completed to understand the current traffic performance and travel</p>	<p>The existing problem areas or bottleneck locations are projected to get worse in the 2040 No Action Alternative as a result of traffic growth. Worsening traffic conditions in the No Action Alternative may lead to longer periods of congestion, extended queue lengths, reduced</p>	<p>The Proposed Action would substantially improve travel time and speed, which would reduce delays along I-270 and would help accommodate future demand on the study area’s transportation network. The Proposed Action would help reduce the vehicle hours traveled (VHT) and vehicle hours of delay (VHD) on the study corridor. In addition, the Proposed Action would help increase mobility, with a higher number of vehicles and persons being served.</p>	

Resource	Context	No Action Alternative	Proposed Action	Mitigation Number
	<p>experience on the I-270 facility. The design year (2040) No Action Alternative included other planned or programmed projects in the study area.</p> <p>Under the existing conditions, I-270 suffers from traffic congestion and other issues that increase travel times and cause delays. During peak hours, travel times can be up to 3.5 times higher than free-flow conditions, considerably slowing commuter, freight, and other interstate travel. Congestion along I-270 can form and dissipate quickly often resulting in unreliable travel times.</p>	<p>speeds on freeways, and increased travel times and delay.</p>	<p>The Proposed Action’s benefits to travelers include the following:</p> <ul style="list-style-type: none"> • Westbound travelers on average would spend nearly 59 percent less travel time in the express lanes. • Eastbound travelers on average would spend nearly 60 percent less travel time in the express lanes. • Westbound average speeds in the corridor would be approximately 26 mph higher in the express lanes. • Eastbound average speeds in the corridor would be 31 mph higher in the express lanes. • Total vehicle delay in hours on the corridor would decrease approximately 44 percent for westbound and 67 percent for eastbound. • Total VMT on the corridor would increase approximately 54 percent for westbound and 43 percent for eastbound. 	
<p>Multimodal See Operating Multimodal Technical Report (Appendix A8)</p>	<p>The multimodal travel options in the I-270 corridor consist of bus, rail, and bicycle and pedestrian modes. Multimodal facilities are present within the study area parallel to I-270 along the Sand Creek Greenway and perpendicular to I-270 at the major arterial, rail, and stream crossings. Both natural and human-made barriers to multimodal travel are present in the study area, including the South Platte River, Sand Creek, Clear Creek, multiple railroad lines, I-270 itself, and the connecting arterials. UPRR and BNSF are the two Class I railroads operating in Colorado, and both cross under I-270 near its approximate midway point.</p>	<p>The No Action Alternative would have no impact to existing freight railroads or existing or proposed public transit. The No Action Alternative would not improve the level of bicycle and pedestrian connectivity within the I-270 corridor.</p>	<p>The Proposed Action includes on-street and off-street elements that improve bicycle and pedestrian movement within the I-270 corridor (see Section 4.3 and Figure 4-3). York Street would be widened to accommodate a multi-use path and sidewalk along the eastern and western sides, respectively. Along Vasquez Boulevard, the Proposed Action would create a new off-street trail and sidewalk combination connecting East 56th Avenue to East 60th Avenue, helping connect Sand Creek Trail with the local street network.</p> <p>The Proposed Action would construct a missing sidewalk link from the East 56th Avenue bridge over Sand Creek to Sand Creek Drive south of the Dahlia Trailhead which creates a continuous bicycle and pedestrian connection between East 56th Avenue and the Sand Creek Greenway</p> <p>On-street bike lanes and attached sidewalks would be constructed from Sand Creek Drive to Eudora Street, and on East 56th Avenue. The East 56th Avenue improvements provide multimodal connectivity under I-270 from Dahlia Street and the Sand Creek Greenway to the commercial and residential areas north of I-270. The Regional Transit District (RTD) regional Flatiron Flyer bus service between the Anschutz medical campus and the City of Boulder would benefit from improved trip reliability and travel times because these buses could use the express lane. Although buses do not currently use the I-270/Vasquez Boulevard interchange as part of RTD’s regional or local services, the peak period queue jumps included in the Proposed Action at the northbound Vasquez Boulevard to eastbound I-270 and southbound Vasquez Boulevard to westbound I-270 on-ramps</p>	<p>50, 51</p>

Resource	Context	No Action Alternative	Proposed Action	Mitigation Number
			<p>provide the opportunity for future transit benefits should RTD develop service requiring the interchange's use.</p> <p>The existing four-span twin bridges that cross both Class I railroad ROWs, Brighton Boulevard, and East 60th Avenue would be replaced with a single two-span bridge that reduces the number of piers from four to two. The removal of piers from within the railroad ROW is a direct operational and safety benefit to freight railroads because it increases the functional operating area within the railroad ROW and eliminates the potential for a pier strike.</p> <p>The Proposed Action would not adversely impact existing transit services because it would not permanently impact bus/rail routes or frequency along I-270 or along the arterial roads that cross the interstate. Conversely, the Proposed Action would reduce congestion on I-270, benefiting all interstate users, including buses.</p> <p>Construction of the Proposed Action would result in the minor, temporary disruption of multimodal travel within the study area. Replacement of the existing twin bridges over the UPRR and BNSF lines would require the temporary closure of the railroad tracks. Several small segments of the South Platte River Trail and the Sand Creek Greenway Trail would be temporarily impacted, resulting in the need to provide minor detours for bicyclists and pedestrians.</p>	
<p>Section 4(f) Properties</p> <p>See Section 4(f) and Section 6(f) Resources Technical Memorandum (Appendix A15) and Historic Resources Inventory and Determination of Effects and Historic Section 4(f) Report (Appendix A13)</p>	<p>Section 4(f) of the United States Department of Transportation Act of 1966 (now codified in 23 CFR 774) governs FHWA's use of land from publicly owned parks, recreation areas, wildlife and waterfowl refuges, and public or private historic sites for federal highway projects.</p> <p>The existing Section 4(f) recreational resources within the study area include Clear Creek Trail, South Platte River Greenway Trail, Fernald Trail, Sand Creek Greenway Trail, Wetland Park loop Trail, North Stapleton Trail, Northfield Pond Park Trail System, Engineer Lake, Veterans Memorial Park, Monaco Park, and Leyden Park.</p> <p>Planned Section 4(f) resources include Town Center Greenway and O'Brien Canal Trail.</p> <p>In addition, 12 historic properties eligible to be listed in the National Register of Historic Places were identified within the APE.</p>	<p>No use of any Section 4(f) resources would occur under No Action Alternative.</p>	<p>No permanent impacts to Section 4(f) recreational properties would occur due to the Proposed Action. Temporary impacts would occur to two Section 4(f) trails: the South Platte Greenway Trail and the Sand Creek Greenway Trail.</p> <p>Approximately 650 feet of the South Platte River Greenway Trail approaching and crossing under I-270 would be temporarily impacted to accommodate replacement of the I-270 bridges over the South Platte River. A temporary asphalt trail would be constructed to detour users away from the original alignment toward the river to accommodate placement of the new bridge abutment.</p> <p>Temporary impacts would occur to the following five separate segments of the Sand Creek Greenway Trail during construction: O'Brien/Burlington Ditch, Brighton Boulevard/East 60th Avenue, UPRR/East 60th Avenue, Vasquez Boulevard, and East of the Dahlia Street Trailhead. A combination of temporary trails and detours would be implemented during the construction to maintain access.</p> <p>Temporary impacts to both trails meet the requirements for Section 4(f) temporary occupancy exceptions.</p> <p>CDOT and FHWA have determined, and the SHPO has concurred, that the Proposed Action would have No Adverse Effect to historic properties. CDOT will complete documentation of Transportation</p>	<p>52, 53, 54</p>

Resource	Context	No Action Alternative	Proposed Action	Mitigation Number
			<p>Facility Exceptions prior to the NEPA decision document for the following seven properties:</p> <ul style="list-style-type: none"> • York Street, 5AM.4101 (including segment 5AM.4101.2) • Vasquez Boulevard, 5AM.3924 (including segments 5AM.3924.2/5AM.3924.3) • Brighton Boulevard, 5AM.2410 (including segment 5AM.2410.2) • Chicago Burlington & Quincy/Burlington Northern Santa Fe Railroad, 5AM.464, including segment 5AM.464.21) • Denver Pacific/Union Pacific Railroad, 5AM.472 (including segment 5AM.472.41) • Sand Creek Junction (5AM.4119) • Chicago, Burlington & Quincy Railroad Market Street Line, 5AM.1298 (including 5AM.1298.3). <p>FHWA can make a Section 4(f) temporary occupancy finding for historic sites when it has been determined the temporary occupancies of land are so minimal as to not constitute a use within the meaning of Section 4(f) (see 23 CFR 774.13(d)). CDOT has also determined, and the SHPO has concurred, that the temporary occupancy exception conditions are met for these properties.</p> <ul style="list-style-type: none"> • Suncor Energy, 5AM.4044 • Burlington Ditch/O’Brien Canal, 5AM.465 (including segment 5AM.465.9) <p>Consistent with Section 4(f) regulations [23 CFR 774.5(a)(ii) and 774.7 (b)], FHWA can make a <i>de minimis</i> finding when a use of a historic property results in a No Adverse Effect determination under the Section 106 process. Widening of the I-270 mainline and storm sewer drainage improvements over the segment of the Gardener’s Ditch (5AM.1292.2) may require removal of the current culvert, which is piped under I-270 and a temporary easement. Given that the segment of Gardener’s Dich recorded by this project is non-supporting of the overall NRHP-eligible resource, CDOT has determined, and the SHPO has concurred, that the project will have No Adverse Effect on this resource. Therefore, FHWA plans to make a <i>de minimis</i> finding for this property.</p>	
<p>Section 6(f) Properties See Section 4(f) and Section 6(f) Resources Technical</p>	<p>Section 6(f)(3) of the Land and Water Conservation Fund (LWCF) Act of 1965 contains provisions to protect properties that are purchased or improved with grants from the LWCF. Section 6(f) applies to all projects that could involve temporary or permanent</p>	<p>The No Action Alternative would have no impacts to Section 6(f) resources.</p>	<p>There would be no conversion of Section 6(f) resources to a different use because of the Proposed Action.</p>	

Resource	Context	No Action Alternative	Proposed Action	Mitigation Number
Memorandum (Appendix A15)	<p>conversion of the use of these public outdoor recreational properties.</p> <p>The existing Section 6(f) resources within the study area include Clear Creek Trail, South Platte River Greenway Trail, Fernald Trail, Engineer Lake, and Veteran’s Memorial Park.</p>			
<p>Cumulative Impacts See Cumulative Impacts Report (Appendix 16)</p>	<p>Cumulative impacts analysis considers how the alternatives, when combined with other past, present, and reasonably foreseeable future actions, would impact the affected resources. Resources selected for the cumulative analysis include air quality, water quality, transportation, biology (riparian resources), and environmental justice.</p> <p>Separate study areas were defined for natural resources and social resources. The natural resources boundary, used for the biological and water quality cumulative analyses, was developed using a combination of watershed subbasin areas and stream segments that are water quality impaired. The social resources study area, used for the air quality, transportation, and EJ analyses, includes the neighborhoods immediately surrounding I-270. In general, both study areas have been affected and shaped by railroad construction, industrial development, scattered workforce and commercial development supporting local industries, and highway construction.</p> <p>Past, present, and reasonably foreseeable future actions were identified that have affected, or may affect, resources being evaluated. Transportation projects near the I-270 corridor include construction and operation of interstates, highways, and local roadways; bus transit and rail improvement projects; multimodal projects; and pedestrian access improvements. Past, present, and future foreseeable developments include many industrial sites, a wildlife refuge, transit-oriented development, commercial developments, and riparian restoration projects.</p> <p>Adams County and Commerce City have grown considerably since construction of I-270, particularly in Commerce City from 2010 to 2020. Increased growth has led to increased vehicular use of highways and roads, potentially affecting all resources analyzed.</p>	<p>Under the No Action Alternative, existing and anticipated future conditions generally would not change, with some exceptions. Traffic and VMT would continue to increase due to economic and population growth. However, emissions of most pollutants would decrease due to implementation of stringent emission standards, improvement of fuel efficiency, and vehicle turnovers.</p> <p>Various programs, actions, and efforts to address water pollution, and plans to restore riparian areas along waterways in the study area, would result in beneficial impacts.</p> <p>Congestion and safety issues would persist and would continue into the future without improvements to I-270. The EJ community would continue to experience the effects of degraded air quality and worsening transportation issues.</p>	<p>Air quality: Implementation of express lanes and other improvements under the Proposed Action would generally improve air quality conditions by adding capacity and reducing congestion. Small differences in emissions are expected between the No Action Alternative and the Proposed Action Alternative. These differences are extremely minor in the context of overall Denver region VMT and emissions. Although VMT would increase in future years due to economic and population growth, emissions of most pollutants would decrease due to implementation of stringent emission standards, improvement of fuel efficiency, and vehicle turnovers.</p> <p>When added to the effects of past, present, and reasonably foreseeable future actions, impacts from the Proposed Action would not measurably contribute to cumulative impacts.</p> <p>Water quality: The Proposed Action would improve water quality conditions in the I-270 corridor compared to the No Action Alternative through modernization of the corridor’s drainage infrastructure and implementation of water quality control measures. Similar to air quality, past and present actions have resulted in substantial impacts to water quality in the study area, which may continue. However, implementation of water quality regulations and permit requirements have addressed, and will continue to address, water quality through remediation and monitoring. When the Proposed Action is combined with effects of past, present, and reasonably foreseeable future actions, particularly adding control measures that do not currently exist, cumulative impacts to water quality would be negligible.</p> <p>Cumulative impacts would remain adverse as a result of other past actions, but could improve over time with implementation of proposed remediation measures and possible delisting of impaired waters.</p> <p>Transportation: Current and future projects are expected to alleviate congestion, improve regional connections, improve safety, and accommodate future growth. Beneficial impacts are also expected from past and present actions to improve I-76, such as replacing interchanges. The more recent transportation projects, such as new high occupancy vehicle (HOV) and bus rapid transit (BRT) lanes, new highway interchanges, and new transit services, have resulted in beneficial effects to the traveling public in the</p>	

Resource	Context	No Action Alternative	Proposed Action	Mitigation Number
	<p>Recent actions to address area pollution emitters and sources has, and will, result in some beneficial air quality impacts. However, the area still experiences adverse impacts that are expected to continue given the extent of current and anticipated future emissions.</p> <p>Past development and transportation projects have resulted in point and nonpoint source pollution and degraded water quality in study area streams. Major streams in the cumulative study area are impaired. Local, state, and federal regulations have produced positive results in water quality despite the general trend toward development and increases in impervious surface.</p> <p>However, Clear Creek, Sand Creek, and South Platte River are on the Clean Water Act Section 303(d) impaired waters list.</p> <p>Regarding transportation, construction of interstates through the study area (I-25, I-70, I-270, and I-76) has allowed for high-speed highway travel through and to the Denver metropolitan area. However, these interstates have become congested as growth has increased traffic on the roadway network. The I-270 corridor is currently operating at or near capacity, and drivers experience substantial travel delays during peak travel periods, which adversely affect freight movement and multimodal travel</p> <p>Regarding biological resources, little natural habitat exists along I-270; notable exceptions are the riparian corridors along Sand Creek, Clear Creek, and the South Platte River. Given the proximity of industrial uses and roadways adjacent to these waterways, it is likely the associated riparian areas associated have been diminished and/or disturbed.</p> <p>Regarding EJ areas, the cumulative study area has and continues to be home to large industry. Emissions and chemical releases from these facilities have substantially contaminated air, water, and soil in the area resulting in an increase in health issues.</p>		<p>study area, and are expected to continue. The DRCOG 2040 travel demand model shows that the Proposed Action, along with past, present, and programmed projects, would help accommodate future demand on the cumulative study area’s transportation network compared to the No Action Alternative. The Proposed Action would reduce VHT and VHD on the study corridor, as well as in the larger cumulative study area. The Proposed Action would also help increase mobility, with a higher number of vehicles and persons being served, with increased VMT and increased person miles traveled. When combined with the beneficial impacts of other past, present, and reasonably foreseeable future actions to improve transportation in the study area, the Proposed Action is expected to have a beneficial effect to the transportation network.</p> <p>Biological resources: Minor permanent riparian impacts will be revegetated with appropriate native plant species. Proposed wetland mitigation measures would seek to restore historic floodplain riparian zones and wetlands, thereby benefiting riparian habitat. These mitigation efforts would complement projects proposed and completed under the Regional Restoration Master Plan for the Northeast Greenway Corridor (Northeast Greenway Corridor Advisory Committee 2012). Those projects would result in beneficial impacts to riparian corridors along Sand Creek and Heron Pond, particularly where they would remediate existing contamination and create additional riparian habitat. Because the study area largely is built out and local floodplain regulations limit further floodplain development, future actions are not expected to greatly alter riparian-area biological resources from existing conditions. When combined with the effects of other past, present, and reasonably foreseeable future actions, the Proposed Action’s contributions to impacts to riparian areas are expected to be both adverse and beneficial due to proposed mitigation measures. Impacts from the Proposed Action would not measurably contribute to cumulative impacts because the study area is already largely built out because of past actions.</p> <p>Environmental justice: EJ populations were adversely and disproportionately affected by past actions compared to the larger Denver metropolitan area. Although I-270 did not bisect communities, it did introduce a mobile air quality pollutant source in the area, contributing to emissions. Impacts to air quality would be cumulatively negligible, and emissions would decrease due to implementation of stringent emission standards, improvement of fuel efficiency, vehicle turnovers, and transition to more electric vehicles. Creation of HOV and BRT lanes (as well as new transit lines) in the study area benefit all travelers. Transit riders, some of</p>	

Resource	Context	No Action Alternative	Proposed Action	Mitigation Number
			whom are likely to be low-income users, are expected to experience faster and more reliable transit trips, because buses will be able to use tolled express lanes. To help mitigate the equity impacts and financial burden of using tolled express lanes, CDOT will establish a program to reduce or eliminate fares for lower-income residents of the community. Therefore, these residents would experience the benefits of tolled express lanes at a lower cost. When combined with other past, present, and reasonably foreseeable future actions, and when considering offsetting benefits and mitigation measures, the Proposed Action is not expected to contribute to a cumulative adverse effect to disadvantaged communities.	

1 Source: CDOT, Jacobs, Mead & Hunt, Environmental Resources Corporation

2 **8.0 What Mitigation Commitments Will Be Made for the Proposed Action?**

3 Table 8-1 provides a summary of mitigation for Proposed Action impacts. The mitigation number corresponds to the associated environmental impacts
 4 identified in Table 7-1. Appendix A provides additional details regarding the methodology and analysis of impacts and mitigation in their respective
 5 technical reports or technical memoranda.

6 Table 8-1. Summary of Impacts and Mitigation for the Proposed Action, I-270 Corridor Improvements Project

#	Mitigation Category	Impact	Mitigation Commitment From Source Document	Responsible Branch	Timing/Phase that Mitigation will be Implemented
Social Resources					
1	Environmental Justice	Trail impacts during construction	Most pedestrian/trail facilities impacted by construction activities will be detoured onsite and near the original trail location. Limited overnight trail closures may be needed for bridge girder erection.	CDOT Engineer, Design and Construction Project Managers	Design, Construction
2	Environmental Justice	Equity impacts and financial burden of using tolled express lanes	CDOT will establish a program to reduce or eliminate fares for lower-income community residents. The program could include free transponders, preloading of tolls, or other mitigation that will be determined before the opening of the tolled express lanes and with input from the local community. Eligibility criteria will include residency, financial burden, and number of vehicles per resident or household. The program will be developed with community input closer to tolling operation commencement.	CDOT Project Manager	Post-Construction/Operations

#	Mitigation Category	Impact	Mitigation Commitment From Source Document	Responsible Branch	Timing/Phase that Mitigation will be Implemented
3	Environmental Justice	Disadvantaged community impacts during construction	The construction contractor will implement a workforce development program targeted at employing residents in the I-270 corridor. This plan will also encourage hiring on-the-job trainees and new workers into the construction industry. The I-270 contractor will also be required to make community investment during and after the construction phase.	CDOT Engineer, Design and Construction Project Managers	Construction
4	Environmental Justice	Disadvantaged community impacts during construction	CDOT will provide housing mitigation for residents whose homes are close enough to the project to be impacted by construction noise and dust during particularly intense construction periods. Housing mitigation includes hotel vouchers to allow residents to vacate their homes during certain phases of construction, such as over a weekend during bridge demolition.	CDOT Engineer, Design and Construction Project Managers	Construction
5	Right-of-way	ROW acquisition	CDOT will comply with procedures set forth in the Uniform Act, as amended (1989).	CDOT ROW Staff	Preconstruction
6	Air Quality	Release of fugitive dust emissions from the construction activities	A Fugitive Dust Control Plan would be prepared to specify measures to reduce dust during construction.	CDOT Engineering and Contractor	Preconstruction
7	Air Quality	Release of diesel emissions from construction equipment and fugitive dust from construction activities	Control measures would be implemented as described in Section 6.1 to reduce exhaust.	CDOT Engineering and Contractor	Construction
8	Air Quality	Increase of PM ₁₀ and PM _{2.5} emissions	Construction plans would be developed and implemented for PM ₁₀ and PM _{2.5} per C.R.S. 43-1-128.	CDOT Engineering and Contractor	Preconstruction/ Construction

#	Mitigation Category	Impact	Mitigation Commitment From Source Document	Responsible Branch	Timing/Phase that Mitigation will be Implemented
9	Noise	Construction Noise	<p>The following mitigation measures would be taken:</p> <ul style="list-style-type: none"> • Notify neighbors in advance when construction noise may occur. • Keep noisy activities as far from sensitive receptors as possible. • Keep exhaust systems on equipment in good working order. It should be subject to inspection by the construction project manager to ensure maintenance is being conducted. • Use properly designed engine enclosures and intake silencers, if appropriate. • Place stationary equipment as far from sensitive receptors as possible. • Perform construction activities in noise sensitive areas during hours that are least disturbing to nearby residents, generally daytime hours, as feasible. • Locate haul roads so they are as least disruptive as possible. • Provide mechanisms for noise complaints. • A variance from Commerce City and the City and County of Denver will be required for noise should there be construction at night. 	CDOT Environmental Construction Engineer	Construction
10	Visual Resources	Visual impacts associated with highway widening and other infrastructure changes	Corridor Design Guidelines would be prepared to guide the design and future corridor improvements.	CDOT Engineer, Landscape Architect, and Design Project Managers	Design, preconstruction
11	Visual Resources	Negligible impacts to views and landscape character	Landscaping features would be added to new intersections.	CDOT Engineer, Landscape Architect, Design and Construction Project Managers	Design, construction
12	Visual Resources	Impacts to views for I-270 travelers; may impact views for two or three residents on both sides of I-270 near York Street	Retaining walls would be designed per aesthetic guidelines developed for this project.	CDOT Engineer, Design and Construction Project Managers	Design, construction

#	Mitigation Category	Impact	Mitigation Commitment From Source Document	Responsible Branch	Timing/Phase that Mitigation will be Implemented
13	Visual Resources	Trees may be removed from greenways to accommodate highway expansion, removing natural elements that are uncommon in the area	Colorado SB 40 Wildlife Certification will be required for this project. Per the requirements of SB 40, “all practicable effort shall be expended to avoid unnecessary destruction of trees and shrubs in the vicinity of streams and in riparian areas. Trees removed should be considered for use onsite in a manner that improves riparian and instream habitat and for bank stabilization purposes.” Any riparian trees removed will be replaced per the tree mitigation plan developed for this project, which will be based on SB 40. Any tree identified for removal with a diameter greater than 4 inches will be inventoried, as specified in the plan. Riparian trees and shrubs will be planted along the waterways to replace any trees greater than 4 inches lost to construction work.	CDOT Engineer, Landscape Architect, Design and Construction Project Managers	Design, pre- and post-construction
14	Visual Resources	Temporary visual impacts from views of staging areas to cache construction materials; from views of large, slow-moving and stationary construction vehicles; and construction personnel and temporary construction mitigation measures, such as silt fences	Staging areas and construction mitigation such as silt fences would be restored per CDOT Design Specification 106.08, Storage of Materials: “All storage sites shall be restored to their original condition at the Contractor’s expense” (CDOT 2019b) and Section 208.4(f), Control Measures for Stormwater: “If [temporary control measures are] removed, the area in which these control measures were constructed shall be returned to a condition similar to that which existed prior to its disturbance” (CDOT 2019c).	CDOT Engineer, Design and Construction Project Managers	Post-construction
15	Archaeological Resources	Subsurface excavation could potentially identify and disturb previously unidentified archaeological resources	If subsurface cultural materials are encountered during project construction, Greg Wolff at CDOT Environmental Programs Branch should be contacted immediately.	CDOT Engineer, Design and Construction Project Managers	Construction

#	Mitigation Category	Impact	Mitigation Commitment From Source Document	Responsible Branch	Timing/Phase that Mitigation will be Implemented
Natural Resources					
16	Floodplains	Temporary reduction in flood conveyance	Construction materials will not be stored in the floodplain, and construction activities (including trail detours) will be limited within the floodplain as feasible to reduce the potential impacts to the floodplain. A construction stormwater and a floodplain permit will be obtained from the City and County of Denver, Adams County, and Commerce City, if determined necessary.	CDOT Engineering and Contractor	Construction
17	Floodplains	Changes to the 100-year base flood elevation	CDOT will initiate with FEMA a CLOMR along Sand Creek and the South Platte River to conditionally update the effective Flood Insurance Study (FIS) and FIRM panel data, followed by a LOMR to formalize the changes.	CDOT Engineering and Contractor	CLOMR/LOMR process will be concurrent with final design and construction
18	Water Quality	Increased impervious surface area	Extended detention basins would be constructed at the following locations: 270B Mile Post (MP) 0.6 (concrete type) 270B MP 1.0 – Northwest quadrant of I-270 and I-76 interchange 270A MP 0.8 270A MP 1.2 270A MP 2.3 – Vasquez Blvd. and I-270 (northwest) 270A MP 2.3 – Vasquez Blvd. and I-270 (southwest) 270A MP 2.7 (concrete type) 270A MP 3.4 270A MP 3.9	CDOT Engineering and Contractor	Construction
19	Water Quality	Water resources and water quality contamination and degradation	Appropriate control measures would be implemented for erosion and sediment control according to the CDOT Erosion Control and Stormwater Quality Guide. A stormwater management plan would be developed in accordance with the requirements of the construction stormwater permits.	CDOT Engineering and Contractor	Design, construction
20	Water Quality	Erosion and increased sedimentation to adjacent water resources	Permanent stabilization would be achieved through revegetation and permanent erosion controls and maintenance of temporary control measures and plantings to stabilize soil.	Contractor	Construction

#	Mitigation Category	Impact	Mitigation Commitment From Source Document	Responsible Branch	Timing/Phase that Mitigation will be Implemented
21	Water Quality	Water resources and water quality contamination and degradation	A spill prevention, control, and countermeasure plan would be developed and implemented for the construction site that would establish standard operating procedures and required employee training to minimize the accidental release of pollutants.	Contractor	Construction
22	Wetlands and Aquatic Resources	Ground disturbance impacting wetlands and surface waters	During final design, impacts to wetlands and surface waters would be avoided and minimized by reducing and refining the project footprint where possible.	CDOT Engineering and Environmental	Preconstruction
23	Wetlands and Aquatic Resources	Potential for direct and/or indirect impacts to wetlands and other waters of the United States	Temporary impacts would be mitigated by restoring areas to pre-existing conditions. Depending on approval by the U.S. Army Corps of Engineers (USACE), permanent impacts will be mitigated through onsite mitigation, offsite mitigation, purchase of wetland bank credits, or use of a separate strategy, to both jurisdictional and non-jurisdictional wetlands at a minimum of a 1:1 ratio.	CDOT Engineering and Environmental	Preconstruction/ Construction
24	Wetlands and Aquatic Resources	Potential for direct and/or indirect impacts to wetlands and other waters of the United States	Equipment should be refueled within a designated refueling containment area away from wetlands. The refueling containment area must be located greater than 100 horizontal feet away from wetlands and other sensitive environmental areas.	CDOT Engineering and Environmental	Construction
25	Wetlands and Aquatic Resources	Potential for direct and/or indirect impacts to wetlands and other waters of the United States	Construction fencing and appropriate sediment control best management practices (BMPs) will be used to mark wetland boundaries and sensitive habitats during construction.	CDOT Engineering and Environmental	Construction
26	Wetlands and Aquatic Resources	Potential for direct and/or indirect impacts to wetlands and other waters of the United States	Disturbance areas adjacent to wetlands will be seeded and mulched to reduce erosion and promote revegetation; plant supplemental vegetation as needed.	CDOT Engineering and Environmental	Construction
27	Wetlands and Aquatic Resources	Potential for direct and/or indirect impacts to wetlands and other waters of the United States	Work occurring in and near wetlands during construction activities will be monitored to ensure protection of wetlands.	CDOT Engineering and Environmental	Construction

#	Mitigation Category	Impact	Mitigation Commitment From Source Document	Responsible Branch	Timing/Phase that Mitigation will be Implemented
28	Wetlands and Aquatic Resources	Potential for direct and/or indirect impacts to wetlands and other waters of the United States	Construction equipment will be prohibited from entering the ordinary high water mark (OHWM) except where identified on design plans.	CDOT Engineering and Environmental	Preconstruction/Construction
29	Wetlands and Aquatic Resources	Potential for direct and/or indirect impacts to wetlands and other waters of the United States	Construction activities will be closely monitored to ensure that additional fill is not placed within the OHWM.	CDOT Engineering and Environmental	Construction
30	Wetlands and Aquatic Resources	Potential for direct and/or indirect impacts to wetlands and other waters of the United States	Timber mats or geotextile/straw will be used to minimize temporary impacts to wetlands from construction equipment traversing wetland areas.	CDOT Engineering and Environmental	Construction
31	Wetlands and Aquatic Resources	Potential for direct and/or indirect impacts to wetlands and other waters of the United States	Construction staging and materials stockpiling will be located at least 50 feet from the edge of wetlands or open water, when possible. No staging will be allowed in wetlands.	CDOT Engineering and Environmental	Construction
32	Wetlands and Aquatic Resources	Potential for direct and/or indirect impacts to wetlands and other waters of the United States	BMPs and containment structures must be in place for work conducted within and adjacent to the OHWM and mapped wetlands to prevent concrete washout and other potential pollutants from reaching open water and wetlands.	CDOT Engineering and Environmental	Construction
33	Wetlands and Aquatic Resources	Ground disturbance promoting noxious weed growth	Sections 207, 212, and 217 of the CDOT Standard Specifications will be followed to avoid and minimize potential for noxious weed spread.	CDOT Engineering and Environmental	Preconstruction/Construction
34	Vegetation and Habitat	Ground disturbance, including temporary vegetation removal	Disturbed ground will be reclaimed with a seed mix composed of species appropriate to site conditions, as developed by the CDOT agronomist.	CDOT Engineering and Contractor	Post-construction

#	Mitigation Category	Impact	Mitigation Commitment From Source Document	Responsible Branch	Timing/Phase that Mitigation will be Implemented
35	Vegetation and Habitat	Permanent riparian and wetland impacts	Riparian trees and shrubs will be planted in the wetland mitigation areas to replace any trees greater than 4 inches in diameter lost to construction.	CDOT Engineering and Contractor	Construction/ Post-construction
36	Noxious Weeds	Ground disturbance, including temporary vegetation removal	As the project design is refined, project biologists and engineers will work together to avoid and minimize impacts related to the potential spread of noxious weeds. Before construction, a noxious weed inventory and mapping will be conducted within the study area, and an Integrated Weed Management Plan will be prepared and implemented.	CDOT Engineering and Contractor	Preconstruction
37	Wildlife	Disruption and/or destruction of active migratory bird nests	Vegetation removal within the study area will occur outside of the bird breeding season. If vegetation must be removed during the breeding season, a survey for active nests will be conducted within an area consistent with CDOT Standard Specification 240 and the <i>Recommended Buffer Zones and Seasonal Restrictions for Colorado Raptors</i> (CPW 2020). If necessary, no work will occur within these buffer areas, and they will be maintained and kept in working order until the nest is no longer active, as determined by the CDOT biologist. If an active nest is inadvertently taken during construction, the USFWS will be notified within 24 hours.	CDOT Engineering and Contractor	Preconstruction
38	Threatened/Endangered Species (MBTA)	Disruption and/or destruction of active black-tailed prairie dog colonies	During final design and construction, impacts to prairie dog colonies greater than 2 acres in area will be avoided and minimized to the extent practicable. Follow CDOT Impacted Black-tailed Prairie Dog Policy to guide the relocation and capture of prairie dogs.	CDOT Engineering and Contractor	Preconstruction/ Construction
39	Threatened/Endangered Species (MBTA)	Disruption and/or destruction of active black-tailed prairie dog colonies	The area of black-tailed prairie dog towns that will be affected by the project will be calculated before construction (CDOT 2009).	CDOT Engineering and Contractor	Preconstruction/ Construction
40	Threatened/Endangered Species (MBTA)	Endangered Species Act-listed species, South Platte River basin water depletions	Any water used for this project will be reported to the USFWS at the end of the year after the completion of the project, per the South Platte Water Related Activities Program.	CDOT Engineering and Contractor	Construction/ Post-construction
41	Paleontological Resources	Potential damage to Pleistocene mammal fossils	Paleontological monitoring will be performed at spot-check frequency, with timing determined by the staff paleontologist in consultation with the active monitor.	CDOT Engineering and Contractor	Construction

#	Mitigation Category	Impact	Mitigation Commitment From Source Document	Responsible Branch	Timing/Phase that Mitigation will be Implemented
42	Paleontological Resources	Potential damage to Cretaceous or Paleocene fossils	Paleontological monitoring at spot-check frequency will be performed until bedrock is identified, after which continuous monitoring will be required. Monitoring is not required when landfill material is being excavated.	CDOT Engineering and Contractor	Construction
Other Issues or Resources					
43	Hazardous Materials	Potential to encounter contaminated groundwater during construction dewatering	CDOT and the contractor will follow CDOT Standard Specifications for Road and Bridge Construction, Section 107.25.	CDOT Engineering and Construction Contractor	Construction Phase
44	Hazardous Materials	Potential to encounter subsurface contamination	Contractors and workers will comply with CDOT’s latest Revision of Section 250 (Environmental, Health and Safety Management) of the Standard Specifications for Road and Bridge Construction. Workers will be alert during excavations for any visual or olfactory signs of contamination. If soil or groundwater contamination is encountered, work will stop immediately, and the procedures outlined in the CDOT Standard Specification 250 and subsection 107.25.8 will be followed.	CDOT Engineering and Construction Contractor	Construction Phase
45	Hazardous Materials	Potential to encounter potentially contaminated soil (PCS)	CDOT will generate waste profiles for PCS and generate manifests for transportation and disposal in conjunction with local landfill.	CDOT Engineering and Construction Contractor	Construction Phase
46	Hazardous Materials	Potential to encounter subsurface dichlorodiphenyldichloroethane (DDD) contamination	Discussions with local disposal facilities will be conducted for the disposition of any DDD-contaminated soils.	CDOT Engineering and Construction Contractor	Construction Phase
47	Hazardous Materials	Potential to encounter subsurface contamination associated with historic landfills	Real-time monitoring will be performed during construction for volatile organic compounds, methane, and ACM. Health and safety monitoring and ACM remediation may be necessary.	CDOT Engineering and Construction Contractor	Construction Phase

#	Mitigation Category	Impact	Mitigation Commitment From Source Document	Responsible Branch	Timing/Phase that Mitigation will be Implemented
48	Hazardous Materials	Potential to impacts historic landfills	CDOT will involve the Colorado Department of Public Health and Environment (CDPHE) where historic landfills may be encountered during construction activities.	CDOT Engineering and Construction Contractor	Construction Phase
49	Hazardous Materials	Discovery of ACM in soil or landfill debris	If suspected ACM is encountered, workers will follow CDOT Standard Specification 250.07 and CDOT Soil Management standard operating procedures and CDPHE's Soil Regulations and requirements under 6 Code of Colorado Requirements 1007-2, Section 5.5 may apply.	CDOT Engineering and Construction Contractor	Construction Phase
50	Multimodal	Minor, temporary trail detours and overnight closures	CDOT and the contractor will coordinate trail detours, closures, and signage with Denver, Commerce City, Adams County, and the Sand Creek Greenway Foundation as needed. The duration of detours will be minimized. Any trail closures for bridge girder placement will occur during nighttime hours.	CDOT Engineering and Contractor	Preconstruction/Construction
51	Multimodal	Minor, temporary trail detours and overnight closures	CDOT will coordinate with UPRR and BNSF in advance of bridge demolition to avoid and minimize conflicts between freight movements and track closures.	CDOT Engineering and Contractor	Preconstruction/Construction
52	Section 4(f)	Construction of temporary trails to maintain access	<p>Construction activities resulting in temporary trail impacts will occur during winter months and low-flow conditions. Temporary trails at all locations will be at grade, 10 feet wide with 1-foot buffer shoulders on each side to accommodate two riders and will meet trail safety standards.</p> <p>Clear signage will be installed to alert trail users about detours. The Region 1 Section 4(f) Specialist will coordinate between the contractor and Adams County, Sand Creek Regional Greenway Partnership, and Commerce City (the Officials with Jurisdiction [OWJs]) on signage design and placement. OWJs will be coordinated with during implementation of the public information systems to include trail disruptions and be given at least 2 weeks' notice prior to trail closures.</p>	CDOT Engineering and Contractor	Preconstruction, during construction

#	Mitigation Category	Impact	Mitigation Commitment From Source Document	Responsible Branch	Timing/Phase that Mitigation will be Implemented
53	Section 4(f)	Construction of temporary trails to maintain access, and reconstruction of the affected portions of trail	<p>Reconstructed portions of the South Platte River Trail at I-270 will be designed in coordination with Adams County to address an existing “blind” curve on the north side of I-76, and to meet the county’s trail design standards.</p> <p>The Mile High Flood District (MHFD) will be coordinated with to remove a portion of the aboveground drop structure in Sand Creek, directly west of Brighton Boulevard and adjacent to the existing Sand Creek Trail, to improve safety for users along the temporary and permanent trails.</p> <p>Commerce City’s trail specifications will be incorporated into the design for all Sand Creek Trail replacement locations.</p> <p>Following construction, all impacted trail segments will be fully restored and cleaned of debris from construction in accordance with their previous condition and left as good as or better than they were before construction began.</p>	CDOT Engineering and Contractor	Preconstruction, during construction
54	Section 4(f)	Multiple overnight closures of existing and temporary alignments of trails to accommodate new bridge girder installation	<p>Full closures will occur outside established operating hours, and the temporary trails will reopen promptly inside established operating hours:</p> <ul style="list-style-type: none"> • South Platte River Trail operating hours are daily, 5 a.m. to 11 p.m. • Sand Creek Trail operating hours are daily, from 5 a.m. to 10 p.m. 	Contractor	During construction
	Mitigation Summary Tracking	Impact as shown for all items in Table 7-1	The Contract Agreement between CDOT and the Construction Contractor is required to demonstrate and document all mitigation commitments were fulfilled to close the project. CDOT will review the summary and send it to FHWA at project completion. This summary of completion is to be provided to the CDOT Region 1 Environmental Program Manager.	CDOT Environmental	Construction/ Project Closeout

1 Source: CDOT, Jacobs, Mead & Hunt, Environmental Resources Corporation

2 9.0 What Additional Clearances are Required for this Project?

3 In addition to the NEPA evaluation of environmental impacts provided by this EA, the Proposed Action must comply with federal and state laws and
 4 regulations, including the Clean Water Act, the National Historic Preservation Act, Endangered Species Act, Migratory Bird Treaty Act, Colorado SB 21-260,
 5 and others. This includes obtaining permits, preliminary and construction surveys, reviews, and other approvals as required by local agency, state, and
 6 federal regulations. Agency coordination has been initiated, and will continue, with EPA, CDPHE, county floodplain administrators, and local municipalities.

1 In addition, CDOT standard specifications for construction contain provisions to protect environmental resources during construction, and these will be
2 followed.

3 Because the Proposed Action includes major and minor modifications to existing interchanges, CDOT’s Policy Directive (PD) 1601 and FHWA’s Interstate
4 Access Request (IAR) approvals are required. CDOT’s PD 1601 process involves preparation and approval of a System Level Study to understand the
5 operations and safety aspects of the Proposed Action on the system and neighboring intersection and interchanges. The IAR policy will evaluate the merits
6 of the Proposed Action to ensure the I-270 highway provides an acceptable level of service in terms of mobility and safety while also preserving access
7 control along the interstate.

8 10.0 What Permits are Required for this Project?

9 The following permits are likely to be required prior to construction, but this list may change during and after final design:

- 10 • A Construction Access Permit will be required for detours and lane closures from the CDOT Region Access Control Manager; the construction
11 contractor would obtain this permit.
- 12 • An Air Pollutant Emissions Notice, along with a Fugitive Dust Control Plan, will be submitted to CDPHE by the construction contractor.
- 13 • A variance from Commerce City and the City and County of Denver will be required for noise should there be construction at night; the construction
14 contractor would obtain this permit.
- 15 • A CLOMR will be submitted to conditionally update the effective FIS and FIRM panel data, followed by a LOMR to formalize the changes.
- 16 • A Colorado Discharge Permit System Permit to protect State waters, which requires preparation and implementation of a stormwater management
17 plan to prevent stormwater runoff and sediment from leaving any construction site disturbing at least one acre of land. CDOT or the construction
18 contractor would obtain this permit from CDPHE’s Water Quality Control Division.
- 19 • A Construction Dewatering Operations Permit, if groundwater were to be discharged from an excavation to any waters of the State, would need to be
20 obtained by the construction contractor from CDPHE.
- 21 • During final design, CDOT will develop an SWMP that must be finalized and maintained by the construction contractor qualified staff throughout
22 construction in accordance with CDOT’s SWMP procedures.
- 23 • Additional cultural resources consultation may be needed if significant design changes or changes in the scope of the project occur.
- 24 • A Stormwater Quality Permit will need to be obtained by the construction contractor from Adams County.
- 25 • A Pre-Construction Notification would be submitted to the USACE consistent with Section 404 requirements.
- 26 • A SB 40 Wildlife Certification by Colorado Parks and Wildlife (PW) is required. CDOT is responsible for preparing and submitting the application for
27 certification.

- 1 • A Utility Permit will be required for any construction work within CDOT’s ROW that installs or maintains a utility; the construction contractor would
2 obtain this permit. Other local permits might also be required, such as building or survey permits.
- 3 • Local grading/construction permits as required; the construction contractor is responsible for obtaining this permit (if necessary).

4 11.0 What Outreach and Opportunities for Stakeholder Participation Were Provided?

5 The study team conducted a comprehensive stakeholder and public coordination program throughout the course of this study. A Public and Stakeholder
6 Communication Plan was prepared at the beginning of the study that outlined strategies to meaningfully involve stakeholders and the public in the NEPA
7 process. Most outreach efforts used virtual (online) methods to reduce interpersonal contact because of the COVID-19 pandemic that occurred during the
8 study. Stakeholder and public outreach activities are summarized in this section; refer to Appendix A18, Stakeholder, Public, and Agency Outreach, for
9 details and documentation of these efforts.

10 Input and comments received from stakeholders, agencies, and the public during this study were entered into a comment database. The database
11 documented meeting dates, recorded input and comments received, identified issues to discuss with study teams or focus groups, and noted how issues
12 were addressed. Over 500 comments were received and considered from the start of the study to public release of this EA.

13 11.1 Stakeholder Engagement

14 11.1.1 Project Leadership Team

15 As key partners providing funding for the I-270 Corridor Improvements EA, Adams County and Commerce City participated with CDOT and FHWA on the
16 Project Leadership Team (PLT). The PLT endorsed the overall process for advancing the study and the decision-making process for key project milestones.
17 It met approximately once a month to review and approve study team recommendations. Members informed their respective agencies about the study’s
18 progress and status and relayed information to the project management team regarding other concerns, adjacent projects, or public issues. The PLT
19 discussed topics such as the purpose and need statement, public and stakeholder outreach efforts, alternatives development/conceptual design, the
20 Proposed Action, project impacts, and mitigation strategies. Members also reviewed the EA document.

21 11.1.2 Elected Officials Briefings

22 In June 2020, CDOT Executive Director Shoshana Lew called individual elected officials with Commerce City and Adams County to introduce the study and
23 understand key issues from each jurisdiction. As the study progressed, Executive Director Lew and study team members provided briefings to Commerce
24 City Councilmembers and Adams County Commissioners at their regularly scheduled study sessions. The following summarizes the briefings:

- 25 • Commerce City Council
 - 26 – June 2020: Calls held with Commerce City Mayor Ben Huseman, Councilman Craig Hurst, Councilwoman Jennifer Allen-Thomas, and Councilman
27 Oscar Madera to introduce the study.

- 1 – August 10, 2020: I-270 presentation summarizing the EA process, planned agency and public outreach, funding, and schedule. Feedback from
2 Councilmembers included the following:
- 3 ■ Interest in how the project’s toll revenue could be used or distributed
 - 4 ■ Concern about how Vasquez Boulevard could function as both a freight corridor and city central business area
 - 5 ■ Concern that Commerce City residents would not be able to afford to use managed lanes if they were implemented on I-270
- 6 – November 9, 2020: I-270 presentation providing project updates including potential solutions under consideration. Feedback from
7 Councilmembers included questions on the following:
- 8 ■ The City receiving the toll revenue generated by the project
 - 9 ■ Who would manage the express lanes if implemented
 - 10 ■ Additional free lanes being implemented on I-270
- 11 Councilmembers expressed concerns about diversion of traffic from I-70 to I-270 and the perception that cars speed in express lanes, and
12 conveyed sentiment that express lanes are being forced upon local jurisdictions along CDOT’s routes. Councilmembers also noted that good traffic
13 flow reduces air pollution.
- 14 – July 5, 2022: In-person meeting with City Council member Kristi Douglas. *[Seeking documentation from CDOT.]*
- 15 • Adams County Commissioners
 - 16 – June 2020: Call held with Adams County Commissioner Eva Henry to introduce the study.
 - 17 – August 4, 2020: I-270 presentation summarizing the EA process, planned agency and public outreach, funding, and schedule. Feedback from
18 Councilmembers included the need for trails and mass transit in the I-270 corridor; some members also expressed general support for managed
19 lanes.
 - 20 – November 17, 2020: I-270 presentation providing project updates including potential solutions under consideration. The feedback from
21 Councilmembers included questions on the following:
 - 22 ■ How trucks would be accommodated
 - 23 ■ If a truck-only lane was being considered
 - 24 ■ How toll funds would be used
 - 25 ■ How air quality would be managed
 - 26 Some members indicated they do not support managed lanes, but were pleased that CDOT is making much needed improvements on I-270.
 - 27 – April 18, 2022: In-person meeting with Adams County Commissioner Steve O’Dorisio and Deputy Director of Public Works Janet Lundquist to get
28 perspectives on the project and gather input on expanding community outreach.

1 **11.1.3 Regional Advisory Committee**

2 During the scoping phase of the study, several agencies and organizations expressed an interest to participate. The Regional Advisory Committee (RAC)
3 was formed to allow for an ongoing dialog between the study team and RAC members, who provided input to the study team and apprised them of their
4 interests regarding the project. While the RAC had no oversight role, its members served as liaisons for their jurisdiction and organizations. Members
5 included representatives from Adams County, Commerce City, Westminster, City and County of Denver, Thornton, Kids First Health, and Adams County
6 Economic Development. The study team met with RAC members periodically throughout the study to apprise them of project progress and answer
7 questions.

8 **11.1.4 Resource Agencies**

9 The study team engaged state and federal resource and regulatory agencies early in the study to help identify issues to be addressed in the EA. Agency
10 input was considered during the alternatives evaluation and environmental analysis processes. Agency correspondence and meeting minutes can be
11 found in Appendix A18, Stakeholder, Public, and Agency Outreach.

12 ***Resource Agency Scoping Meeting***

13 A scoping meeting was held with resource agencies on August 5, 2020, to obtain input relevant to their resources and regulations and to identify key
14 environmental issues in the corridor to be considered in the study. Participants included representatives from USACE, MFHD, Adams County, Commerce
15 City, DRCOG, CDPHE, CPW, RTD, SHPO, EPA, and USFWS. Input included the desire to do the following:

- 16 • Avoid and minimize impacts to waters of the United States (including wetlands and tributaries impacts).
- 17 • Consider improvements along the neglected Sand Creek waterway during design.
- 18 • Consider impacts to Sand Creek Greenway.
- 19 • Improve travel times, reduce congestion, accommodate trucks, improve the Vasquez interchange, and improve local mobility.
- 20 • Be consistent with DRCOG’s Metro Vision Plan to reduce greenhouse gas emissions.
- 21 • Consider multimodal improvements on I-270.
- 22 • Improve air quality.
- 23 • Minimize impacts to adjacent waterways, raptor nests, and bats roosting on bridges.
- 24 • Consider bus-on-shoulder operations.
- 25 • Consider impacts to the history and culture of minority communities.
- 26 • Prioritize avoidance and minimization of impacts over mitigation.

27 ***Interagency Consultation Meetings and Air Quality Coordination***

28 On January 26, 2021, FHWA and CDOT held a virtual interagency consultation meeting with EPA and CDPHE representatives to discuss the air quality
29 approach for the project, including transportation conformity requirements (CO hotspot analysis and PM₁₀ considerations), and NEPA considerations
30 (criteria pollutant analysis, MSATs analysis, and greenhouse gas analysis). Follow-up meetings were held with those agencies in 2021 (Appendix A4, Air

Quality Technical Report). A second interagency consultation meeting was held on April 4, 2022, to discuss updates on traffic data and conformity requirements and review results of the public outreach air quality survey. During these meetings, EPA requested and was provided the opportunity to review and comment on the PM Modeling Analysis Technical Report.

Section 106 Consultation

The Section 106 process for historic properties was initiated on February 5, 2021, when CDOT transmitted a letter to the SHPO delineating the project's APE for historic properties and providing the Section 106 (36 CFR 800) identification methodology for historic properties within the APE. In this letter, CDOT requested concurrence on the eligibility of properties and the Section 106 effects determination of No Adverse Effect on these properties. CDOT received concurrence from the SHPO on March 2, 2021. CDOT also coordinated with two Section 106 consulting parties: the Adams County Community and Economic Development and the Commerce City Planning Division.

CDOT consulted with the SHPO on the archaeological survey report and its findings. The SHPO provided concurrence on the report on July 2, 2021.

CDOT sent letters to eleven tribes inviting them to serve as Section 106 consulting parties. The Pawnee Nation and Northern Cheyenne Tribe accepted the invitation and were consulted on the archaeological report.

11.1.5 Stakeholder Interviews

The study team met with representatives from the following agencies, organizations, and businesses to obtain their input on corridor issues and potential solutions:

- **UPRR and BNSF Railway (June 3 and August 6, 2020):** Representatives provided information for project design considerations, including vertical clearances, pier locations, ROW, and coordination during final design and construction.
- **City and County of Denver Department of Transportation and Infrastructure (June 23 and October 27, 2020):** Department representatives agreed that the purpose and need adequately addressed the corridor issues and expressed interest in improved access for Northfield and how the I-270 project will connect with the Central 70 project. Representatives also noted the public's desire to improve the safety and connectivity of pedestrian and bicycle facilities under I-270.
- **Freight Advisory Committee – Steering Committee (July 28 and November 17, 2020):** Representatives provided input on refining the purpose and need. Three attendees volunteered to participate in future Freight Issues Focus Group meetings. The group also discussed hazardous materials route designations for transport of hazardous materials and commercial vehicle use of auxiliary lanes.
- **Suncor Energy (August 4, 2020):** Representatives provided information about their use of third-party trucks and railroads to move products to and from their facility, the continuous (24/7) operation of their site, location of underground pipelines, use of Brighton Boulevard by most employees to access the site, and how highway congestion and hazardous materials routes affect their shipping costs.

- 1 • **Emergency service providers (Adams County Fire, South Adams County Fire, Commerce City Emergency Management) (August 10, 2020):**
2 Representatives identified issues that impact emergency response, such as congestion, inadequate shoulder width, operational issues at the Vasquez
3 interchange, inadequate signage, and hazardous materials routes.
- 4 • **Platte River Greenway and Sand Creek Greenway (July 8, 2020):** Representatives expressed concerns about potential project impacts to trails and
5 waterways, including wetland habitat restoration that was undertaken by Commerce City. Plans for trail improvements or rerouting are outlined in
6 Commerce City's 2012 *Walk. Bike. Fit | Commerce City, A Multi-Modal Active Transportation Plan*. Desired bicycle and pedestrian improvements
7 included trail connection improvements at Vasquez Boulevard and Dahlia Street and addition of sidewalk along Vasquez Boulevard under I-270.
- 8 • **Colorado Motor Carriers Association (July 22, 2020):** CMCA representatives suggested a refinement to the fourth project need regarding truck freight
9 and shared input on issues relevant to truck operations. These issues included improvements for hazardous materials routes, bridge weight
10 restrictions that require truck rerouting, issues with truck maneuvers at Vasquez interchange due to design geometry, narrow shoulders, improved
11 route designation signage, and the need to improve 56th Avenue intersection to accommodate high truck usage.
- 12 • **Regional Transit District (October 26, 2020):** Representatives noted that RTD uses the I-270 corridor for the Flatiron Flyer (FF1) bus route between
13 Boulder and the Anschutz campus. Representatives indicated that delays on I-270 reduce the ridership on this bus route and increase RTD's costs to
14 operate the route. RTD suggested that bus-on-shoulder operations be considered, similar to the US 36 corridor.
- 15 • **Mile High Flood District (January 22, 2021):** Representatives provided information on an ongoing Flood Hazard Area Delineation that will change the
16 floodplains for waterways in the project area. The MHFD expressed interest in partnering with CDOT to fix the existing sheet-pile drop structure
17 downstream of the Vasquez Boulevard bridge over Sand Creek.

18 **11.1.6 Focus Groups**

19 Based on feedback from stakeholder interviews in 2020, the study team organized focus groups to discuss specific aspects of the project design in more
20 depth. These groups provided input on project design concepts relative to the specific resource of concern to each group.

21 ***Transit Focus Group***

22 The study team met with representatives from RTD and the Colorado Division of Transit and Rail on August 25, 2021, to discuss transit opportunities in the
23 I-270 corridor. RTD expects that ridership on their FF1 route, which uses I-270, may increase if travel times on I-270 are reduced through proposed project
24 improvements. Any future service expansions on I-270 would be based on ridership. Division representatives noted they do not see I-270 as a good
25 opportunity for a mobility hub and are generally focused on regional transit beyond RTD's service boundary.

26 ***Freight Focus Group***

27 The study team met with CMCA representatives and the Freight Advisory Committee on February 24, 2021, to review potential transportation solutions in
28 the I-270 corridor and solicit feedback. The CMCA was supportive of 12-foot shoulders and travel lanes. Concerns included sur charges for trucks using
29 express lanes, hazardous materials route designations, and interchange ramp design for use by large vehicles.

1 **Waterways Focus Group**

2 The study team met with representatives from the MHFD on June 30, 2022, to discuss project design concepts relative to hydrology, floodplains, and
3 water quality. The MHFD reviewed status of floodplain mapping updates and provided input on permanent water quality design options.

4 **Pedestrian and Bicycle Connectivity Focus Group**

5 The study team met with representatives from Adams County, City of Commerce City, the Sand Creek Regional Greenway Partnership, the Greenway
6 Foundation, and Bicycle Colorado in a series of meetings in 2020 and 2021 to discuss project design concepts pedestrian and bicycle connectivity. Topics
7 discussed include connectivity needs near Vasquez Boulevard and York Street, connectivity to the Sand Creek Regional Greenway, various design
8 concepts, and trail detours during construction.

9 **Community Focus Group**

10 Representatives from Adams County and the City of Commerce City recommended meeting with a local advocacy group called Cultivando to connect with
11 the local community, particularly the Spanish-speaking community. In partnership with Cultivando, the study team met with several members of the local
12 community to better understand key issues of concern and how best to communicate with households in the project area. Community members had
13 questions about impacts to local neighborhoods and businesses and expressed concerns about good communication regarding traffic impacts during
14 construction. Attendees also advised CDOT on how best to reach the Spanish-speaking community in the project area.

15 **11.2 Public Involvement**

16 Public involvement strategies employed corridor-wide outreach methods aimed at I-270 users and those who live and work near the corridor, as well as
17 more focused outreach efforts for special-interest groups and traditionally underserved members of the community. Virtual methods were used for this
18 outreach to eliminate interpersonal contact during the COVID-19 pandemic that occurred during the study.

11.2.1 Outreach Tools

The study team employed the listed outreach methods to distribute project information, announce public events, and solicit feedback. Documentation of these efforts is provided in Appendix A18, Stakeholder, Public, and Agency Outreach.

- **Project Website:** A project website (codot.gov/projects/i270) was established at the beginning of the study to provide project information and public event announcements throughout the study. This included information such as project overview, frequently asked questions (FAQs), project updates, project contact information, project schedule, summary of the decision-making process, the project purpose and need, corridor history, proposed I-270 improvements, meeting summaries, project documents, and opportunities for public involvement, including the opportunity to join the project mailing list and complete an online questionnaire and comment form. An interactive corridor map was also provided for the public to provide comments on specific locations.
- **Social Media:** Public event notices and project updates were shared through CDOT’s Facebook page, CDOT’s YouTube channel, and stakeholder social media channels. Facebook posts were promoted for zip codes surrounding the study area.
- **Media Advertisements and Press Releases:** Advertisements and press releases were issued to print, television, and radio outlets.
- **Project Email Address:** A project email address (cdot_i270@state.co.us) was established for the public to send comments and ask questions about the project.
- **Project Hotline:** A project hotline (303-512-4270) was set up for members of the public to call and provide their comments and questions.
- **Newsletters:** Project articles were included in the Commerce City Connected newsletter.
- **Flyers and Posters:** Flyers and posters were distributed to various community venues, such as churches, recreation centers, Hispanic grocery stores, Commerce City Civic Center, and convenience stores. Locations were changed as needed to accommodate COVID-19 pandemic restrictions that occurred during the study.
- **Direct mail postcards:** Postcards announcing public events were sent to zip codes within 0.25 mile of the project corridor. This generated an initial mailing list of over 7,000 addressees that received the announcement for the first public event held in August 2020. Based on input received from

Engaging Traditionally Underserved Populations

Early in the study, the study team interviewed organizations to establish relationships with trusted members of the community and confirm the best outreach methods for traditionally underserved members of the community. These community organizations and non-profits included Assumption Church, Friendly Baptist Church, Kids First Health, Green Latinos, Cultivando, and Mapleton Public Schools. Based on input from these groups, the study team took the following steps to engage with traditionally underserved members of the community.

1. All communications, the project website, and the virtual public event platform were produced in English and Spanish.
2. To address concerns about lack of internet access, the study team mailed printed post cards and posted flyers and posters at local churches, convenience stores, and other locations.
3. Cultivando, a community non-profit organization, helped convene a community focus group that met with the study team to learn about the project and provide feedback.
4. Project articles were included in the Commerce City Connected newsletter.
5. Targeted digital display advertisements ran on the Noticias Ya television station, and paid Facebook posts were promoted for zip codes surrounding the project area.

1 Cultivando during stakeholder outreach, the mailing list was later expanded to include additional zip codes, resulting in over 17,000 addressees who
2 received the announcement for the second public event held in December 2020.

- 3 • **Email blasts:** Emails announcing public events and providing project updates were sent to stakeholders and individuals who requested to be on the
4 email list. This generated an initial email list of over 300 recipients that received the announcement for the first public event held in August 2020.
5 Email blasts to more than 400 people announced the second public event held in December 2020. Project update emails were sent in 2021 and 2022
6 to keep the public apprised of project status.
- 7 • **Local government partnerships:** The study team created an online communication toolkit that outreach professionals with Commerce City and Adams
8 County could access to share information on the second public event in December 2020. All toolkit materials were bilingual and included posters and
9 flyers, social media messages for various platforms, graphics for local government access channels, and stakeholder emails.
- 10 • **Online survey:** An outreach survey was conducted in spring 2022 to obtain public input on additional locations to be considered in the additional
11 particulate matter modeling analysis. Public concerns included air quality in the study area and surrounding communities, pollution from industrial
12 sources in the area, health impacts to residents, businesses, and commuters, and air quality impacts during construction. Based on this input, CDOT
13 extended the modeling boundaries and included additional receptors in the analysis.

14 **11.2.2 Meetings**

15 To eliminate interpersonal contact because of the COVID-19 pandemic, meetings were conducted in a virtual online environment. Video conferencing was
16 used for smaller meetings, while the larger public events were hosted through the project website.

17 **Virtual Public Events**

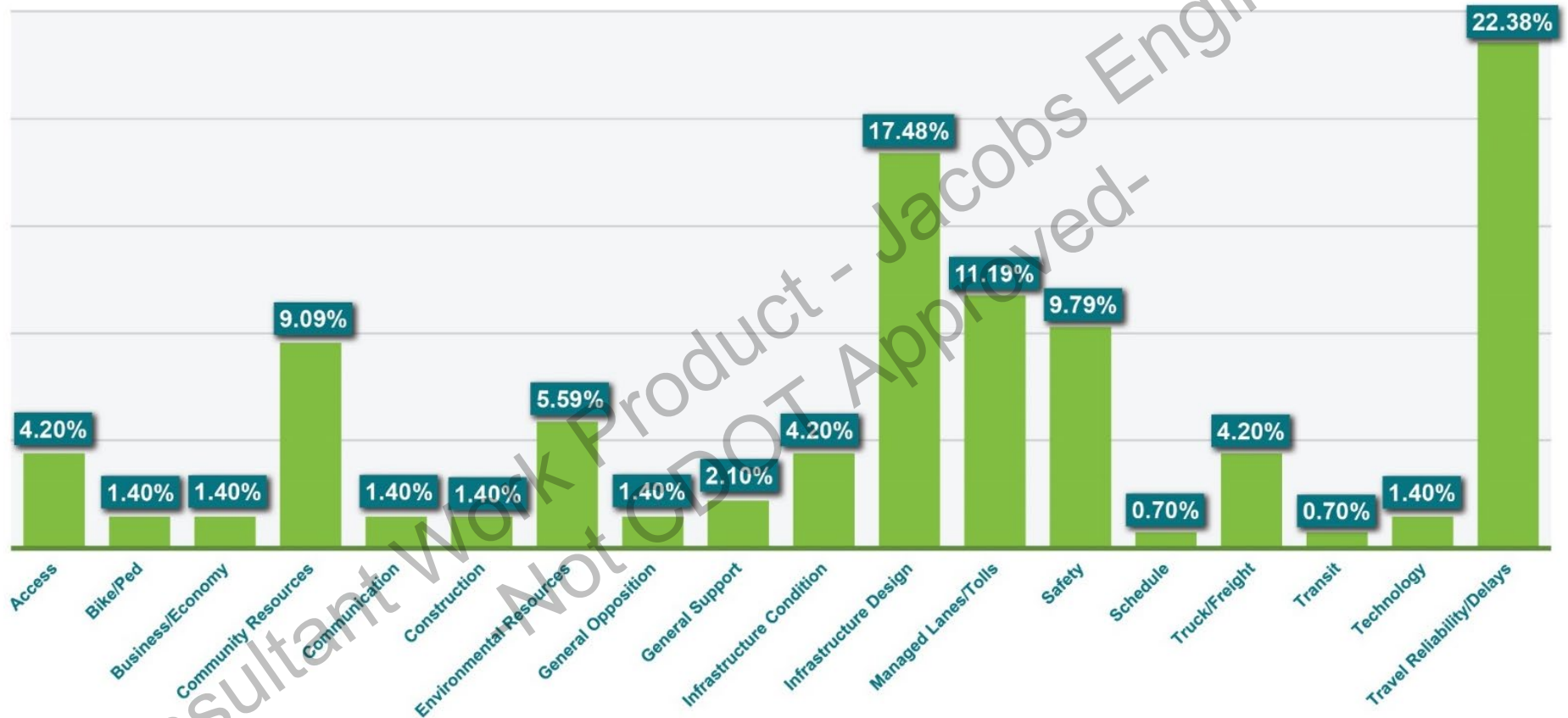
18 Two public events were held in a virtual format through the project website. Event announcements, presentation materials, and summary of comments
19 received are provided in Appendix A18, Stakeholder, Public, and Agency Outreach.

20 **Public Event #1: Public Scoping**

21 A virtual public scoping event was held in August 2020 to present the purpose and need of the project, explain the EA process and schedule, share
22 information about existing conditions in the corridor, explain how the public could provide input throughout the process, and obtain public comments.
23 The event was announced using direct mail post cards, social media posts, press release, and email notices to numerous stakeholder agencies and
24 organizations, as described in Section 12.2.1. The two-week event was held in a virtual format on the project website that began on August 14, 2020, and
25 continued through August 30, 2020. The virtual event room included 13 stations providing informational displays, a narrated slide presentation, and a
26 station outlining the various methods to provide feedback including the comment tool in the virtual room. Information was provided in both Spanish and
27 English.

28 The event was well attended, with over 470 people visiting the virtual room and over 260 comments received from agencies, organizations, and
29 individuals across the metropolitan area. As shown on Figure 11-1, the most common comment received was about traffic congestion and travel time
30 delays. Many comments provided input on problems at specific locations and suggested ways to improve design of the corridor's infrastructure. The third

1 most common comment topic regarded the potential use of express lanes or HOV lanes in the corridor. Other top issues voiced in comments included
2 safety, impacts to community and environmental resources, and truck movements in the corridor. All comments were collected and entered into the
3 comment database described in the introduction to this chapter, assigned to the appropriate team member(s), and disseminated to the study team to
4 review and consider. The study team considered the feedback received at this event during the identification and evaluation of proposed solutions for the
5 I-270 corridor to address the purpose and need of the project.



6
7 Figure 11-1. Distribution of Comments from Public Event #1

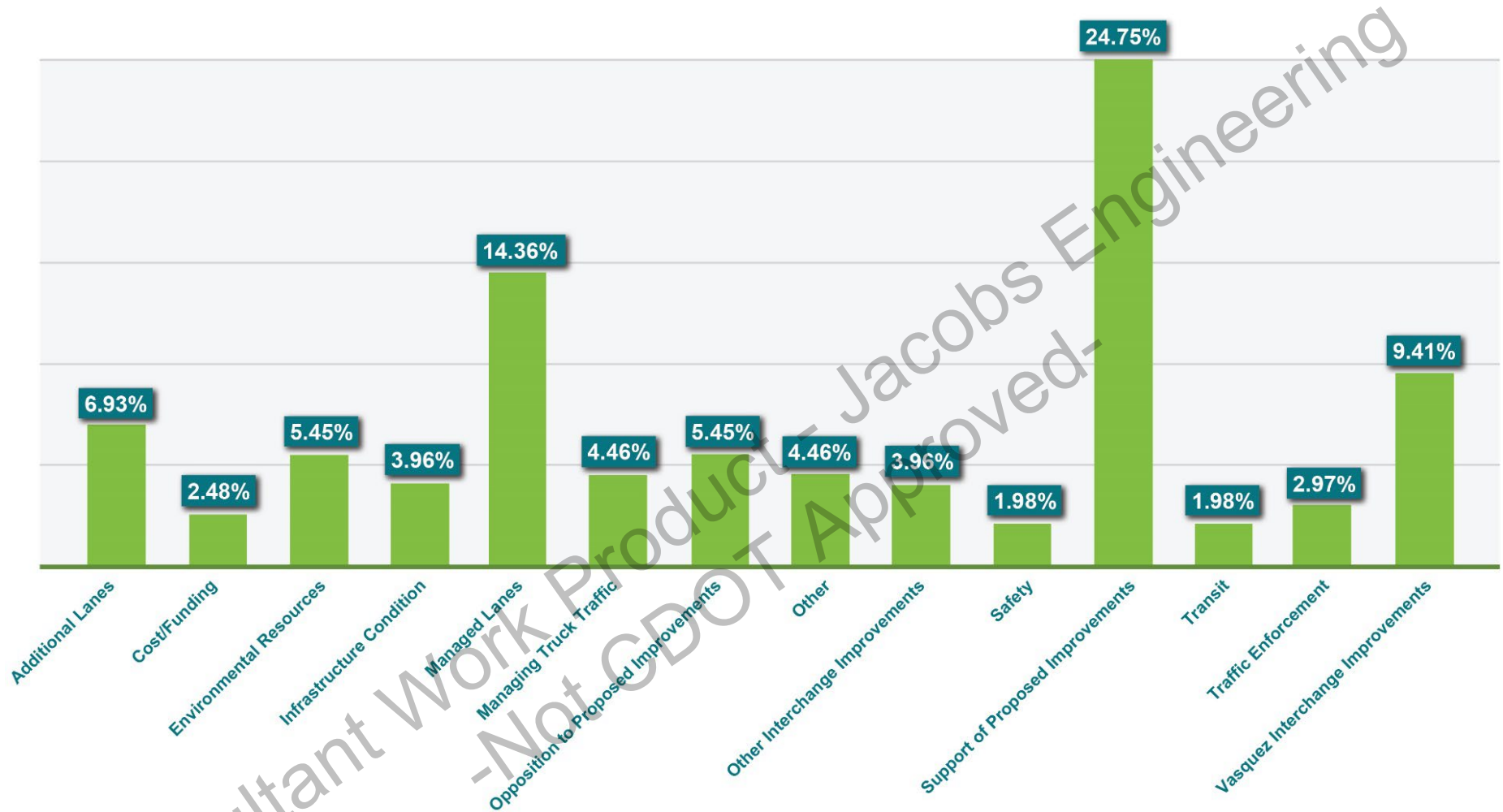
1 **Public Event #2: Alternatives**

2 The second virtual public event was held in December 2020, presenting proposed solutions developed by the study team to address the purpose and need
3 of the project. The event was announced through methods similar to those used for the first public event; however, the direct mail area was expanded,
4 posters and flyers were displayed locally, paid Facebook promotions targeted local zip codes, and digital display advertisements ran on the Noticias Ya
5 television station. The virtual 3-week event began on December 2, 2020, and ran through December 27, 2020. Similar to the first event, a virtual public
6 event room was used. User analytics from the first public event indicated that attendees often did not view the entire slide presentation provided at that
7 meeting. Therefore, several brief presentations were provided at separate stations rather than one longer presentation. Participants could move around
8 the room to select and view each station. Information was provided in both Spanish and English and included the refined project purpose and need, a
9 summary of public input received at the August 2020 public event, the No Action Alternative, I-270 improvements under consideration, considerations
10 regarding express lanes, some of the key environmental resources being evaluated, and EA process and schedule. Similar to the first public event, there
11 was a feedback station listing methods to provide comments, including use of the comment tool in the virtual room.

12 This event also was well attended, with 990 people visiting the virtual room and 27 percent of the visits occurring through the Spanish site. A total of
13 181 comments were received during the 3-week event from people across the metropolitan area. As shown on Figure 11-2, comments supporting one or
14 more of the proposed improvements were the most common topic, followed by input on the use of various types of managed lanes (such as express lanes
15 and HOV lanes) on I-270. The comment form for the second public event gave people the opportunity to indicate their level of opposition or support for
16 express lanes on I-270. Support for and opposition to express lanes was nearly even, with 43 percent indicating support, 42 percent indicating opposition,
17 and 15 percent who were neutral. Notably, express lane feedback received from people living in zip codes along I-270 indicated slightly less opposition,
18 with 41 percent supportive, 38 percent opposing, and 21 percent who were neutral. People were also given the opportunity to indicate their top five
19 priorities for improving I-270. The top five responses were as follows:

- 20 1. Easier and safer merging of traffic at interchanges
21 2. Being able to reliably plan my trip and arrive at my destination on time
22 3. Faster travel times on average, even if travel times are unpredictable
23 4. Improved ability for truck freight to safely operate in the corridor
24 5. Improved ability for emergency response agencies to clear incidents

25 Like the first public event, all comments were collected and entered into the comment database and distributed to study team members for their review
26 and consideration. The study team considered all comments to identify solutions for the I-270 corridor that would address the project's purpose and
27 need.



1

2 Figure 11-2. Distribution of Comments from Public Event #2

1 ***In-person Community Events***

2 As COVID-19 restrictions eased during 2021 and 2022, the study team and CDOT leadership connected face-to-face with individuals and groups in the
3 community. Stakeholder outreach activities included the following:

- 4 • Met with Denver Street Partnerships on February 11, 2021, to discuss pedestrian issues.
- 5 • Met with Conservation Colorado on June 29, 2021, to discuss environmental issues.
- 6 • Met with environmental organizations on July 13, July 29, August 6, and August 11, 2021, and January 25, 2022, to discuss greenhouse gas policy.
- 7 • Joined the County’s booth at the Adams County Fair to discuss the project and hand out project flyers.
- 8 • Held bus tours with community groups and elected officials on September 1 and November 9, 2021, to get input on specific locations in and near the
9 project corridor.
- 10 • Met with members of the Green Latinos on May 16, 2022, to discuss equity relative to various sources of pollution. *[Seeking documentation from*
11 *CDOT.]*
- 12 • Conducted a walking tour with a community member and pedestrian safety advocate on March 25, 2022, to learn more about pedestrian challenges
13 in the project vicinity.

14 **11.3 How the Proposed Action Reflects Stakeholder and Public Input**

15 The draft purpose and need statement was presented at the first public event held in August 2020. Based on stakeholder input, one refinement was made
16 to the purpose and need regarding the need to improve truck freight movement efficiency. Input received from stakeholders and the public throughout
17 the study validated the purpose and need and supported the major elements included in the Proposed Action. Table 11-1 lists the top five priorities voiced
18 by the public and summarizes the ways in which the Proposed Action addresses those priorities.

1 **Table 11-1. How the Proposed Action Addresses the Top Five Priorities of the Public**

Top Five Public Priorities	Proposed Action Design
Easier and safer merging of traffic at interchanges	<ol style="list-style-type: none"> 1. Redesign the Vasquez interchange. 2. Add auxiliary lanes between select interchanges. 3. Add eastbound collector ramp for traffic from I-76.
Being able to reliably plan my trip and arrive at my destination on time	<ol style="list-style-type: none"> 1. Reconstruct and widen the highway to include an additional travel lane in each direction (possibly added as express lanes).
Faster travel times on average, even if travel times are unpredictable	<ol style="list-style-type: none"> 1. Reconstruct and widen the highway to include an additional travel lane in each direction (possibly added as express lanes). 2. Add auxiliary lanes between select interchanges. 3. Add eastbound collector ramp for traffic from I-76.
Improved ability for truck freight to safely operate in the corridor	<ol style="list-style-type: none"> 1. Redesign the Vasquez interchange. 2. Add auxiliary lanes between select interchanges. The eastbound auxiliary lane will also serve as a climbing lane for large trucks to climb the uphill grade at slower speeds.
Improved ability for emergency response agencies to clear incidents	<ol style="list-style-type: none"> 1. Reconstruct and widen the highway to include an additional travel lane in each direction (possibly added as express lanes). 2. Widen shoulders to meet safety standards.

2 Several elements of the Proposed Action design also reflect specific stakeholder and public input received. They include design elements of the Vasquez
 3 interchange, bicycle and pedestrian facilities, I-76/York Street exits, I-76/I-270 traffic merging, and water quality. Table 11-2 summarizes specific input
 4 received and the design elements included in the Proposed Action that would address those issues.

1 Table 11-2. How the Proposed Action Design Addresses Stakeholder and Public Input

Stakeholder and Public Input	Proposed Action Design
<i>Vasquez Interchange Improvements</i>	
Trucks exiting eastbound I-270 at Vasquez Boulevard experience difficulty in maneuvering into the left-turn lane on southbound Vasquez to proceed east on East 56 th Avenue, south of I-270.	The design of the Vasquez interchange improvements was modified to also provide a perpendicular connection to Vasquez Boulevard from the eastbound off-ramp via a new traffic-signal-controlled intersection, thus allowing a right turn directly into Vasquez Boulevard southbound lanes and providing more distance for trucks to maneuver to the left-turn lane on southbound Vasquez at 56 th Avenue.
56 th Avenue is a bottleneck under the I-270 bridge where 56 th Avenue narrows to two lanes.	The geometry of 56 th Avenue in that area would be widened and improved.
The Vasquez interchange area has low visual quality.	Landscaping would be included to improve the visual quality of this area.
<i>Bicycle and Pedestrian Facilities</i>	
Pedestrian connections need to be improved, including through the I-270 and Vasquez Boulevard interchange and area trails.	<ol style="list-style-type: none"> 1. Bicycle and pedestrian facilities would be improved in the vicinity of the interchange to improve connectivity north and south of I-270 and to eliminate pedestrian/traffic conflicts. This includes widening sidewalks along Vasquez Boulevard from four feet to ten feet, providing grade-separated bicycle and pedestrian crossings under I-270 and the on/off-ramps, and improving access from the south side of I-270 to the Walmart and other destinations north of the highway. 2. In addition, a couple of new connections would be provided to the Sand Creek Trail. 3. The existing sidewalk from the East 56th Avenue bridge to the Sand Creek Greenway Dahlia Trailhead would be extended to improve access to and from the Sand Creek Trail. 4. A 10-foot-wide sidewalk is also planned along the west side of East 56th Avenue as it crosses under I-270 to tie into the existing sidewalk along the west side of Eudora Street, providing an additional north-south connection. 5. The study team also coordinated with Commerce City on the City's plans to complete the missing sidewalk connection along the south side of East 56th Avenue (under a separate City project), which could be used as a temporary bicycle/pedestrian detours to maintain connectivity during construction of the Proposed Action.
Concern was voiced about temporary impacts to trails during construction of the project.	For trails that would be impacted during construction, a trail detour will be provided that is convenient and direct as practicable to maintain trail connectivity during construction. Signage will be used to direct users to the trail detour.
<i>Increased Distance between I-76/York Street Exits</i>	
The existing combined I-76 and York Street exits for westbound I-270 are inadequately signed to provide sufficient notice of the exits, resulting in driver confusion.	The westbound I-76 and York Street exits would be separated by approximately 1,500 feet to provide clear exit points for the system (I-76) and service (York Street) interchanges. Updated signage would accompany the planned design.

Stakeholder and Public Input	Proposed Action Design
<i>New Collector Ramp for I-76 Traffic Merging to Eastbound I-270</i>	
The safety analysis conducted under this study indicated that the area where northbound and southbound I-76 traffic merges into eastbound I-270 experiences high crash rates; this issue was confirmed by stakeholder and public input.	A new collector ramp would be provided for I-76 traffic to merge within a barrier-separated auxiliary lane before merging into mainline eastbound I-270.
<i>Water Quality</i>	
To manage stormwater runoff, construction of a pipe outfall approximately 2,000 feet west of Brighton Boulevard was proposed that would run directly south into Sand Creek from the south side of I-270. However, CDPHE indicated that the area proposed for the pipe outfall is a covered landfill area with prohibitive covenants.	The pipe outfall was moved farther west to curve around and avoid the landfill.

12.0 What Additional Opportunities for Stakeholder Participation Will Be Provided?

Stakeholder engagement will continue throughout the preliminary design, final design, and construction phases. This EA will be made available for a public review period of at least 30 days. The EA will be available for review through the project website; hard copies may be made available for review depending on the status of the COVID-19 pandemic. A third public event will be held during the EA review period to present the findings of the EA and solicit comments. If an in-person meeting is not possible, the virtual (online) format will be used and may be supplemented with a telephone townhall to allow for real-time questions and answers from the public. All information presented at the event will be provided in both Spanish and English. The EA review period and associated virtual public event will be announced in Spanish and English using methods like those used for the previous public events.

Members of the public may submit comments on the EA during the review period in the following ways:

- Comment form completed at the virtual event
- Through the project website: www.codot.gov/projects/i270
- Email to the study team: cdot_i270@state.co.us
- Project hotline: 303-512-4270

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