Grants for Transportation Investment Generating Economic Recovery

(TIGER) Application

North Interstate 25 Phase 1

April 2016

Submitted by CDOT

COLORADO
Department of Transportation

In partnership with

Town of Berthoud
City of Evans
City of Fort Collins
City of Greeley
Town of Johnstown
Larimer County
City of Loveland
North Front Range MPO
Town of Timnath
Weld County
Town of Windsor

McWhinney

In Partnership with:

Transportation Investment Generating Economic Recovery (TIGER)

NORTH INTERSTATE 25 PHASE 1

APPLICANT INFORMATION

Project Name
North Interstate 25 Phase 1

Grant Amount Requested
$25,000,000

Project Type
Road—Bridge Repair/Replacement—Urban Highway

Location
Northern Colorado
Interstate 25, State Highway 402 to State Highway 14, Colorado

Applicant Name
Colorado Department of Transportation (CDOT)
DUNS/CCR Number: 960738771

Contact Information
Herman Stockinger
Director, Office of Policy & Government Relations
herman.stockinger@state.co.us
Phone: 303.757.9077 | Cell: 303.549.4117

Additional documents supporting this grant application are available for review and downloading at:
https://www.codot.gov/projects/NorthI-25/additional-information/

Congress of the United States
Washington, DC 20510

April 14, 2016

The Honorable Anthony Foxx
Secretary
Office of the Secretary
U.S. Department of Transportation
1200 New Jersey Ave., SE
Washington, DC 20590

Dear Secretary Foxx:

We write in strong support of Colorado's applications for federal grants to support the North Interstate 25 Phase 1 project. Because this project is of the highest priority to Colorado, the Colorado Department of Transportation (CDOT) submitted this project for your consideration under both the Transportation Investments Generating Economic Recovery (TIGER) 2016 grant, and the Nationally Significant Freight and Highway Projects (FASTLANE) grant initiatives. The state submitted the application in coordination with the North Front Range Metropolitan Planning Organization (NFRMPO).

The North I-25 project makes critical improvements to the I-25 corridor, which is currently stifled by crippling congestion and unsafe conditions. This proposal would expand capacity on I-25 with one additional lane in each direction for 14 miles in order to accommodate a Tolled Express and High Occupancy Vehicle (TEL/HOV) Lane, as prioritized by the North I-25 Environmental Impact Statement. The project also includes important transit, pedestrian, and cycling improvements that will connect Northern Colorado communities to each other and to the Denver Metro region, creating critical economic and recreational opportunities for Colorado residents. In addition, the project would replace two interstate bridges to accommodate future improvements and strengthen our roadway's resiliency against natural disaster.

The state proposes to leverage its $25 million TIGER grant application with matching funds from CDOT, local governments, and others into a $230 million project. NFRMPO's proposal will similarly combine federal dollars and a local match to cover the cost of improvements. Both the TIGER request submitted by CDOT and the FASTLANE request submitted by NFRMPO would cover the entire cost of Phase 1, and would provide an opportunity for the U.S. Department of Transportation to make a $230 million project a reality with minimal federal investment through the grant requests.

Many Colorado municipalities, businesses, and citizens groups are enthusiastically united in support of this project, including the North I-25 Coalition of Elected Officials, the Fix I-25 Business Alliance, Northern Colorado Legislative Alliance, Larimer County, Weld County, and multiple cities, counties, and chambers of commerce representing an important part of our state. As members of Colorado's congressional delegation, we recognize the critical link of the North

I-25 Corridor to mobility and commerce for the state of Colorado and the entire Rocky Mountain region, and we believe this project deserves the support of USDOT's discretionary programs.

Thank you in advance for your consideration.

Sincerely,

Michael F. Bennet
U.S. Senator

Cory Gardner
U.S. Senator

Ed Perlmutter
Member of Congress

Jared Polis
Member of Congress

Ken Buck
Member of Congress

Table of Contents

EXECUTIVE SUMMARY **1**

A. Project Overview 1

B. Project Background 2

C. Key Project Benefits 2

D. Project Partnerships 3

I. PROJECT DESCRIPTION **3**

A. Tolled Express Lanes 3

B. Safety 4

C. Structures and Pavement 4

D. Multi-Modal Improvements 5

E. Regional Trail Connection & Wildlife Corridor 5

F. Project Schedule 5

G. Project Budget 6

H. Existing Conditions 6

i. Passenger and Freight Volumes 6

ii. Congestion 7

iii. Infrastructure Condition 7

iv. Safety 8

I. What the TIGER Grant will Support 8

J. Expected Users of the Project 9

K. Transportation Challenges and How They will be Addressed 10

L. Ladders of Opportunity 11

II. PROJECT LOCATION **12**

i. Detailed Description of North I-25 Phase I Improvements 13

III. PROJECT PARTIES **14**

IV. GRANT FUNDS AND SOURCES/USES OF PROJECT FUNDS **14**

V. PROJECT SELECTION CRITERIA **15**

A. Primary Selection Criteria 15

i. State of Good Repair 15

ii. Economic Competitiveness 16

iii. Quality of Life 18

iv. Environmental Sustainability 19
v. Safety 20
B. Secondary Selection Criteria 21
i. Innovation 21
ii. Partnership 22
VI. RESULTS OF BENEFIT-COST ANALYSIS 23
VII. DEMONSTRATED PROJECT READINESS 25
A. Technical Feasibility 25
B. Financial Feasibility 26
C. Project Schedule 27
D. Required Approvals 28
i. Environmental Permits and Reviews 28
ii. Legislative Approvals 28
iii. State and Local Planning 28
E. Assessment of Project Risks and Mitigation Strategies 28
i. Risks Associated with Right of Way 29
ii. Risks Associated with Utilities, Ditches, and Railroads 29
iii. Risks Associated with Funding 29
iv. Risks Associated with NEPA 29

Figures

Figure 1 Project Location Map 1
Figure 2 Map of Project Improvements 3
Figure 3 Existing I-25 Typical Cross-Section 4
Figure 4 Proposed I-25 Typical Cross-Section 4
Figure 5 Average Passenger and Freight Volumes 6
Figure 6 Levels of Service 7
Figure 7 Multi-Modal Connections Map 11
Figure 8 Project Vicinity 12
Figure 9 2013 Big Thompson River Flooding 16
Figure 10 Project Schedule (Calendar Years) 27

Tables

Table 1 Project Elements 6
Table 2 Freight 6
Table 3 Crash Rate on North I-25 between SH 402 and SH 14, 2006-2014 8

Table 4 Truck Freight Tonnage and Value by Flow Type, North I-25, 2015 9
Table 5 Geospatial Points 12
Table 6 Key Partners 14
Table 7 Project Funding Plan 14
Table 8 Project Partners 15
Table 9 Funding Uses 15
Table 10 Larimer and Weld County, Top Commodities Moved by Truck, by Value 17
Table 11 Travel Times and Savings during Peak and Shoulder Periods (2020-2040) 17
Table 12 Key Benefits Delivered by Long-Term Outcomes (2021–2040) 19
Table 13 Crash Rate on North I-25 between SH 402 and SH 14 20
Table 14 Key Benefits Delivered by Long-Term Outcomes (2021 – 2040) 24
Table 15 Project Costs (shown in millions of $) 26

Appendices

A. Letters of Support
B. Benefit-Cost Calculations
C. Detailed Project Schedule
D. Media Articles
E. Project Risk Register
F. Poudre River Trail Connection
G. Federal Wage Rate Certification
H. TIGER 2016 Project Information

Acronyms and Abbreviations

AET	All electric tolling
BCA	Benefit-cost analysis
BCR	Benefit-Cost Ratio
CDPHE	Colorado Department of Public Health and Environment
CDOT	Colorado Department of Transportation
COLT	City of Loveland Transit
CSU	Colorado State University
CTMC	Colorado Transportation Management Center
CWCB	Colorado Water Conservation Board
DIA	Denver International Airport
DSRC	Dedicated Short-Range Communications
EIS	Environmental Impact Statement
FHWA	Federal Highway Administration
FEIS	Final Environmental Impact Statement
FLEX	Fort Collins-Loveland Express
GET	Greeley-Evans Transit
GWRR	Great Western Railway
HOV	High Occupancy Vehicle

I-25	Interstate 25
I-70	Interstate 70
I-80	Interstate 80
ITS	Intelligent transportation systems
LOS	Level of Service
MS4	Municipal Separate Storm Sewer System
NEPA	National Environmental Policy Act
NFRMPO	North Front Range Metropolitan Planning Organization
R-n-R	Risk and Resiliency
ROW	Right of way
RSU	Roadside Unit
SF	Square Feet
SH 14	State Highway 14
SH 392	State Highway 392
SH 402	State Highway 402
STIP	Statewide Transportation Improvement Program
TIGER	Transportation Investment Generating Economic Recovery
TIP	Transportation Improvement Program
Transfort	Fort Collins Transit
TTI	Travel Time Index
UNC	University of Northern Colorado
UPRR	Union Pacific Railroad
US 34	U.S. Highway 34
USACE	U.S. Army Corps of Engineers
USDOT	U.S. Department of Transportation
VMT	Vehicle Miles Traveled

EXECUTIVE SUMMARY

The Colorado Department of Transportation (CDOT), in collaboration and partnership with the Northern Colorado counties, cities, and towns and the North Front Range Metropolitan Planning Organization (NFR MPO), is seeking a $25 million Transportation Investment Generating Economic Recovery (TIGER) grant. This project offers a high-value/low-cost investment for the U.S. Department of Transportation (USDOT). A $25 million investment will complete the funding package for a $237 million project called *North Interstate 25 Phase 1*.

Together, state and local commitments have been secured to deliver approximately 77 percent of the funds required for this $237 million project. This funding will enable CDOT to deliver a multi-stakeholder regional project that provides critical safety improvements, congestion relief, trip reliability, increased travel choices, and mode shifts, while also recapitalizing or replacing aging infrastructure. The TIGER grant also will act as the tipping-point to leverage essential co-benefits—sparking economic growth, enhancing environmental sustainability, providing resiliency, improving quality of life, and facilitating Ladders of Opportunity in the region.

A. Project Overview

Interstate 25 (I-25) is the only continuous north-south interstate route through Colorado. This vital highway is the main corridor and connector along the Colorado Front Range. I-25 traverses the country from Mexico to Canada and intersects with numerous other interstate highways, including I-40, I-10, I-80, I-90, and I-94. This project location, shown in Figure 1, encompasses a four-lane, 14-mile section between the cities of Loveland and Fort Collins through Larimer County. This section of I-25 is choked with congestion, experiences a high crash rate, and has limited transportation choices.

Figure 1 Project Location Map

Key project features will:

- Increase capacity by adding a tolled express lane in both directions to operate as express lanes, replace four aging bridges, and widen four additional structures.
- Improve multi-modal access to regional transit to promote mode shift.
- Improve bus service performance and reduce each total trip time by 15 minutes by adding new bus slip ramps to the Park-n-Ride.
- Create new pedestrian, bicycle access under I-25 at Kendall Parkway.
- Connect the 34.4 miles of the Cache la Poudre River Regional Trail under I-25 and network to 100 miles of total trails. It will also serve as a wildlife corridor.

B. Project Background

Northern Colorado is experiencing unprecedented economic and population growth. U.S. Census Bureau data shows Greeley and Fort Collins ranked among the top 15 fastest-growing metro areas in the nation from 2013 to 2014. In late 2003, an Environmental Impact Statement (EIS) was initiated for the North I-25 corridor to seek solutions that would provide modal alternatives; correct geometric deficiencies; improve safety, mobility, and accessibility; and replace aging and obsolete infrastructure. The improvements identified in the EIS are being implemented in a phased approach. Improvements along this section of I-25 are not scheduled to be funded in 2035 or later. As congestion increases, safety decreases, and infrastructure continues to age, the local governments and private industry have become strong advocates for immediate implementation. The collaborative effort to advance this project is evident by significant financial support from the counties, cities, and towns, as well as a local developer.

C. Key Project Benefits

This project brings critically important benefits for the economy, the environment, and quality of life by leveraging resources from partners across Northern Colorado. Key benefits include:

- Improving safety
- Reducing vehicle accidents and fatalities
- Reducing travel times and increasing trip reliability
- Reducing mobile source emissions
- Improving freight efficiency
- Increasing travel choices and encouraging mode shifts
- Facilitating Ladders of Opportunity
- Reconstructing aging and obsolete infrastructure
- Creating new and improved connectivity for transit, pedestrians, and bicyclists
- Deploying current state-of-the-art technologies and congestion management tools that support a better surface transportation

Over the 20-year assessment period, the North (Interstate 25 Phase I project generates $254.3 million in benefits at a 7-percent discount rate with a benefit-cost ratio (BCR) of 1.23:1, and $438.7 million in benefits at a 3-percent discount rate with a BCR of 1.83:1.

The largest components of these benefits focus on safety, freight operations, and travel time savings. Safety of the traveling public is the top priority—specifically, reducing crashes associated with congestion and deficient roadway geometry. Vehicle miles traveled (VMT) will be reduced due to mode shifts to carpooling and transit. This VMT reduction is the major driver for improved freight operations and travel time savings.

By delivering the project to the community earlier than outlined in the CDOT 2040 Long-Range Transportation Plan, the benefits will be implemented 15 years or more years sooner and at a fraction of the cost.

D. Project Partnerships

As a result of the overwhelming need and benefit of this project to the Northern Colorado region and the state, CDOT is delighted with the strong partnerships that have been developed and broad support from the public, private, and social sectors. Both Colorado Senators Bennett and Gardner, as well as three Colorado U.S. Representatives: Polis, Buck, and Perlmutter endorse this application which reflects the merits of this project.

This project has the full support of all of the communities and counties served by this corridor. They have contributed significant funds totaling more than $25 million. The Towns of Berthoud and Johnstown have contributed close to $100 per man, woman, and child in their small town. Additionally, McWhinney, developer, has contributed $6 million to ensure enhanced bus access and highway crossing, which serves a hospital and the largest commercial, residential, and retail metropolitan district in Northern Colorado. Further, letters of support from all sectors have been provided (see Appendix A). The benefits this project brings in the near term were all key contributing factors to this broad support.

I. PROJECT DESCRIPTION

A. Tolled Express Lanes

- Increase capacity by adding one tolled express lane in each direction from State Highway 402 (SH 402) to SH 14 for 14 miles. The tolled express lanes will operate 24 hours a day, seven days a week.
- Provide a four-foot painted buffer to separate the tolled express lane from the general-purpose travel lanes.
- Improve safety by correcting roadway geometry and widening the inside shoulder from four feet to 12 feet and the outside shoulder from 10 feet to 12 feet, as needed (see Figure 3 and Figure 4 for typical cross-section views).
- Install and integrate with the Colorado Transportation Management Center (CTMC) state-of-the-art tolling and Intelligent Transportation Systems (ITS) equipment

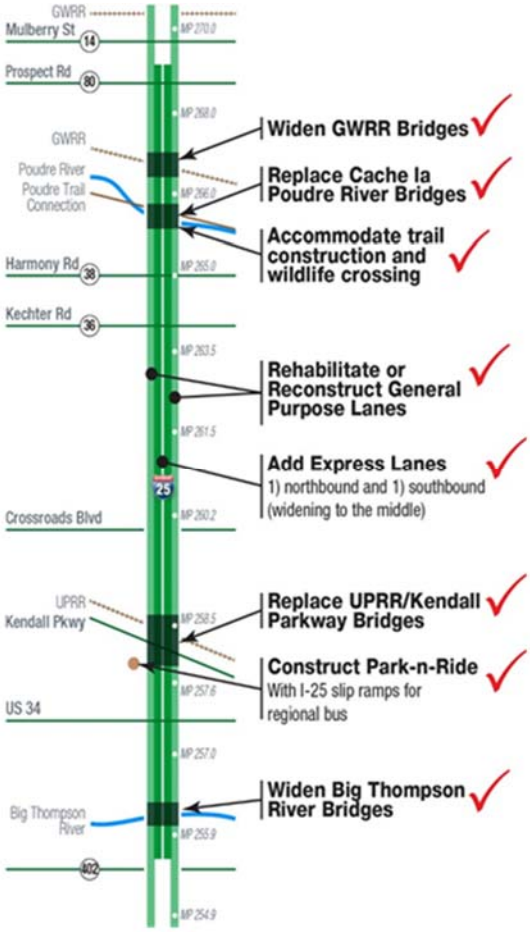

Figure 2 Map of Project Improvements

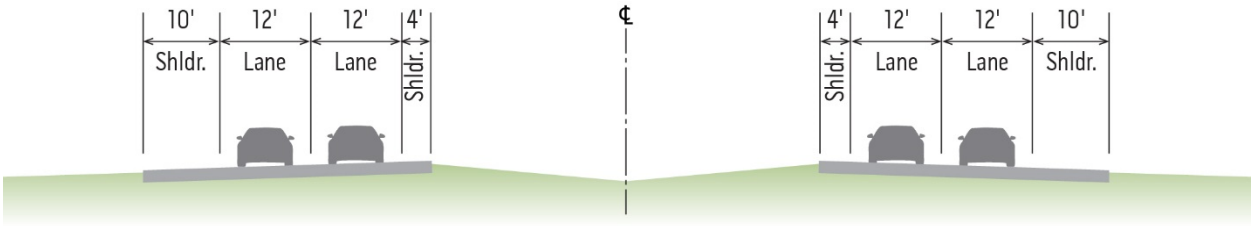

Figure 3 Existing I-25 Typical Cross-Section

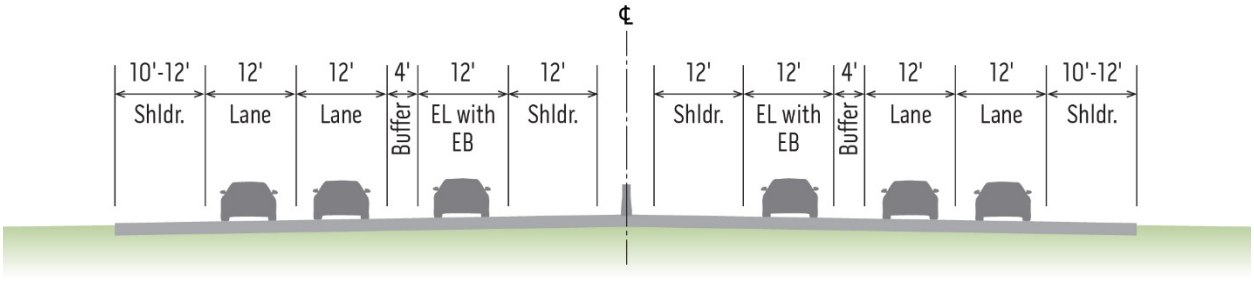

Figure 4 Proposed I-25 Typical Cross-Section

B. Safety

- Correct roadway geometry to address safety concerns related to stopping sight distance, super-elevation, and horizontal curvature.
- Widen shoulders to reduce congestion-related crashes.
- Widen bridges to eliminate congestion pinch points.
- Improve Colorado State Patrol access to interstate near the Cache la Poudre River Bridge.

C. Structures and Pavement

- Replace the Cache la Poudre River and the Union Pacific Railroad (UPRR) bridges to:
  - Accommodate new tolled express lanes
  - Improve substandard flood capacity
  - Bring the vertical curvature to current design standards
  - Connect the Cache la Poudre River Regional Trail and Wildlife Corridor under I-25
  - Accommodate a new bicycle and pedestrian crossing at Kendall Parkway
- Widen the Big Thompson River and the Great Western Railway (GWRR) bridges. The widened bridges will:
  - Accommodate the new tolled express lanes
  - Provide needed structure or deck rehabilitation
- Reconstruct and rehabilitate the existing pavement to extend its useful life.

D. Multi-Modal Improvements

- Build a new underpass at I-25 at Kendall Parkway to provide a local road connection. The underpass will improve vehicle, pedestrian, and bicycle access to a new Park-n-Ride and jobs, housing, healthcare, and retail.
- Build a new Park-n-Ride facility at Kendall Parkway with 200 parking spaces for car-poolers, bicycles storage and connections to regional and local bus transit. Discussions are underway with Greyhound to bring national service to the Park-n-Ride. The Park-n-Ride will host CDOT's new commuter bus service, "Bustang," which will provide service to Fort Collins and Denver. Connections with FLEX—a service with stops in Fort Collins, Loveland, Berthoud, Longmont, and Boulder—will be made via City of Loveland Transit (COLT).
- Build transit-only bus ramps to connect with the new Kendall Parkway Park-n-Ride. This express connection is expected to save 15 minutes for every bus trip using the dedicated ramps which, based on current service levels, represents a savings of 765 hours annually.

E. Regional Trail Connection & Wildlife Corridor

> *"We've identified projects that will help us fulfill the vision of Colorado the Beautiful, and create the kinds of connections that link us to the natural splendor that sets our state apart. We need the kind of outdoor access that more easily brings all of us—especially our young people—into the fresh air and away from indoor distractions."*
> **Governor John Hickenlooper**

The Cache la Poudre River Regional Trail is part of Governor Hickenlooper's "16 in 2016," which represents the state's 16 most important trail gaps. Replacing the Cache la Poudre River Bridge on I-25 the vertical profile will change to connect the Cache la Poudre River Regional Trail under I-25. The connection is literally the "last mile" that will bring the total regional trail length to over 34 miles. The trail connection will network 100 miles of additional trails. This connection links commuters to Fort Collins, Greeley, and Timnath as well as to Colorado State University (CSU), University of Northern Colorado (UNC), Front Range Community College, and Aims Community College, and numerous business centers, grocery stores, pharmacies, and hospital.

The trail will function as an important wildlife corridor for mammals and migratory species. Mule deer, white-tailed deer, coyotes, and foxes are typically found along the river. Elk and mountain lions known to use drainages along the trail. The area supports the threatened Preble's meadow jumping mouse. For more information on this trail connection, see Appendix F.

F. Project Schedule

A Final Environmental Impact Statement (FEIS) was completed for the North I-25 corridor in 2011. The NEPA environmental clearance process for this project is expected to occur in parallel with design. There are programmatic agreements in place with the resource agencies for this corridor.

The project is at a 30-percent design level, and a Request for Proposals is planned for final design in early 2017. Final design will begin by mid-2017, and construction will begin in the fall of 2017. Obligation of the TIGER grants will occur in early 2017 and the project opening will occur in early 2021. This schedule time to meet the requirements of the TIGER grant.

G. Project Budget

A detailed project budget can be found in the Financial Feasibility section later in this document. Table 1 presents a brief summary of the project element costs.

Table 1 Project Elements

Construction	Right of Way	Design & Project Management	Construction Management	Total Costs
$172,255,500	$11,669,200	$18,541,300	$34,534,000	**$237,000,000**

H. Existing Conditions

i. Passenger and Freight Volumes

Traffic in Northern Colorado is growing, see Figure 5. The Annual Average Daily VMT has been increasing steadily since 2008. VMT is projected to increase an additional 40 percent by 2040.

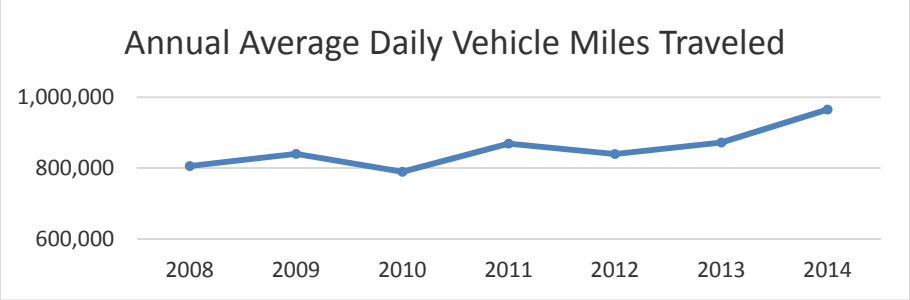

Figure 5 Average Passenger and Freight Volumes

Truck traffic comprises nearly 12 percent of the total traffic. Within Colorado, the I-25 corridor is a designated National Highway Freight Network Corridor, a Federal Highway Administration (FHWA) High-Priority Corridor, a Colorado Freight Corridor, and a National Defense Route. I-25 also connects with the east-west routes on I-80 and I-70.

Table 2 Freight

Year	AADT	Truck Traffic Percent	Truck Traffic
2015	64,125	11.8%	7,566 (one truck every 12 seconds passes a single location over a 24-hour period)

ii. Congestion

The project corridor experiences daily travel delays due to peak period volume and crash-related congestion. In addition, the vertical curvature of the UPRR Bridge is a pinch point that causes slowing.

Roadway level of service (LOS) is a measure of congestion delay. It can be thought of as a grading scale for roadways, where LOS A is excellent and implies high levels of mobility and ease of maneuverability. LOS F represents failure and indicates that the road is experiencing heavy traffic volumes, significant congestion, and stop-and-go conditions. Grades of LOS A through LOS D are considered acceptable.

In 2015, the southbound travel lanes experienced LOS D and F. Northbound travel operated between an LOS C and an LOS F level. If no improvements are made, the entire corridor will be predominantly LOS F by 2035, as shown in Figure 6.

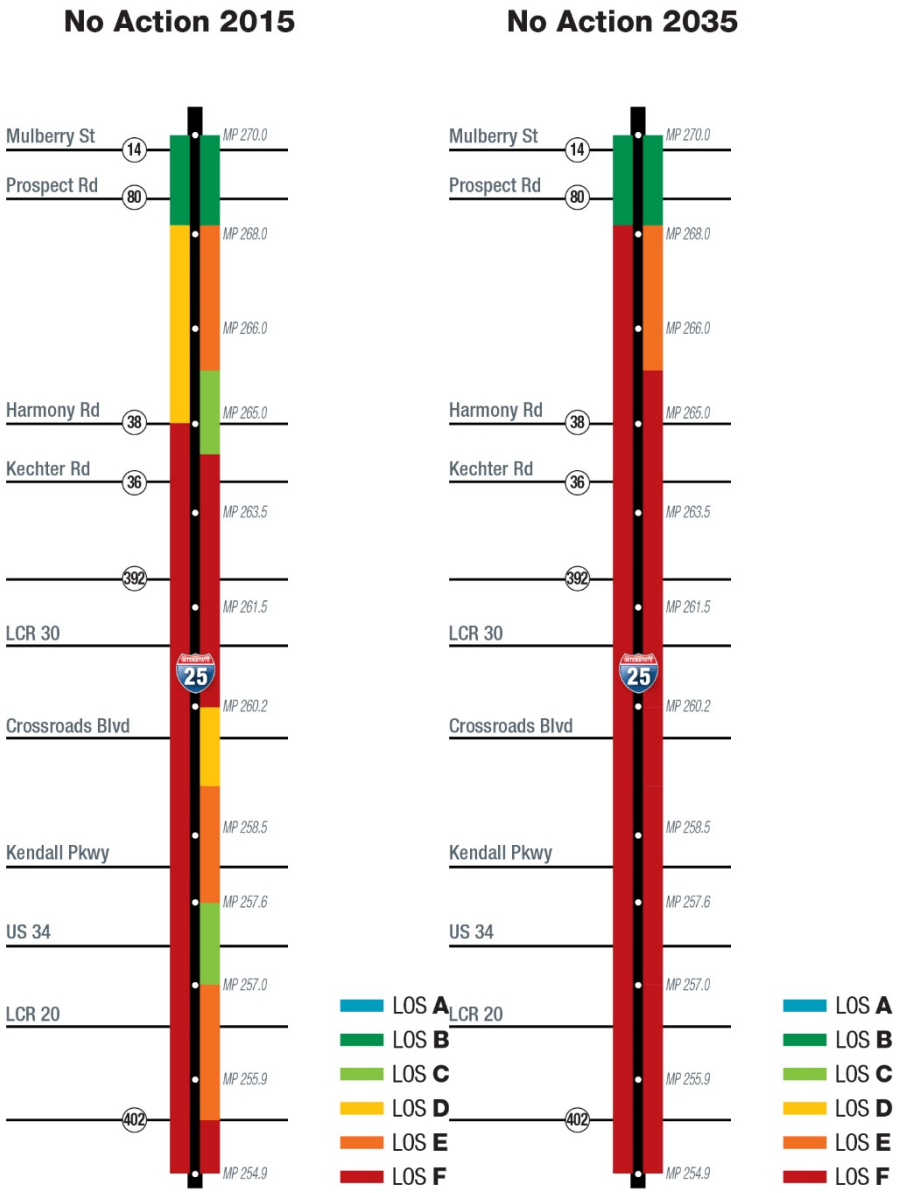

Figure 6 Levels of Service

iii. Infrastructure Condition

UPRR Bridges

The existing three-span bridges, built in 1965, are at the end of their service life as reflected in substantial bridge deck degradation requiring regular repairs. These will be replaced.

Cache la Poudre River Bridges

The existing four-span bridges, built in 1949 and 1965, are at the end of their service life as reflected by substantial bridge deck degradation requiring regular repairs. These bridges do not

have the current design criteria for 100-year floodplain requirements and have sedimentation problems. The bridges will be replaced.

GWRR Grade Separation Bridges

The bridges are being widened to accommodate the addition of the tolled express lanes.

Big Thompson River Bridges

The bridges are being widened to accommodate the addition of the tolled express lanes. This bridge overtopped with 3-4 feet of floodwaters in 2013, but sustained no roadway damages. The bridge has $800,000 in emergency scour repairs.

Pavement Condition

The existing pavement in the project area will require treatment within the next 10 years. Standard rehabilitation techniques, such as rubblization and an overlay treatment, will be needed. To optimize both cost and useful life the I-25 project corridor, 6.65 miles will undergo concrete reconstruction and have a useful life of 30 years. An additional 7.35 miles will undergo rehabilitation providing a useful life 10-15 years.

iv. Safety

While the VMT is growing at a quick pace, the number of crashes in the project area is growing at an alarming rate. Crashes in the project area are mainly rear-end crashes, followed by fixed-object crashes and same direction sideswipes. The likely causes are slow-moving vehicles and avoidance maneuvers related to congestion. See Table 3 for a summary of crash rate data.

Table 3 Crash Rate on North I-25 between SH 402 and SH 14, 2006-2014

Year	Number of Crashes	% Increase in Number of Crashes Since 2008	Average Daily VMT	% Increase in Average Daily VMT Since 2008	Crashes per 100M VMT
2008	203	0%	805,102	0%	68.9
2009	238	17%	839,834	4%	77.6
2010	272	34%	789,096	-2%	94.4
2011	285	40%	868,443	8%	89.9
2012	272	34%	839,141	4%	88.6
2013	312	54%	871,945	8%	98.0
2014	442	118%	964,900	20%	125.5

I. What the TIGER Grant will Support

This project will realize economic, environmental, and social benefits to:

- Improve safety by reducing crashes
- Improve the mobility of a national freight travel corridor
- Reduce freight operations costs
- Improve access for transit-dependent populations, pedestrians, and bicyclists
- Provide significant co-benefit on investments made by local governments and developers

- Create a sustainable expansion of the corridor and draw immediate long-term benefits
- Improve the resiliency of I-25 in the event of major flooding
- Create a substantial cost-savings by accelerating the project
- Capitalize on previous investments including the interchanges at Harmony Road , SH 392, and Crossroads Boulevard, which were all previous bottlenecks

J. Expected Users of the Project

The expected users of the completed project are the community residents, including daily commuters living and working within the North Front Range region or Denver Metro Area, transit-dependent residents, and approximately millions of annual visitors to Northern Colorado, where Rocky Mountain National Park is located.

Northern Colorado is home to 584,000 residents, of which 38% are low income, 27% are moderate income, and 35% are high income. Population is expected to grow to 896,190 by 2040. The proportion of seniors in the region ranges from 6-16%. Socio-economic status is expected to remain largely proportionate as the number of households and jobs nearly double in the region. Since 1990, VMT is up 57%, population has increased 53%, and lane miles have increased 2%.

Employment in Northern Colorado leans heavily towards agriculture, manufacturing, mining, utilities, and transportation representing over half of all jobs and shaping the region's dominant low to moderate income distribution. Jobs in healthcare, retail and services round out the employment mix. Because of the heavy dependence on its traditionally rural character, there is a high rate of low income households with cars. Trip reliability is of paramount importance to workers in hourly-wage jobs, and there is a robust pool of candidates for whom travel choice and mode-shift are attractive.

Critically important users of I-25 also include over-the-road drivers moving freight. Along North I-25, 11.8 percent of traffic is trucks in this rapidly growing corridor. An overview of the total tonnage of road freight moving annually through the North I-25 corridor, as well as the value of that freight, is shown in Table 4.

Table 4 Truck Freight Tonnage and Value by Flow Type, North I-25, 2015

Flow Type	Thousands Tons	Value Millions (2016 dollars)
Domestic Northbound and Southbound Flows	2,131.9	$2,557.6
Domestic Northbound and Southbound Passing Flows	504.7	$1,283.4
Export Northbound Flows (point of exit Montana)	190.6	$668.8
Export Southbound Flows (point of exit El Paso)	36.7	$36.9
Import Northbound Flows (point of entry El Paso)	73.4	$73.9
Import Southbound Flows (point of Entry Montana)	134.3	$358.6
Total	**3,071.6**	**$4,979.2**

Non-motorized users include a combined average of 400,000 users from the east and west portions of the Cache La Poudre River. Trail use is split between bike commuters and

recreational users. Once the trail is connected under I-25, another 35 to 150 daily bike commuters are predicted. Annual trail use is expected to conservatively approach 1 million trips per year by 2040 which is proportionate with population growth.

The Kendall Parkway Park-n-Ride will be used by people across all levels of the socio-economic strata, but most importantly it will open up new transportation opportunities for transit-dependent, low-income and disabled users. The Park-N-Ride center will provide a regional access for local, regional, and national transit, carpools, bicyclists, and pedestrians.

K. Transportation Challenges and How They will be Addressed

The following key challenges shaped the development of this North I-25 Phase 1 project:

- Increased frequency and severity of crashes
- Increased traffic congestion leading to mobility and accessibility problems
- Aging and functionally obsolete infrastructure
- Lack of modal alternatives
- Severely inadequate capacity to support 2040 demographic growth and freight projections

In September 2013, historic flooding devastated Northern Colorado and caused $4 billion in damages. The flood caused a 40-mile section of the North I-25 corridor between Denver and Fort Collins to be shut down for 36 hours and secondary north-south routes also were closed. The I-25 shutdown caused $800,000 in adverse economic impacts per hour. This flood event identified the need to reduce risk and increase resiliency for extreme weather events.

Key challenges, above, will be addressed as follows:

By improving the highway facility, removing geometric deficiencies, adding capacity, and bringing the roadway up to the national standards, the frequency and severity of crashes will be decreased. Safety and congestion issues will be addressed by the addition of a tolled express lanes, reducing pinch points through the correction of geometric deficiencies and shoulder widening, and the installation of Intelligent Transportation System components with variable tolling will help monitor and manage congestion.

Aging infrastructure will be addressed through the replacement of four bridges and pavement treatment for the entire scope of the project. Four additional bridges will be widened to accommodate new tolled express lanes.

The lack of modal alternatives will be addressed through the development of the Kendall Parkway Park-n-Ride and the extension of the Cache la Poudre River Regional Trail under I-25. Raising the profile of the Cache la Poudre River Bridge improves the resiliency of this critical corridor from flood events.

L. Ladders of Opportunity

In addition to providing greater safety and less congestion for the traveling public and improvements in environmental sustainability through carbon emission reductions, the North I-25 Phase 1 project materially bolsters L*adders of Opportunity* for traditionally disenfranchised groups—namely, low-income, minority, elderly, veterans, and disabled residents. In Weld County, 10.5 percent of the population is in poverty. In Larimer County, 12.8% of the population is in poverty. The components of the project will work together to provide greater trip reliability and convenient multi-modal access, which bring together a matrix of direct benefits to the people in most need. The key components of this project that promote ladders of opportunity include:

- Direct access through Bustang commuter bus service to Denver's Union Station, RTD facilities, Denver International Airport, and Greyhound bus service, and Denver's robust job market, see Figure 7
- Local transit access through Loveland's city-wide bus transit (COLT), Greeley-Evans bus transit (GET), Fort Collins-Loveland Express (FLEX), and Fort Collins TransFort bus transit
- Easy access to the Kendall Park-n-Ride from adjacent low-income, elderly, and disabled housing communities
- Convenient access to medical care, including the Medical Center of the Rockies and with emergency facilities, as well a robust network of primary providers, including a cancer center and a cardiac center
- Access to the Veteran's Administration (VA) Hospital in Denver
- Improved connections to Aims Community College, Front Range Community College, Colorado State University, and University of Northern Colorado
- Easy access to jobs throughout the region
- Safe walking/biking under I-25 to enable access to mixed-use developments
- Improved access to low-cost food and retail products via Costco and Super Walmart, as well as mainline and natural grocery stores and major pharmacies

Figure 7 Multi-Modal Connections Map

- Improved access to essential government services, such as Social Security and other government offices, job training, non-profit social welfare agencies, and the U.S. Post Office
- Improved access at the Cache la Poudre River Regional Trail to a network of 100 miles trails
- A catalyst for expanded jobs, housing, and retail development in McWhinney's Centerra Metropolitan District

II. PROJECT LOCATION

The project is located on I-25 in Northern Colorado approximately 26 miles north of the Denver Metropolitan Area. The corridor is adjacent to Johnstown, Loveland, Windsor, Timnath, and Fort Collins in Larimer County. The project will begin just north of SH 402 in Loveland and will extend 14 miles north to SH 14 in Fort Collins. The geospatial locations of the major features of the project are referenced below in Table 5.

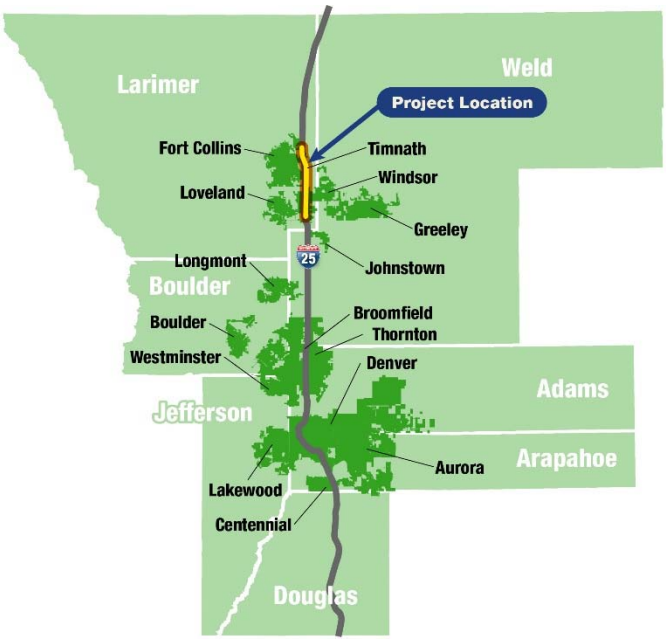

Figure 8 Project Vicinity

Multi-modal connections in the project area include Transfort, COLT, and GET. Regional Express Bus service is provided by CDOT with service to Denver Union Station. At Denver Union Station, connections are available to Amtrak and to Denver International Airport, as well as the Regional Transportation District (RTD) facilities throughout Denver.

The east Cache la Poudre River Regional Trail and Wildlife Corridor travels for 21 miles from Greeley to Windsor in Weld County. The west side of the trail continues for 10 miles. Connecting the two existing trails will network together 100 miles of trails.

Table 5 Geospatial Points

Project Elements	Geospatial Location
Express Lanes	40°34'42.46"N, 105°0'4.86"W to 40°22'41.14"N, 104°59'36"W
General Purpose Lanes	40°34'42.46"N, 105°0'4.86"W to 40°22'41.14"N, 104°59'36"W
Bus Slip Ramps	40°25'22.62''N, 104°59'33.32''W
UPRR/Kendall Bridges	40°25'22.62''N, 104°59'33.32''W
Kendall Parkway Park-n-Ride	40°25'22.62''N, 104°59'33.32''W
Big Thompson Bridges	40°23'50.17''N, 104°59'36.06''W
Poudre River Bridges	40°31'51.89''N, 104°59'36.06''W
GWRR Bridges	40°32'21.48''N, 104°59'44.77"W

i. Detailed Description of North I-25 Phase I Improvements

New Tolled Express Lanes will involve a combination of full reconstruction to the preferred alternative alignment and typical section and widening along with pavement rehabilitation based on condition and useful life. New signing, striping, and Intelligent Transportation Systems (ITS) components will be installed to safely and efficiently implement operational Tolled Express Lanes. Descriptions of each follow:

Full Reconstruction to FEIS Typical Section and Realignment to FEIS Alignment (Phase 1 Preferred Alternative): The interstate will be full reconstructed from just south of the Union Pacific Railroad Crossing to the Kechter Road overpass. This reconstruction will include two General Purpose lanes and one Express Lane in each direction. All shoulders will be 12 feet wide, a substantial safety improvement over many stretches with 4 foot inside shoulders. The reconstructed lanes will be on the preferred alternative alignment as shown in the FEIS. The total length of reconstruction is 6.65 miles.

Median Widening for Express Lanes and Pavement Rehabilitation (2035 Phase 1 Solution): From SH 402 to just south of the Union Pacific Railroad crossing, and from the Kechter Road overpass to SH 14 the existing General Purpose Lanes will be widened into the existing median to accommodate the new Tolled Express Lanes, 4-foot buffer, and new 12-foot inside shoulder. The existing pavement will be rehabilitated with a pavement milling and overlay to provide added service life to the existing roadway. The total length of reconstruction is 7.35 miles.

Bridges: The following bridges will be widened or replaced:

Union Pacific Railroad (UPRR) Grade Separation Bridge/Kendall Parkway: The existing three span bridges will be replaced with new two span bridges. The northbound 138-foot span crosses the UPRR right of way and the south bound 90-foot span will cross the proposed future Kendall Parkway road. The new bridges will be approximately four feet higher than the existing bridge, fixing a substandard vertical curve, and will provide a new crossing for both vehicular and pedestrian traffic along the proposed Kendall Parkway. The pedestrian crossing will access proposed Express Bus Slip Ramps to be constructed as part of this project.

Poudre River Grade Separation Bridges: The existing four span bridges will be replaced with new three span bridges. The vertical profile of these structures will be raised by approximately 12 feet to bring the structure out of the Poudre River Floodplain while accommodating a new Poudre River Regional Trail underpass. Additionally, the new structures will be 25 feet wider than the existing structures to allow for the new tolled express lane.

Great Western Railway (GWRR) Bridge: The existing three span bridges will be widened in the existing median. The widening will be 25 feet for both the northbound and southbound directions. As part of the widening the existing bridges will also be rehabilitated to address any structural deficiencies.

Big Thompson River Bridge: The existing three span 170 feet long bridges will be widened into the existing median. The widening will be approximately 26 feet for both the northbound and northbound directions. As part of the widening the existing bridges will also be rehabilitated to address existing bridge deck issues.

Kendall Parkway Park-n-Ride: A new Park-n-Ride will be constructed adjacent to the new bus slip ramps on the west side of I-25. The Park-n-Ride will include 200 parking spaces and three bus bays for local bus routes. Pedestrian access will be provided from the parking lot and bus bays to the new platforms and shelters at the express bus slip ramps via sidewalk pathways. This Park-n-Ride replaces a sub-optimum Park-n-Ride near US 34.

Kendall Parkway Bus Slip Ramps: New express bus slip ramps will be constructed for each direction. They will be on the outside edge of the I-25 mainline pavement.

Cache La Poudre River Trail Connection: This will connect 10 miles of existing trail west of I-25 to 21 miles of existing trail east side of I-25. The underpass is accommodated by a vertical profile change made through the reconstruction of the Poudre River/I-25 Bridge. It will provide add approximately 1 mile of trail length. The trail connection will also provide a critical wildlife corridor for migratory species and mammals.

III. PROJECT PARTIES

Many Colorado municipalities, businesses, and citizens groups are united in support of this project. The critical link between the North I-25 Corridor to mobility and commerce for the region is recognized as the key component to the quality of life all Coloradoans enjoy and depend on for access to employment, education, social and recreational activities.

Table 6 Key Partners

Key Partners		
Town of Berthoud	City of Evans	City of Greeley
City of Fort Collins	Town of Johnstown	Larimer County
City of Loveland	Town of Timnath	Town of Windsor
Weld County	McWhinney (Private Developer)	North Front Range MPO

IV. GRANT FUNDS AND SOURCES/USES OF PROJECT FUNDS

CDOT is seeking $25 million in TIGER grant funding from the US DOT. A funding plan is in place to cover 89 percent of the $235 million project cost needed. Revenues from the tolled express lane will contribute to CDOT's funding contribution. The funding plan is as follows:

Table 7 Project Funding Plan

Project Funding Plan	Amount	% of Total Cost
CDOT State Funds	$157 million	66%
Federal Funds	$30 million	12%
Private and Local Government Contributions	$25 million	11%
Sub-total	$212 million	89%
USDOT TIGER award	**$25 million**	**11%**
Total Funding	**$237 million**	**100%**

Many municipalities, two counties, and a private-sector developer have pledged financial to help bring this project to life.

Table 8 Project Partners

Key Project Partners	Funding Commitments
Town of Berthoud	$500 thousand
City of Fort Collins	$2 million
Town of Johnstown	$1 million
Larimer County	$10 million
City of Loveland	$2 million
McWhinney (Private Developer)	$6 million
Town of Timnath	$500 thousand
Town of Windsor	$1 million
Weld County	$2 million
Total	**$25 million**

Table 9 Funding Uses

Funding Uses	Amount
Design & Project Management	$18,541,300
Right of Way	$11,669,200
Construction Management	$34,534,000
Construction	$172,255,500
Total	**$237,000,000**

V. PROJECT SELECTION CRITERIA

A. Primary Selection Criteria

i. State of Good Repair

This project will improve the condition and resiliency of the project area as follows:

- The corridor transportation facilities are improved in a manner consistent with plans to maintain the facilities in a state of good repair through the structure improvements and the reconstruction/rehabilitation of the pavement.
- The improvements realized through the replacement and rehabilitation of bridges addresses projected vulnerabilities by improving the condition and significantly lengthening service life.
- The improvements provided will greatly reduce the threat to the transportation system's ability to provide safe, efficient modes of transportation to the community and ensure mobility of people and goods, which would constrain economic growth if not improved.

- Operations and maintenance costs are significantly reduced for the project area by upgrading existing infrastructure. The existing infrastructure cost $14,200 per lane mile per year to maintain according to the BCA. There will be a reduction in operation and maintenance costs of $6,900 per lane mile until 2030. Through the use of asset management techniques, as well as the continued use of CDOT's Online Transportation Information System (OTIS), the transportation system's condition will continue to be tracked and improved as appropriate.
- The project is appropriately capitalized through an up-front cost structure. The State has designated resources through FASTER Bridge Funds to address bridges based on vehicle registration fees. Toll revenue projections are expected to provide a sustainable source of funds to operate and manage the Tolled Express Lanes. Channel improvements to the Cache la Poudre River directly associated with replacement of the bridges will transform the existing channel to a more natural channel section that will significantly reduce maintenance needed because of a reduction in sedimentation.
- In 2013, the project area experienced devastating flooding that effectively shut down the transportation systems in the area, as shown in Figure 96, below. The Cache la Poudre River Bridge will be replaced at an elevation 12 feet above the current level, which will remove the structure from the floodplain. This improvement will provide 10 to 25 years of protection for the Cache la Poudre Regional Trail Connection.

Figure 9 2013 Big Thompson River Flooding

Since the devastating 2013 floods in the region, CDOT has developed robust methodology to evaluate resilience investments. Through a pilot with FHWA, CDOT has developed Risk and Resiliency (RnR), a science-based method to consider potential threats and asset vulnerabilities in the context of criticality, consequences, and annualized rate of return on resilience investments. RnR was used to evaluate alternatives for widening or replacing the Cache la Poudre River and Big Thompson River bridges.

ii. Economic Competitiveness

Northern Colorado is the fastest growing region in Colorado, according to the United States Census Bureau, and one of the fastest growing areas in the country. The following information highlights both the existing uses as well as the expected growth of the project area:

- The VMT for the project area in 2012 was 839,201 and in 2014 it grew to 964,900. Population in the NFRMPO area is expected to grow by 83.5 percent by 2040, with employment increasing by more than 80 percent during the same period. Without any improvements on this corridor (the No-Build scenario), VMT is anticipated to grow to 1,228,218. The 2040 Build scenario, which includes a third travel lane in both directions, anticipates VMT to grow to 1,419,641.
- The top five commodities moved by truck, by value, for Larimer and Weld counties are shown in Table 10.

Table 10 Larimer and Weld County, Top Commodities Moved by Truck, by Value

Commodity Inbound	Value	Commodity Outbound	Value
Warehouse and Distribution Center	$1,692,167,544	Warehouse and Distribution Center	$1,490,176,565
Petroleum Refining Products	$491,510,110	Meat, Fresh, Frozen or Chilled	$1,204,883,052
Pharmaceuticals	$227,831,023	Petroleum Refining Products	$733,238,141
Rail Intermodal Drayage from Ramp	$152,585,824	Malt Liquors	$547,455,346
Motor Vehicles	$121,052,670	Drugs	$435,047,093
Livestock	$1,791,827,821	Miscellaneous Internal Combustion Engines	$419,886,280
Dairy Farm Products	$230,739,687	Mechanical Measuring or Control Equipment	$329,625,377
Grain	$139,607,726	Miscellaneous Field Crops	$786,925,254
Total	**$4,847,322,405**	**Total**	**$5,947,237,108**

Source: CDOT and TRANSEARCH, 2010

The information above highlights the critical need for a transportation system that facilitates the economic growth. The addition of tolled express lanes will help provide travel reliability for freight traffic along the corridor through the reduction in congestion due to tolled express lanes. The improvements will provide travel time savings at implementation and over the long term as demonstrated by Table 11 from the BCA.

Table 11 Travel Times and Savings during Peak and Shoulder Periods (2020-2040)

Scenario	Lane Type	2020		2025		2030		2035		2040	
		NB	SB	NB	SB	NB	SB	NB	SB	NB	SB
		Travel Time for Corridor (Minutes)									
Baseline	GP Lane	18.7	16.3	20.4	17.7	22.2	17.2	22.7	17.6	23.3	18.9
Build	GP Lane	17.0	15.8	18.6	17.2	17.4	16.4	17.8	16.8	21.6	17.0
	Managed Lane	13.9	13.7	15.2	14.9	14.1	13.9	14.5	14.2	15.2	14.1
Travel Time Savings	GP Lane	**1.6**	**0.5**	**1.8**	**0.5**	**4.8**	**0.8**	**4.9**	**0.8**	**1.7**	**1.9**
	Managed Lane	**4.8**	**2.6**	**5.2**	**2.8**	**8.0**	**3.3**	**8.2**	**3.4**	**8.1**	**4.8**

Source: Muller (2014), AECOM

Reduced travel times equate to more efficient movement of road freight as indicated by a reduction in commercial truck operating hours. Over the assessment period, the build scenario will generate a reduction of more than 1 million operating hours for commercial trucks. This reduction in truck operating hours delivers approximately $30 million in benefits over the assessment period, discounted to 2016 dollars. In the mid-term, the North I-25 Phase 1 project will drive forward critical development by 2020 needed to spur economic activity in this growing region.

iii. Quality of Life

Every day, commuters using I-25 during peak travel times experience heavy congestion, including transit riders trying to get to work on time. The transportation system improvements will enhance travel immediately upon opening. The project will deliver the following quality of life benefits for residents:

- Travel time savings from Tolled Express Lanes
- Travel time savings in General Purpose Lanes
- Safe bike commuting and recreation options along 34.4 miles of the Poudre River Regional Trail, connecting education centers, parks with 100 miles of networked trails in a welcoming space for all community members
- Wildlife corridor under I-25
- Safe pedestrian and bike crossings at Kendall Parkway under I-25
- Safer and more efficient local transit and express commuter bus access at Kendall Parkway Park-n-Ride
- Multi-modal access at the Kendall Parkway Park-n-Ride for vehicles, pedestrians, and bicyclists with last mile support for bicyclists through secure bike racks and transit that accommodates bike racks
- Easy access to education, jobs, medical services, grocery stores and pharmacies, government services, and job training via transit at the Kendall Parkway Park-n-Ride
- Better air quality through reduced emissions in the Denver-North Front Range Non-attainment Area for Ozone

The North I-25 Phase 1 project will help provide a wide variety of transportation modes that are both safer and more reliable. The ability to choose travel options and to have trip reliability translate into direct improvements in quality of life. The long-term reductions in congestion result in an overall travel time savings of between $125 million and $211 million over the 20-year life of the project.

The new UPRR/Kendall Parkway Bridges will provide a crucial east-west connection under I-25 while also providing congestion relief to U.S. Highway 34 (US 34). It will serve as an alternative route for the residents and businesses in the area. This added connection will help spur the

development of the land directly adjacent to the new structure and near the new Kendall Parkway Park-n-Ride. The expansion of highly successful metropolitan district will bring in more jobs in a wide variety of sectors and levels. The new Park-n-Ride will provide 200 spaces.

iv. Environmental Sustainability

A number of aspects of this project will help ensure it is environmentally sustainable. Table 12 summarizes the environmental sustainability benefits from the BCA.

Table 12 Key Benefits Delivered by Long-Term Outcomes (2021–2040)

Environmental Sustainability Benefits Summary		
Benefits	**7% Discount ($2016)**	**3% Discount ($2016)**
Idling Emissions Reductions	$0.2 million	$0.4 million
Idling CO_2 Savings	$1.1 million	$1.1 million
Mode Shift Emissions Savings	$4.3 million	$6.9 million
Mode Shift CO_2 Savings	$4.1 million	$4.1 million
Freight Idling Emissions Savings	$0.5 million	$0.9 million
Freight Idling CO_2 Savings	$0.2 million	$0.2 million
Bike Mode Shift Emissions Savings	$0.2 million	$0.3 million
Bike Mode Shift CO_2 Savings	$0.2 million	$0.2 million

Another key aspect of environmental sustainability revolves around water quality. Colorado Department of Public Health and Environment (CDPHE) standards for stormwater discharges associated with Municipal Separate Storm Sewer Systems (MS4) will be met and all water running off new pavement will be treated to the standards of the permit. Channel improvements for the new Cache la Poudre River Bridge will minimize sedimentation near the bridge, improve habitat, and move the bridge out of the floodplain. Joint planning on watershed health is part of a larger planning effort between CDOT and the Colorado Water Conservation Board (CWCB) to plan transportation and watershed assets together in line with the region's watershed master plan.

Other benefits include:

- Improving habitat/migration for mammals due to the Cache la Poudre Trail wildlife corridor, including threatened species
- Maintaining water quality while increasing roadway capacity (per FEIS)
- Reducing noise due to the noise wall at the Mountain Shadows development at SH 392
- Facilitating commuter mode shift from vehicles to bicycles or pedestrian travel by completing the east-west connection of the Cache la Poudre Trail under I-25 and networking 100 miles of total trails
- Avoiding adverse impacts to air or water quality, wetlands, and endangered species

v. Safety

Safety is at the center of CDOT's work, and reducing the number, severity of crashes and fatalities on regional transportation facilities is a core goal of this project. Table 13 is a compilation of crash information for the project limits from 2008 through 2014. The table indicates crashes are trending upward, illustrating the need to improve safety along the corridor. Alarmingly, the corridor is experiencing a disproportionate increase in the percentage of trucks that are involved in the crashes from 11.8 percent in 2008 to 18.6 percent in 2014 in the project area.

Table 13 Crash Rate on North I-25 between SH 402 and SH 14

Year	Number of Crashes	Average Daily VMT	Crashes per 100M VMT	Trucks Involved (%)
2008	203	805,102	68.9	11.8
2009	238	839,834	77.6	8
2010	272	789,096	94.4	9.2
2011	285	868,443	89.9	9.1
2012	272	839,141	88.6	12.5
2013	312	871,945	98	17
2014	442	964,900	125.5	18.6

The project will foster a safer transportation system for the whole community. The addition of Tolled Express Lanes will help reduce congestion in the general-purpose lanes, allowing free-flowing movement. Improving the corridor's ability to sustain free-flowing traffic conditions will decrease the number of crashes. Significant widening of the inside and outside shoulders along I-25 and bridges will allow more opportunities for accident avoidance and will reduce secondary crashes. The most common types of accidents in the project area are rear-end and same direction sideswipes and are most often related to congestions.

Congestion will be improved along several local access streets in the network. Moving the existing Park-n-Ride from US 34 and I-25 to the new Kendall Parkway Park-n-Ride location, will eliminate the need for transit riders to use congested US 34. Existing conditions force local traffic to use either Crossroads Boulevard or US 34 for access to community services on the east and west sides of I-25. The UPRR/Kendall Parkway Bridge will allow local access east and west under I-25, reducing the need to use either US 34 or Crossroads Boulevard, both pinch points.

This project will improve the safety of other multi-modal forms of transportation. The new UPRR/Kendall Parkway Bridge will provide pedestrian access east and west under I-25 by adding sidewalks, and adding a dedicated bicycle lane. Additionally, the bus slip ramps that go along with the new UPRR/Kendall Parkway Bridge and Kendall Parkway Park-n-Ride will allow community members to walk, bike, or drive to the Park-n-Ride.

The improvements to the Cache la Poudre River Bridges will greatly improve safety and resiliency, since the proposed elevation change being made will remove the structure from the floodplain. Implementing the Cache la Poudre River Trail Connection helps non-motorized users

by allowing them to avoid local streets and pass under I-25. This wildlife corridor also has the potential to decrease accidents involving wildlife.

An adjustment will be made to the vertical curvature of the roadway over the UPRR/Kendall Parkway Bridge will improve sight distance for motorists. The improvement will allow drivers to see farther in front of them, allowing more time to make speed adjustments and avoid crashes.

In 2012, CDOT produced the I-25 Traffic Incident Management Plan (TIMP) for the section from SH 7 to the Wyoming State Line. The plan is the culmination of an effort by nine fire districts, 12 law enforcement agencies, 12 municipalities, three counties, CDOT, and the Wyoming Department of Transportation The main objectives of the TIMP are: responder safety; safe, quick clearance of incidents; and prompt, reliable, inter-operable communications. CDOT staff travel throughout the North I-25 region to different emergency response agencies and train responders about the plan.

In 2009, Coloradans passed the *Funding Advancements for Surface Transportation and Economic Recovery (FASTER) Act,* ensuring a stable flow of funding to safety, transit, highway, and bridge projects. This funding has been used throughout the region to enhance the safety of the regional transportation system. Faster funds are pledged within this project's funding package.

B. Secondary Selection Criteria

i. Innovation

This project is taking an innovative approach in its design and its delivery of economic, environmental, and social co-benefits to the Northern Colorado. The design also will maximize the use of innovative technology and financing, while also using strategies to improve the efficiency of project development.

CDOT is leading the nation in the exploration and future testing of innovative technologies as part of its RoadX innovation initiative. To address pressing transportation challenges. CDOT's executive director, Shailen Bhatt, has identified innovative technology as a primary pathway to dramatically decrease roadway accidents and mitigate congestion without relying exclusively on building new infrastructure. RoadX is committing $2 million in funds to incorporate innovative intelligent technology into the North I-25 Phase 1 Project.

A specific example of a technology that will be implemented on this project includes Dedicated Short-Range Communications Radios (DSRCs). The DSRC Roadside Unit (RSU) is a short- to medium-range communications device that provides information in roadside-to-vehicle and vehicle-to-vehicle communication environments. Information exchange between vehicles and infrastructures allows for applications that support traffic safety and operations. Using DSRCs will provide more efficient freight travel through the use of Cooperative Adaptive Cruise Control and Cooperative Forward Collision Warning.

To improve traffic efficiency and safety, transit reliability, and traveler information—while also providing accurate toll collection—the equipment to be used on the project includes:

- All-electronic tolling systems (AET)
- Colorado Interoperable AET system, to allow a seamless toll collection process
- Integrated ITS systems to view traffic conditions, dispatch courtesy patrol, implement incident management plans, assess device status and initiate repairs and maintenance, and gather data from devices
- Microwave side-fire radars to assess spot volumes, occupancy, and speed
- Metrics for measuring and evaluating the facility's performance

Over the last year, HPTE and CDOT have developed a new interim financing concept to help accelerate projects towards construction. As opposed to seeking long-term financing opportunities for an entire corridor, HPTE closed a short-term construction loan to provide gap funding for a shorter segment of the project. It could take years to receive investment grade financing to complete construction on an entire corridor. This concept is viewed as a possible game changer for several reasons. First, short-term gap financing will help accelerate parts of a larger project that would otherwise be shelved indefinitely. Secondly, providing short-term gap financing on smaller segments can help season toll collection data to leverage greater financial capacity of the entire corridor. Real toll data will always leverage more than projections—using short-term funding to prove revenue potential in smaller segments may allow for a much larger capacity to finance subsequent phases of the FEIS.

As an alternative to design-bid-build, CDOT will use the design-build delivery method, to deliver the project on an accelerated schedule in addition to incorporating innovations and value engineering in design and construction methods.

ii. Partnership

Jurisdictional and Stakeholder Collaboration

The 2013 major and catastrophic flood event in Northern Colorado was a disruptive event. It helped Colorado understand its vulnerabilities and the degree to which it is not alone in undertaking important economic, social, and environmental work to yield important benefits for everyone.

The North Front Range MPO has been a key partner in this effort, providing coalition-building and advocacy, technical assistance, and alignment of resources in support of the North I-25 Phase 1 project. The local counties and municipalities, providing match funds for this project are critical project partners. The communities involved in the North I-25 FEIS, completed in December 2011, developed their own advocacy group, the *North I-25 Coalition*, to provide input on this project. The *Fix I-25 Business Alliance* also is working with CDOT to implement this project. The *North I-25 Coalition* Funding Subcommittee has been instrumental in securing match funds.

McWhinney Metropolitan District Developers has stepped up with funding resources in support of this impactful project. The infrastructure investments for the Kendall Parkway/UPRR Bridge and the Kendall Parkway Park-n-Ride will serve the current needs of their residential, retail, and office constituents now and in the future and help answer the exigent need for job creation.

The social sector has been engaged in supporting the expansion of economic, social, and environmental benefits to the region expressed in this project plan. CDOT continues to engage with municipalities through meetings to confirm the support and solicit feedback on this project.

Media articles attached in Appendix D reflect the support of the community, as do the financial commitments of the project partners.

Disciplinary Integration

The coordination of transportation needs with economic development, housing, and land use policies are reflected in the NFRMPO 2040 Plan. The Plan features urban growth boundaries and environmental goals, including greenhouse gas emission reductions. Public infrastructure investments, including transportation improvements, focus on ensuring safety, trip reliability, transportation choice, and opportunities for mode shift. These are reflected in the Plan, and CDOT utilizes the 2040 Plan in its transportation models and planning. The 2040 NFRMPO Plan reflects the collective engagement of the region's counties and municipalities. This North Interstate 25 Phase I proposal includes the broad financial support of the region's public, private and social sectors.

CDOT has harmonized this project plan with other investments in the I-25 corridor in Northern Colorado. The region is hard at working to bring essential improvements and the I-25 FEIS to life to draw benefits as soon as feasible. Current corridor activities outside of the TIGER project plan include:

- The addition of tolled express lanes from US 36 to 120th; project is built and in final testing
- Construction of tolled express lanes from 120th Avenue to E470; slated for late Spring 2016
- Replace the Crossroads Interchange bridges; complete by December 2017
- Southbound Truck Climbing Lane at Berthoud Hill; construction begins Spring 2016
- Design interim and final improvements, SH 66 to SH 14 is underway
- CDOT Bustang Regional Commuter Bus Service; offering six round trips/day from Northern Colorado to Denver's Union Station as well as routes south and west of Denver

The NFRMPO is a critical partner and it has submitted a FASTLANE grant application for consideration in the FY16 cycle with a substantially similar project scope.

VI. RESULTS OF BENEFIT-COST ANALYSIS

A benefit-cost analysis (BCA) was conducted in accordance with the USDOT's 2016 supplement to its *2014 Benefit-Cost Analysis Guidance for TIGER Grant Applicants* for a 23-year assessment period beginning with capital outlays in 2018 through to 2020 and operations from 2021 to 2040. See Appendix B for details.

Currently, I-25 experiences significant congestion during several weekday periods between Fort Collins and Loveland. During the morning peak and shoulder periods, the majority of

northbound traffic in the assessment corridor experiences LOS ratings of E or F; during the evening peak and shoulder periods, both directions of travel experience LOS ratings of D, E, or F throughout the entirety of the assessment corridor. This congestion leads to significant delays for all users. Without the improvements proposed by the North I-25 Phase 1 Project, forecasted growth in vehicles will exacerbate the already congested and unsatisfactory traffic conditions in the corridor.

The realization of the North I-25 Project will deliver a variety of benefits, most notably reductions in travel times throughout the corridor during weekdays, reductions in vehicle accidents, and improvements in freight efficiency. Table 14, below, summarizes the key benefits of the project delivered by long-term outcomes.

Table 14 Key Benefits Delivered by Long-Term Outcomes (2021 – 2040)

	7% Discount ($2016)	3% Discount ($2016)
Economic Competitiveness Benefits		
Travel Time Savings	$124.9 million	$211.6 million
Mode Shift Vehicle Operating Savings	$28.0 million	$47.7 million
Bus Travel Time Savings	$5.5 million	$9.4 million
Bus Operating Savings	$0.9 million	$1.5 million
Inventory Savings	$0.0 million	$0.1 million
Freight Operating Savings	$37.2 million	$61.3 million
Bike Mode Shift Vehicle Operating Savings	$1.2 million	$2.1 million
Safety Benefits		
Mode Shift Safety Savings	$28.7 million	$49.6 million
Bike Mode Shift Safety Savings	$1.3 million	$2.2 million
State of Good Repair Benefits		
Maintenance Savings	$0.5 million	$0.4 million
Residual Value	$14.7 million	$36.6 million
Environmental Sustainability Benefits		
Idling Emissions Reductions	$0.2 million	$0.4 million
Idling CO2 Savings	$1.1 million	$1.1 million
Mode Shift Emissions Savings	$4.3 million	$6.9 million
Mode Shift CO2 Savings	$4.1 million	$4.1 million
Freight Idling Emissions Savings	$0.5 million	$0.9 million
Freight Idling CO2 Savings	$0.2 million	$0.2 million
Bike Mode Shift Emissions Savings	$0.2 million	$0.3 million
Bike Mode Shift CO2 Savings	$0.2 million	$0.2 million
Total Benefits	**$253.8 million**	**$436.6 million**
Total Cost	$206.5 million	$239.4 million
Benefit-Costs Ratio	**1.23**	**1.82**

Source: AECOM

VII. DEMONSTRATED PROJECT READINESS

A. Technical Feasibility

The Project is materially represented in the North I-25 FEIS completed in August 2011. The planned FEIS has been revisited to determine, within the larger context of effectively managing growth in the region, if and how the plan would:

- Facilitate resilience to extreme weather and climate threats
- Provide reliable transportation choices and mode shifts for the socio-economically diverse rural and urban residents of the North Front Range
- Facilitate safe, timely, and efficient movement of people, goods, and services to encourage economic growth and competitiveness
- Improve quality of life, particularly for traditionally disenfranchised groups

CDOT has advanced the designs within the project limits to the 30-percent level and has taken steps to establish corridor-wide design criteria, including the establishment of corridor-wide structure aesthetic guidelines to clearly communicate the corridor's standards. Below is a detailed summary of the technical and engineering aspects of the project:

- Reconstruct or rehabilitate all of the existing pavement within the project area, significantly improving the service life of the pavement. Concrete reconstruction is planned for 6.65 miles of the project and will have a subsequent useful life of 30 years. Rehabilitation is planned for an additional 7.35 miles, providing an additional useful life of 10 years. The project will specifically address pavement near SH 14 that is in need of rehabilitation as soon as possible.
- Replace the Cache la Poudre River Bridges to a 75 year service life. The new bridges will accommodate additional capacity through the use of the tolled express lane, and improve substandard flood capacity. The new structures will provide enough vertical clearance to allow for the extension of the Poudre River Regional Trail and wildlife corridor.
- Replace the Union Pacific Railroad (UPRR) grade separation bridges, with new bridges to accommodate the new express lanes, improve the vertical curvature of I-25 to meet current design standards and improve the safety of motorists in this area by providing increased sight distance. The structure will be lengthened to accommodate a local underpass, Kendall Parkway, which will help improve east-west connectivity for all modes.
- Replace interim Park-n-Ride on US 34 to the new Kendall Parkway Park-n-Ride, located adjacent to I-25 to the west and just south of the new Kendall Parkway underpass. The new Park-n-Ride will provide east-west bicycle and pedestrian access under I-25. The addition of slip ramps on I-25 in both direction will greatly improve transit operations, safety, and accessibility.
- Widen the Big Thompson River Bridges by adding approximately 26 feet for both the northbound and southbound directions. The existing bridges will be rehabilitated to

address needed maintenance and improve the smoothness and ride-ability of the roadway over the structure.

- Widen the Great Western Railway Bridges by adding approximately 25 feet northbound and southbound. As part of the widening, the existing bridges will be rehabilitated to address structural deficiencies and maintenance issues.

The North I-25 Phase 1 project configuration works within the footprint of CDOT's ROW except where alignment improvements and bridge widening require acquisitions. ROW will be completed in conjunction with design within the next 18 months.

Due to minor changes to the delineation of the lanes, the ROD 1 (from SH 392 to SH 14) signed in December 2011 will need to be revised. A ROD 2 (from SH 402 to SH 392) is expected to be required. This revision to the ROD is not expected to be complicated since USACE permits and key NEPA Programmatic Agreements are in place and project revisions work within the current cross-section, delivering the FEIS benefits in the near term while preserving space for the addition of northbound and southbound general purpose lanes if required to scale for regional growth.

B. Financial Feasibility

Northern Colorado communities are fully invested in this plan to bring economic, environmental, and social benefits to their communities, and they have committed local resources to bring this plan to life. The costs associated with the project are summarized in Table 15, below.

Table 15 Project Costs (shown in millions of $)

Components	Cost	TIGER	Other Federal	State	Local Share	McWhinney	Total
Tolled Express Lanes	$94	$5	$0	$73	$16	$0	$93
General Purpose Lanes	$84	$5	$20	$59	$0	$0	$83
Bus Slip Ramps	$4	$0	$0	$4	$0	$0	$4
Big Thompson Bridges	$3	$0	$0	$3	$0	$0	$3
UPRR / Kendall Parkway Bridges	$16	$5	$5	$0.8	$0	$6	$16
Cache La Poudre Bridges	$21	$10	$5	$4	$2	$0	$21
GWRR Bridges	$8	$0	$0	$8	$0	$0	$8
Cache La Poudre River Trail	$1	$0	$0	$0.2	$1	$0	$1,.3
Kendall Parkway Park-n-Ride	$5	$0	$0	$5	$0	$0	$5
Total	**$237**	**$25**	**$30**	**$157**	**$19**	**$6**	**$237**
	Percentage	**10.5%**	**12.62%**	**66.3%**	**8.0%**	**2.5%**	**100%**

CDOT has a strong track record of successfully managing federal funding within 2CFR and 23CFR through its risk based financial-management system, SAP, and its effective internal controls. CDOT is also prepared to efficiently segregate, track and report on multiple funding streams, including federal, state and local dollars.

CDOT's TIGER proposal contains the following funding restrictions:

- McWhinney contributions are restricted to UPRR/Kendall Parkway Bridges and/or Kendall Parkway Park-n-Ride
- Other Federal Funding is restricted to I-25 mainline components to improve safety and efficiency

C. Project Schedule

Figure 10, below, shows an illustration of the anticipated schedule for the project. A detailed project schedule is available in Appendix C. The schedule shows that all necessary pre-construction activities will be complete to allow for grant funds to be obligated in late 2017, which is well in advance of the June 30, 2019, deadline. By advancing the project so quickly, it will ensure that any unexpected delays will not put the funds at risk of expiring.

The schedule below also shows that construction will follow shortly after the obligation of funding, starting in early 2018. The construction duration for the project is three year after it begins, with completion set for late 2020.

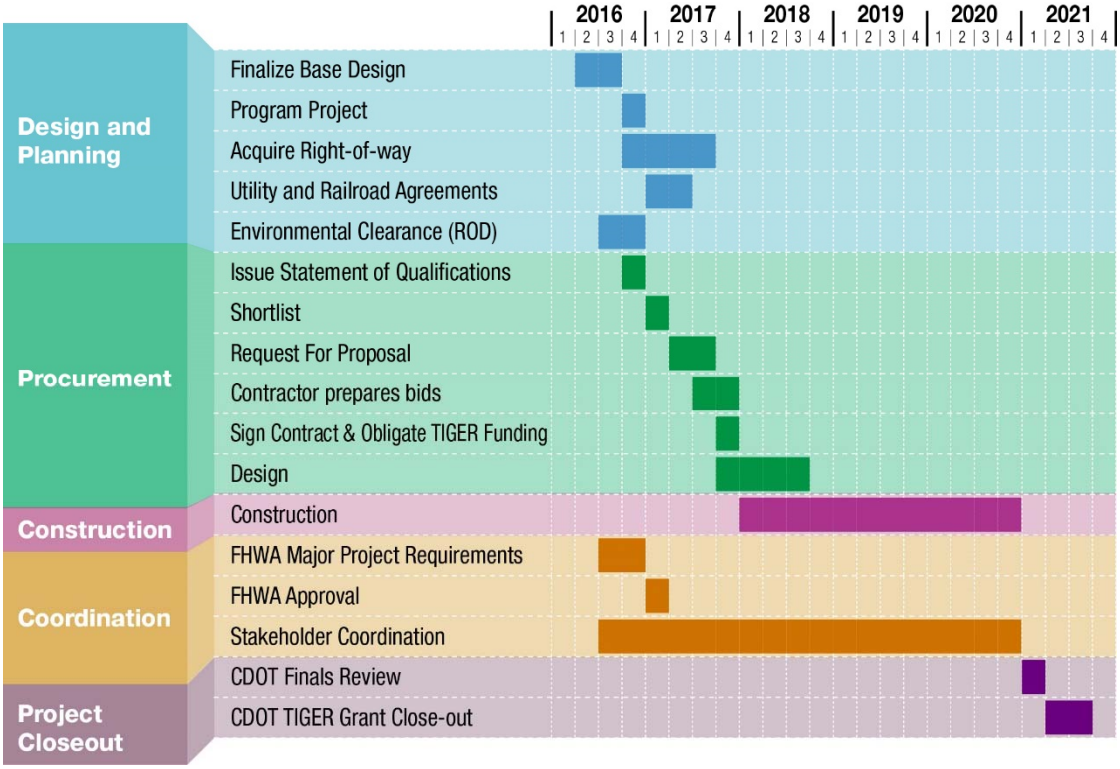

Figure 10 Project Schedule (Calendar Years)

The work CDOT has already done and continues to perform on the corridor has allowed the identification of ROW parcels that will be needed to complete the project. CDOT will begin working on the acquisition of the parcels as soon as funding criteria is met pursuant to CDOT requirements. CDOT appreciates the risk not having ROW can create and has already taken steps to acquire title work for the highest priority parcel. Aggressively moving forward with ROW acquisition demonstrates CDOT's commitment to complete the process as expeditiously as possible.

D. Required Approvals

i. Environmental Permits and Reviews

CDOT is poised to deliver this TIGER project quickly and with environmental stewardship in view. The following environmental permits and agreements are in place to facilitate the timely completion of NEPA approvals required to implement this TIGER project:

- The entire FEIS is already permitted though the U.S. Army Corps of Engineers (USACE)
- The U.S. Fish and Wildlife Service (USFWS) Programmatic Biological Assessment and Biological Opinion are in place and do not require further consultation
- The State Historic Preservation Officer (SHPO) Programmatic Agreement is in place, and there are no known cultural assets within the corridor.
- A revision to an existing ROD 1 will be needed from SH 392 to SH 14. The revision to the ROD is not expected to be complicated.
- A new ROD will be required from SH 402 to SH 392.

ii. Legislative Approvals

No new legislation is needed to implement the North I-25 Phase 1 Project. CDOT's Commission and local municipal and county approvals have been secured for the proposed TIGER project plan and budget, including the commitment of match funds.

iii. State and Local Planning

There are no known legislative barriers to timely completion of the proposed TIGER project, and the project garners broad support from the public, private, and non-profit sectors in the North Front Range. CDOT continues to work diligently with local, regional, and federal partners to ensure that our TIGER project plan is harmonized with adopted local land-use and economic development plans, including with the NFR MPO 2040 Plan.

E. Assessment of Project Risks and Mitigation Strategies

CDOT has been actively managing I-25 corridor and project risks for the past four years as design activities have progressed along the corridor. A corridor risk register was developed, and from that, as each specific project enters into preliminary design, project risk registers are established for each project. The material risks and mitigation strategies for this project are discussed below. The project's full risk register, a living document, can be found in Appendix E.

i. Risks Associated with Right of Way

CDOT regularly obtains ROW for federally funded projects and has highly experienced personnel to accomplish this process. This project will require 40 to 50 private parcels and up to five parcels from local agencies, based on preliminary design information. CDOT will work to reduce the impacts to right of way through continued design efforts. Multiple acquisition consultants and incentive programs are expected to be used to ensure right of way risks are mitigated. Additionally, the project team has been discussing designs and impacts with local agencies throughout the design process for impacts to their parcels. CDOT is fully familiar with and has implemented U.S. DOT advanced right of way acquisition policies.

ii. Risks Associated with Utilities, Ditches, and Railroads

Irrigation ditches and railroads cross highways and each other throughout Northern Colorado, and they are a vital part of the economic infrastructure in the region. As with most interstate projects, utility impacts are frequent. CDOT develops clearance agreements with utilities, irrigation ditches, and railroads to improve its transportation system. The design process to date has elevated these three project elements to ensure they receive proactive coordination. Early coordination with each has begun within the project limits. Major utility impacts have been identified. CDOT has met with ditch owners to discuss project design. CDOT is already coordinating with railroads to ensure the approval process is understood and strict timeframes can be established.

iii. Risks Associated with Funding

CDOT's environment for pre-construction and construction funding is currently in a dynamic environment. Availability of large amounts of funding to construct a project that meets safety and operational objectives of implementing an express lane is difficult to secure. CDOT has been actively seeking partnerships with local agencies and private developers, as well as grant opportunities including TIGER, to leverage for this critical project to the North Front Range. CDOT has developed documents that allow an understanding of projects of different sizes and limits to quickly take advantage of available funding. Continued efforts are constantly needed as CDOT work towards delivery of the entire corridor.

iv. Risks Associated with NEPA

The FEIS document developed a preferred alternative for nearly 70 miles of improvements and ROD I was signed. Due to modest changes in the project's cross-section, a revised ROD 1 and a new ROD 2 will be required. CDOT has USACE permits in place. The USFWS Programmatic Biological Assessment and Biological Opinion are in place and do not require further consultation. The SHPO Programmatic Agreement is in place, and no known cultural assets are located within the project's Area of Potential Effect. Land within the project limits has been previously disturbed. CDOT has begun preparation for the revision of ROD 1 in line with this TIGER project plan, and no NEPA related barriers are anticipated. Every aspect of this North I-25 Phase 1 project is on track to move quickly if awarded TIGER funds. The project will be ready for obligation well in advance of TIGER's June 2019 requirements; construction will be complete in 2020, and the project will be ready for financial closeout in 2021.