



COLORADO
HPT
PARTNER. INNOVATE. ACCELERATE.

Colorado

Express Lanes

Master Plan



OVERVIEW

Colorado Express Lanes Master Plan Development

Process Overview

Stakeholder Involvement

Initial Screening (Phase I)

Design Alternatives

Financial Feasibility Analysis

Workshop 3

Next Steps

The Future of Express Lanes Planning

- The HPTE is leading efforts to develop an Express Lanes Master Plan to identify and prioritize corridors with the potential of benefitting from Express Lanes
- Efforts include gathering public input and working with stakeholders to determine the best solutions based on local transportation needs and issues
- HPTE will continue working closely with communities and local stakeholders to plan and design future Express Lanes identified as part of the Master Plan

Less drive time.
Less time to
drive you nuts.

I-70
MTN

US36

I-25
CENTRAL

I-25
NORTH

Cost: \$6

Home in time for homework

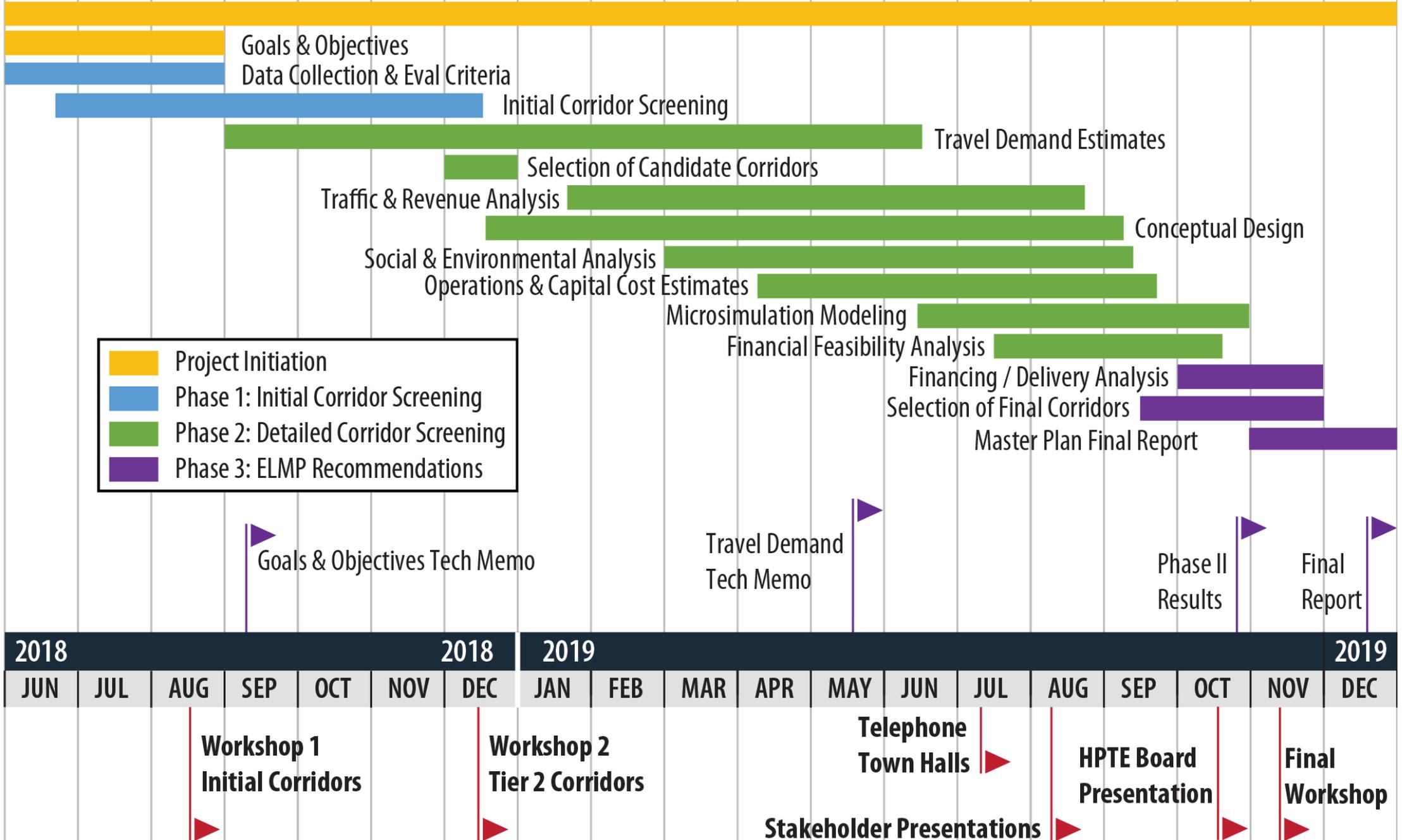
**EXPRESS
LANES**
expresslanes.codot.gov

Express Lanes.
When it matters most.

Stakeholder & Public Outreach

- Conducted four Telephone Town Halls – over 5,100 participants
- Holding workshops with a statewide group of approximately 40 stakeholders to help guide Master Plan development – final workshop to be held in November
- Meeting with over eight Chambers of Commerce and the I-70 Mountain Coalition
- Coordinating with agency partners, Public Information Officers, etc. to distribute information through various channels – including social media
- Developing communication best practices/lessons learned from existing Express Lanes projects and research to inform future outreach for new projects





- Project Initiation
- Phase 1: Initial Corridor Screening
- Phase 2: Detailed Corridor Screening
- Phase 3: ELMP Recommendations

Goals and Objectives

Express Lane Goals & Objective Activity – Workshop #1

Multi-Modal Options
Public Acceptance
Travel Reliability
Technological Capability
Financial Feasibility

Person Throughput
System Connectivity
Long-Range Viability
Physical Feasibility



Evaluation Criteria

Metrics Organized by Tiers & Category

Phase 1 (Initial Screening)

Existing Congestion

- Speed
- Travel Time Index (TTI)
- Planning Time Index (PTI)

Acceptance

- Public & Jurisdictional Acceptance
- Planned Roadway Widening

Transit & Connectivity

- Transit Service
- System Connectivity

Physical Feasibility

Phase 2 (Detailed Evaluation)

Traffic Performance

- Peak-period Person Throughput
- Peak-period Freight Throughput
- Trip Reliability

Connectivity

- System Connectivity

Acceptance

- Public & Jurisdictional Acceptance

Viability for CAV Vehicles

Financial Feasibility

- Projected Net Revenue
- Projected Net Present Value

Environmental Impacts

- Air Quality

Physical Feasibility

- Planning Level Cost Estimates

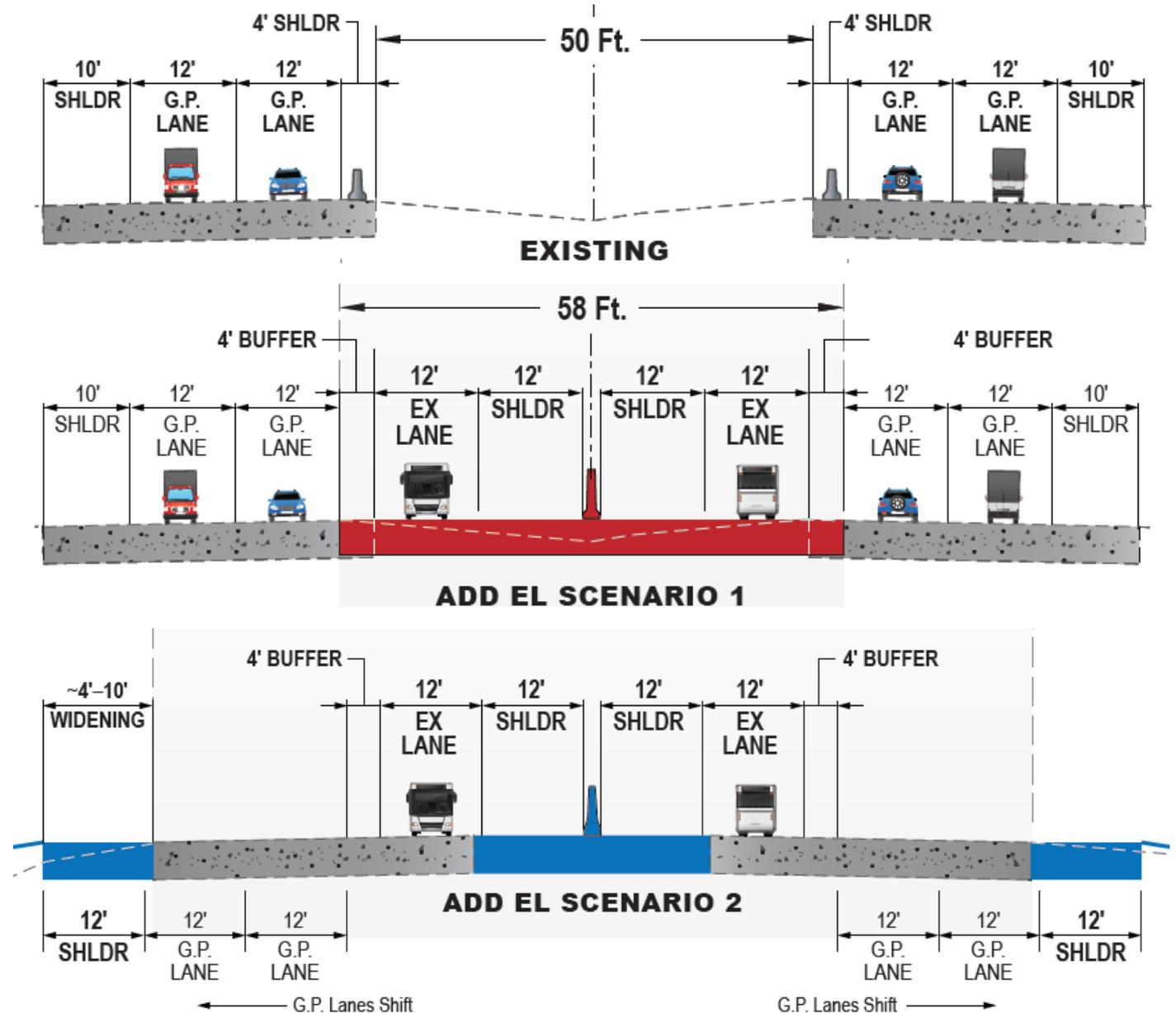
Corridor	Direction	From	To	Traffic Performance										Transit & Connectivity				Acceptance				Physical Feasibility							
				INRIX Speed AM (Peak-Hour)		INRIX Speed PM (Peak-Hour)		INRIX TTI AM (Peak-Hour)		INRIX TTI PM (Peak-Hour)		INRIX PTI AM (Peak-Hour)		INRIX PTI PM (Peak-Hour)		System Connectivity		Adequacy of Transit Service		Transit & Connectivity Score		Public & Jurisdictional Acceptance		Planned Capacity Enhancement		Acceptance Score		Physical Feasibility	
				Value	Score	Value	Score	Value	Score	Value	Score	Value	Score	Value	Score	Value	Score	Value	Score	Value	Score	Value	Score	Value	Score	Value	Score	Value	Score
I-25	NB	CO 119	CO 402	70	0.0	54	3.0	1	0.0	1.2	0.0	1	0.0	2.5	3.0	1.00	Exist / Const	5.0	Bustang	5.0	5.00	Manageable	5.0	STIP	5.0	5.00	Manageable	5.0	
I-25	SB	CO 402	CO 119	42	5.0	70	0.0	1.6	3.0	1	0.0	8.3	5.0	1	0.0	2.17	Exist / Const	5.0	Bustang	5.0	5.00	Manageable	5.0	STIP	5.0	5.00	Manageable	5.0	
I-25	NB	E-470	CO 119	72	0.0	73	0.0	1	0.0	1	0.0	1	0.0	1	0.0	0.00	Exist / Const	5.0	Bustang	5.0	5.00	Involved	3.0	L RTP	3.0	3.00	Manageable	5.0	
I-25	SB	CO 119	E-470	71	0.0	68	0.0	1	0.0	1	0.0	1	0.0	1.6	0.0	0.00	Exist / Const	5.0	Bustang	5.0	5.00	Involved	3.0	L RTP	3.0	3.00	Manageable	5.0	
I-25	NB	Santa Fe Dr	20th Street	33	3.0	9	5.0	1.7	3.0	6	5.0	2.8	3.0	9.7	5.0	4.00	Exist / Const	5.0	Bustang	5.0	5.00	Involved	3.0	L RTP	3.0	3.00	Difficult	0.0	
I-25	SB	20th Street	Santa Fe Dr	27	5.0	27	5.0	2.1	5.0	2	5.0	2.7	3.0	3.6	5.0	4.67	Exist / Const	5.0	Bustang	5.0	5.00	Involved	3.0	L RTP	3.0	3.00	Difficult	0.0	
I-25	NB	I-225	Santa Fe Dr	27	5.0	13	5.0	2.2	5.0	4.6	5.0	3	3.0	7.5	5.0	4.67	None	0.0	Bustang	5.0	2.50	Involved	3.0	None	0.0	1.50	Difficult	0.0	
I-25	SB	Santa Fe Dr	I-225	10	5.0	11	5.0	5.7	5.0	5.3	5.0	8.7	5.0	8.7	5.0	5.00	None	0.0	Bustang	5.0	2.50	Involved	3.0	None	0.0	1.50	Difficult	0.0	
I-25	NB	C-470	I-225	23	5.0	15	5.0	2.8	5.0	3.9	5.0	4.3	5.0	8.6	5.0	5.00	Exist / Const	5.0	Bustang	5.0	5.00	Involved	3.0	None	0.0	1.50	Difficult	0.0	
I-25	SB	I-225	C-470	45	3.0	40	3.0	1.3	3.0	1.6	3.0	1.9	0.0	3.9	5.0	2.83	Exist / Const	5.0	Bustang	5.0	5.00	Involved	3.0	None	0.0	1.50	Difficult	0.0	
I-25	NB	Plum Creek Pkwy	C-470	31	5.0	41	3.0	2.1	5.0	1.6	3.0	3.5	5.0	2.7	3.0	4.00	Exist / Const	5.0	Bustang	5.0	5.00	Involved	3.0	None	0.0	1.50	Involved	3.0	
I-25	SB	C-470	Plum Creek Pkwy	69	0.0	56	3.0	1	0.0	1.2	0.0	1	0.0	2.2	3.0	1.00	Exist / Const	5.0	Bustang	5.0	5.00	Involved	3.0	None	0.0	1.50	Involved	3.0	
I-25	NB	Academy Blvd	Monument	72	0.0	72	0.0	1	0.0	1	0.0	1	0.0	1	0.0	0.00	Exist / Const	5.0	Bustang	5.0	5.00	Difficult	0.0	None	0.0	0.00	Manageable	5.0	

Phase II Corridors

Range of Design Alternatives

Planning Level Design

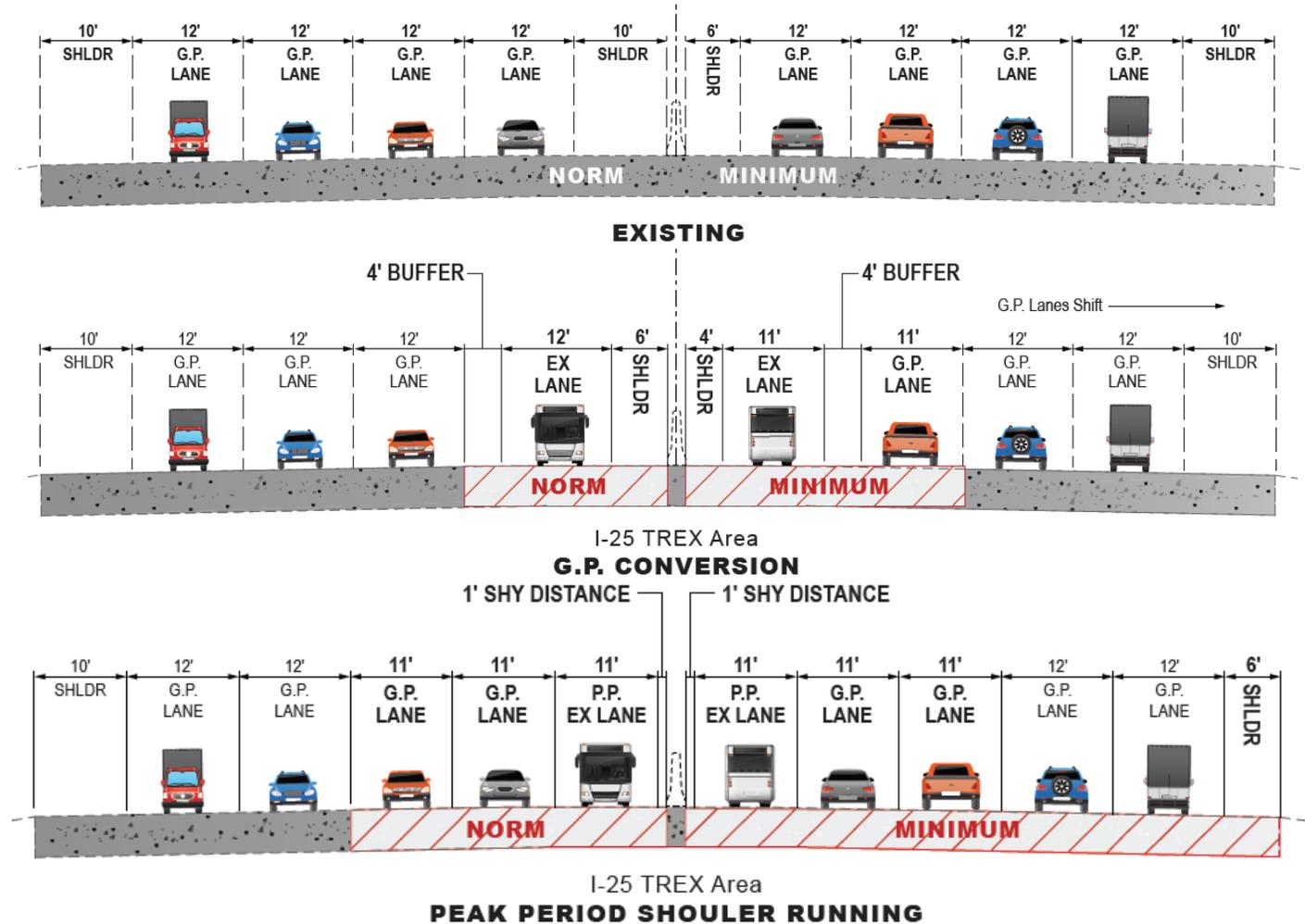
- Developed range of design alternatives & policy assumptions for potential EL corridors
- Defined discrete project locations & lane configurations
- Calculated planning level capital & operational cost estimates



Range of Design Alternatives

Planning Level Design

- Developed range of design alternatives & policy assumptions for potential EL corridors
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Financial Feasibility & Corridor Profiles

Process of Corridor Prioritization

1

Travel Demand and Traffic & Revenue Modeling

- Toll Revenue Estimates
- Managed Lane Volumes

2

Capital and O&M Cost Estimates

- Facility Construction
- Roadway Maintenance
- Tolling Operations

3

Financial Feasibility Analysis

- Gross Revenue Potential
- Net Revenue Potential
- Net Present Value (Relative to Capex)

Travel Demand and T&R Modeling

Statewide Travel Demand Model

- CDOT Data Inputs and Network Changes

Revenue Estimates Developed in Two Scenarios

- Cost Minimum: Low toll rates / Higher volumes in EL / Greater overall time savings
- Revenue Maximization: High toll rates / Lower volumes in the EL / Greater EL user time savings

**Delay Cost
Minimization**



*# Toll Paying
Customers*

**Balanced
Optimization**

\$ Revenue →

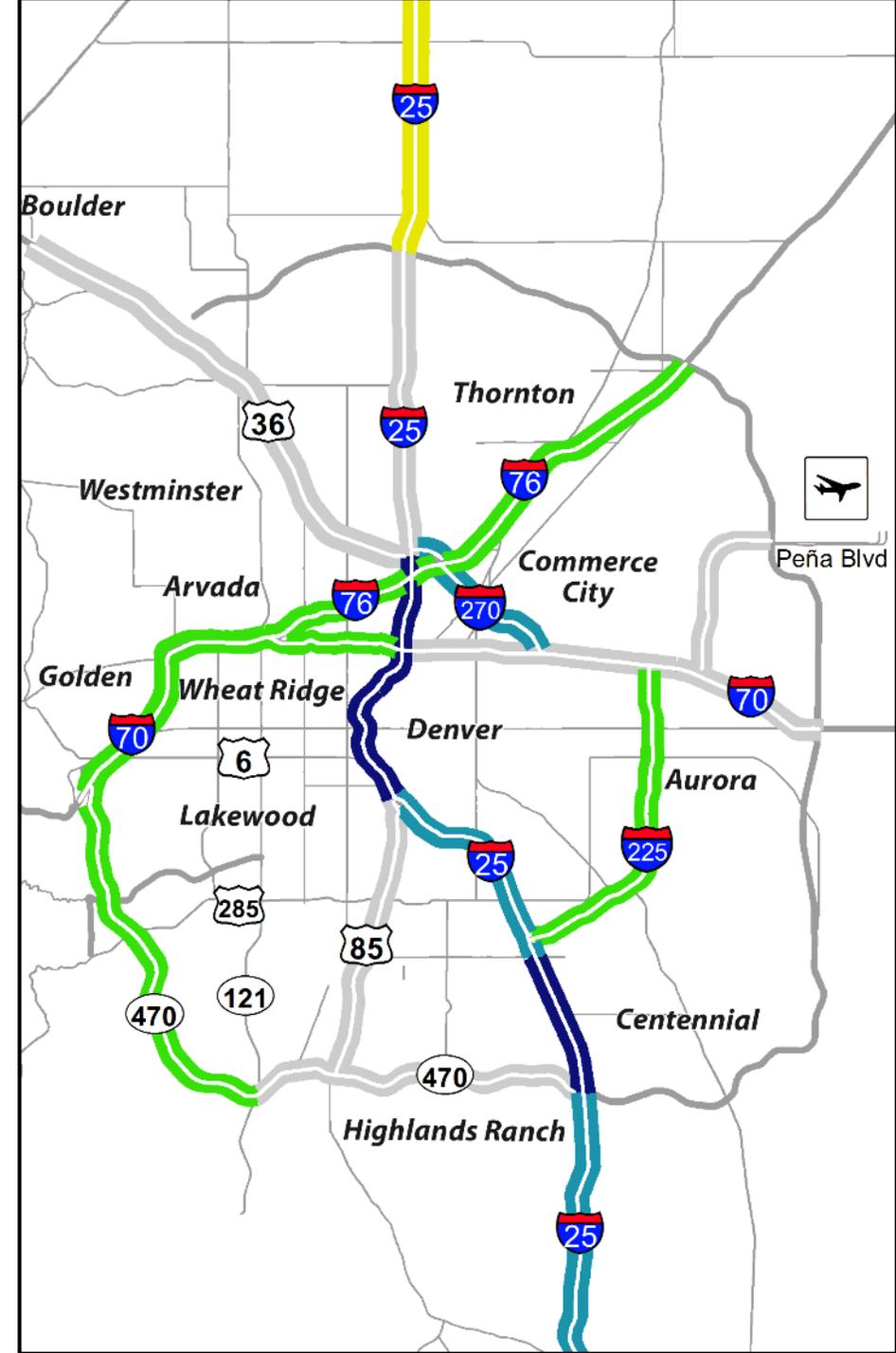
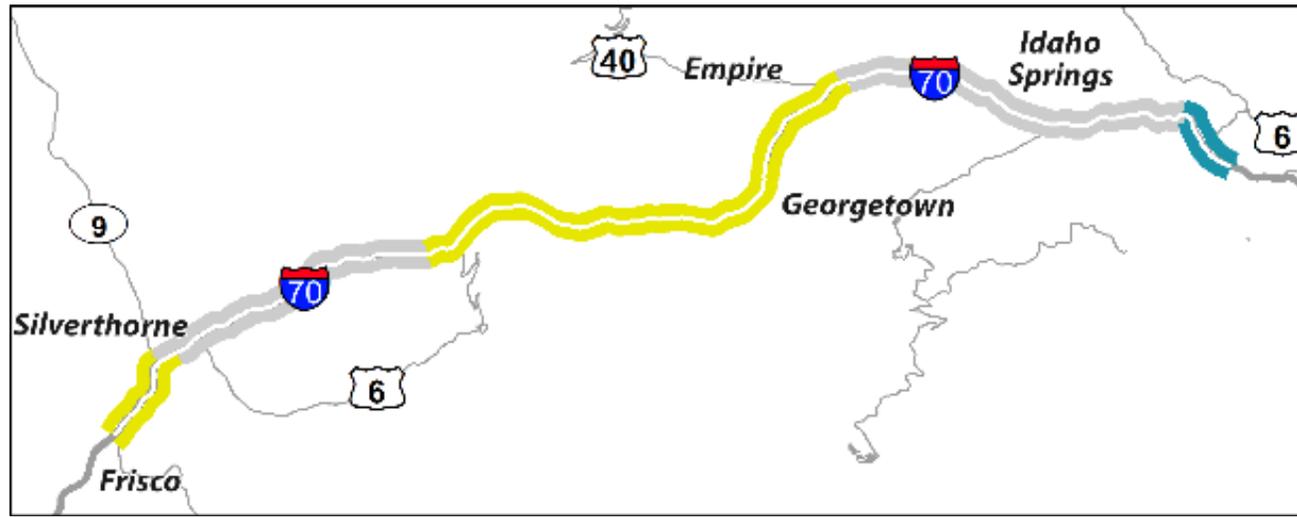
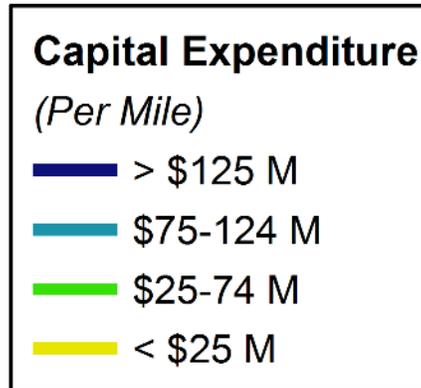
**Revenue
Maximization**

Financial Feasibility

Capital and O&M Cost Estimates

Planning Level Capital Cost Estimates

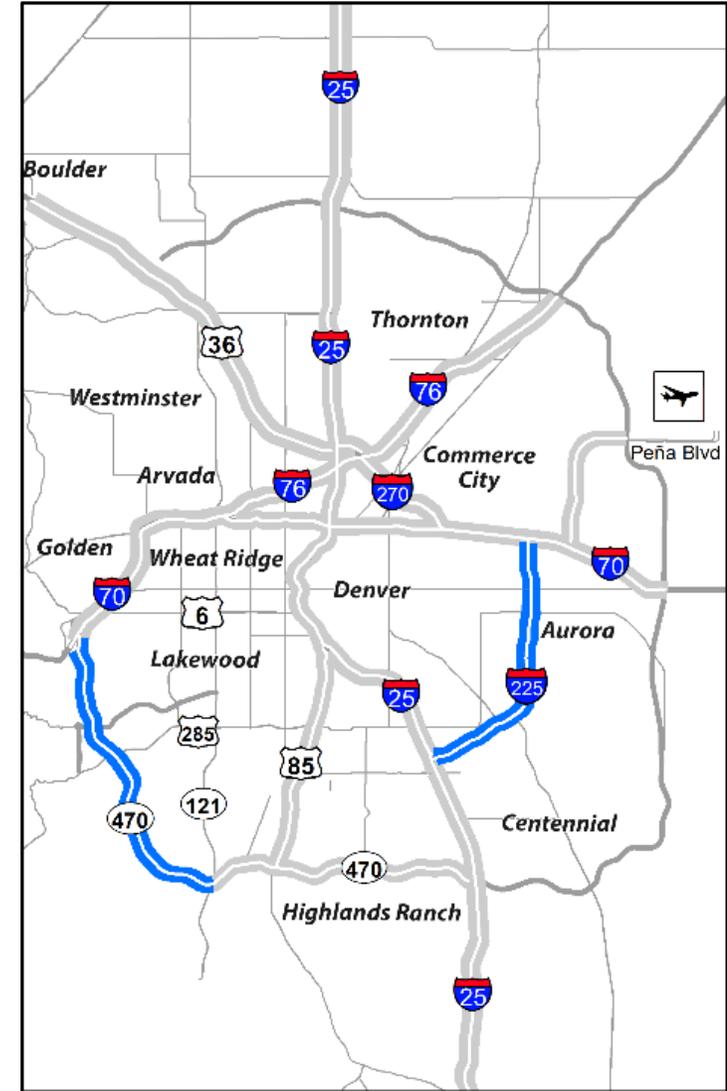
- Roadway Hard & Soft Costs
- Interchange Modifications
- Tolling Equipment
- ROW costs



Financial Profiles

Beltway Corridors (C-470 & I-225)

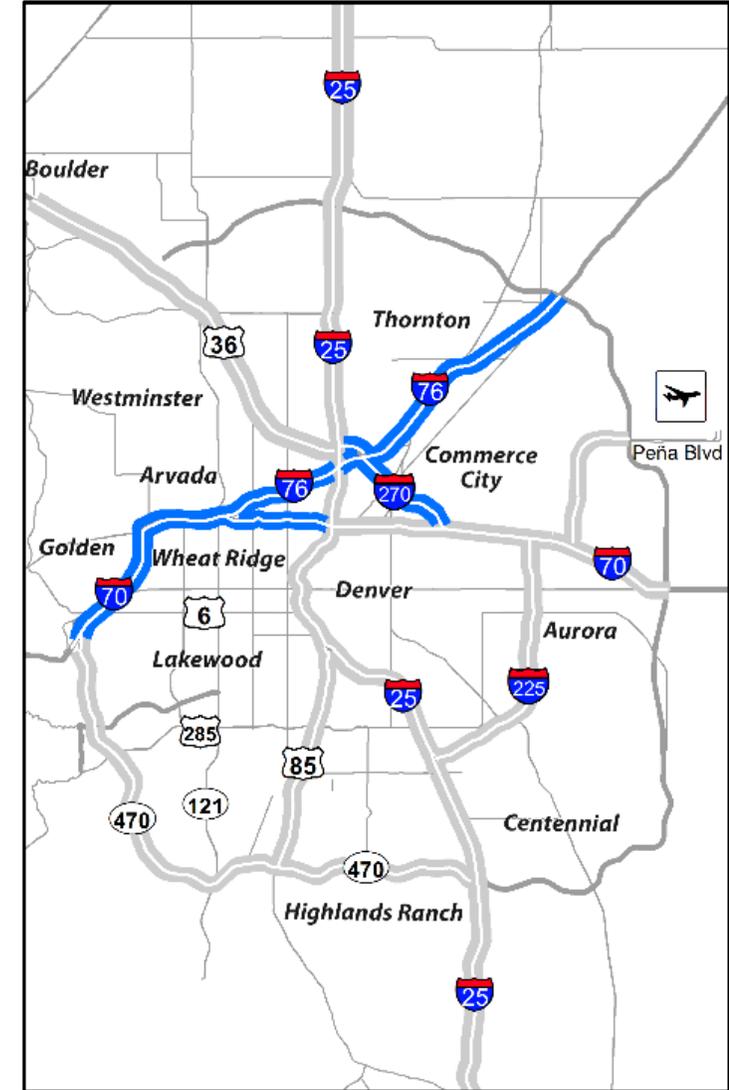
	Adj. Gross Revenue (2025-60)	Net Revenue (2025-60)	PV of Gross Revenue (2025)	PV of Net Revenue (2025)	Capital Cost (2025)	Financial Index
C-470 (I-70 to Wadsworth)	\$1,118.8	\$570.5	\$347.8	\$154.7	\$709.2	1.12
I-225 (I-70 to I-25)	\$1,683.5	\$1,307.8	\$493.3	\$360.2	\$725.5	1.28



Financial Profiles

East / West Corridors (I-70, I-76, & I-270)

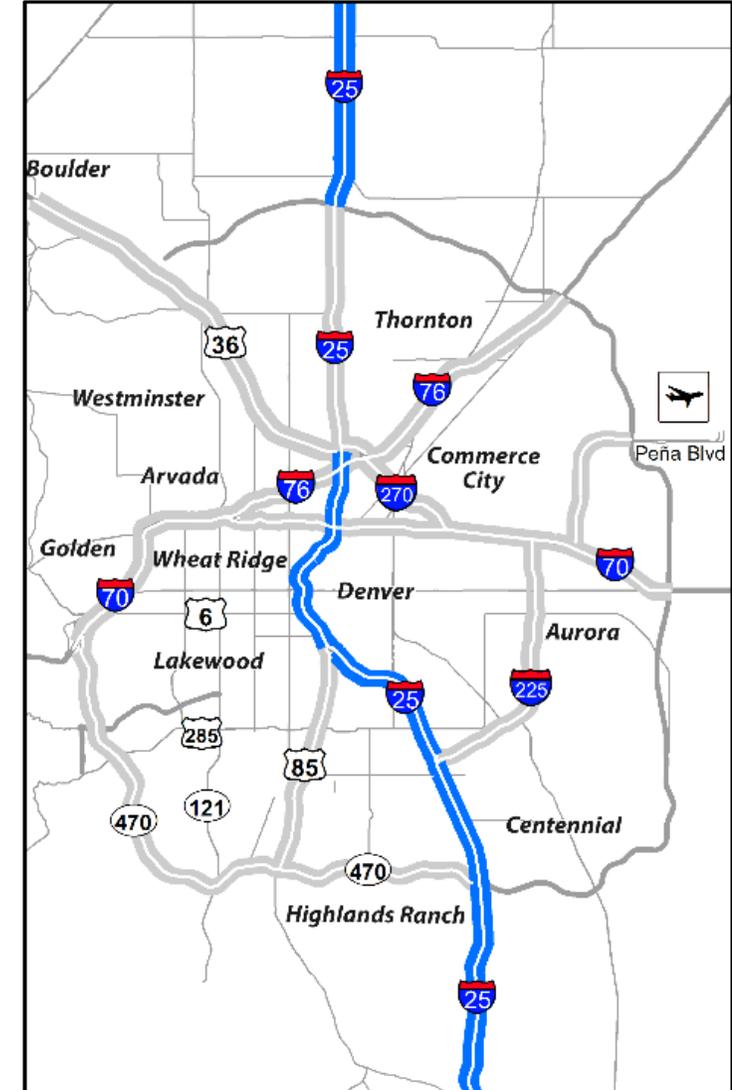
	Adj. Gross Revenue (2025-60)	Net Revenue (2025-60)	PV of Gross Revenue (2025)	PV of Net Revenue (2025)	Capital Cost (2025)	Financial Index
I-70 (C-470 to Wadsworth)	\$574.3	\$354.7	\$178.2	\$99.8	\$547.6	1.10
I-70 (Wadsworth to I-25)	\$672.0	\$470.2	\$207.2	\$135.4	\$320.0	1.24
I-76 (I-70 to I-270)	\$560.5	\$383.0	\$159.4	\$97.3	\$477.8	1.11
I-76 (I-270 to E-470)	\$352.2	\$105.9	\$114.1	\$27.5	\$439.1	1.04
I-270 (I-25 to I-70)	\$3,342.4	\$2,951.6	\$944.0	\$808.9	\$455.3	2.00



Financial Profiles

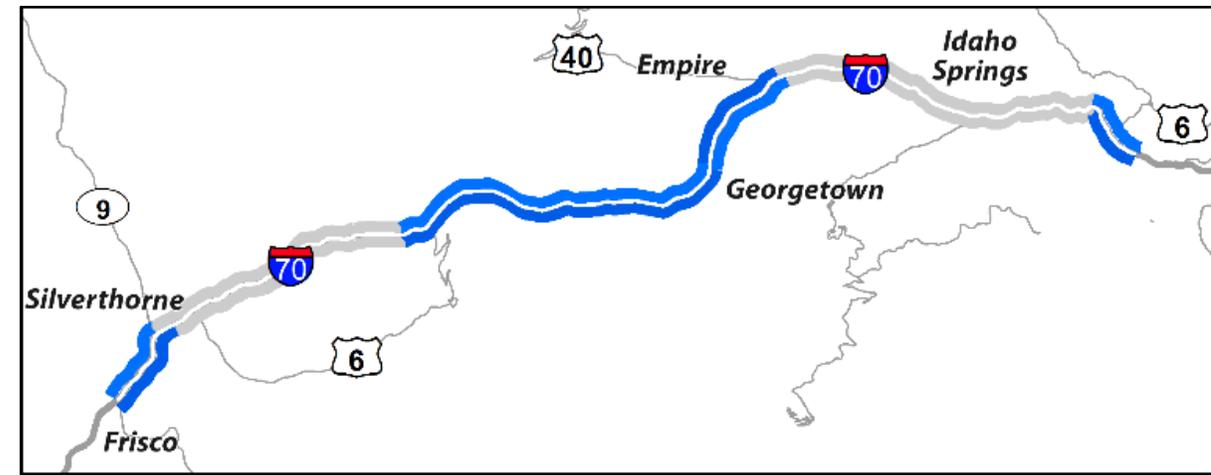
I-25 Corridors (North, Central, & South)

	Adj. Gross Revenue (2025-60)	Net Revenue (2025-60)	PV of Gross Revenue (2025)	PV of Net Revenue (2025)	Capital Cost (2025)	Financial Index
I-25 North (Longmont to E-470)	\$895.2	\$640.9	\$248.7	\$159.8	\$142.3	1.63
I-25 Central (US-36 to 20th St.)	\$1,753.2	\$1,446.1	\$491.0	\$384.3	\$739.1	1.29
I-25 Central (20th St. to Santa Fe)	\$941.5	\$551.7	\$289.2	\$150.8	\$1,134.2	1.07
I-25 Central (Santa Fe to I-225)	\$1,777.5	\$1,442.9	\$495.8	\$379.2	\$957.3	1.22
I-25 South (I-225 to C-470)	\$903.5	\$591.2	\$269.8	\$159.4	\$672.0	1.13
I-25 South (C-470 to Castle Rock)	\$1,400.5	\$1,141.3	\$388.9	\$298.5	\$1,063.1	1.16



I-70 Mountain Corridor

	Adj. Gross Revenue (2025-60)	Net Revenue (2025-60)	PV of Gross Revenue (2025)	PV of Net Revenue (2025)	Capital Cost (2025)	Financial Index
Floyd Hill	\$58.4	-\$20.9	\$22.0	-\$6.7	\$615.5	0.99
Empire to Georgetown	\$53.2	-\$20.3	\$20.4	-\$6.2	\$43.6	0.92
Georgetown to EJMT	\$60.4	-\$52.5	\$22.0	-\$19.3	\$130.3	0.92
Silverthorne to Frisco	\$47.0	-\$37.3	\$17.7	\$0.0	\$77.6	1.00

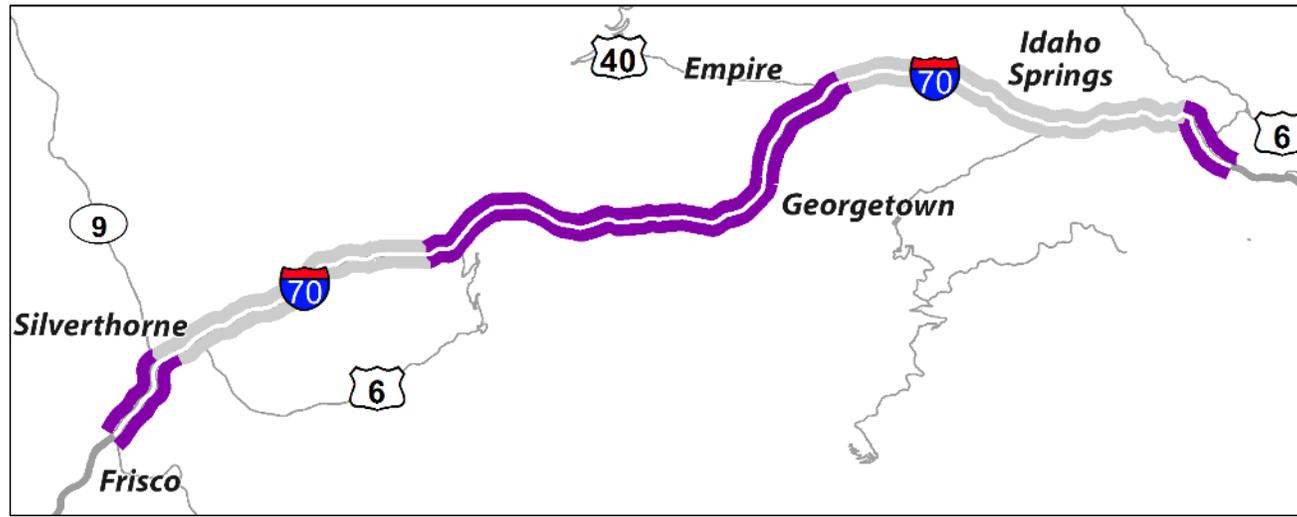
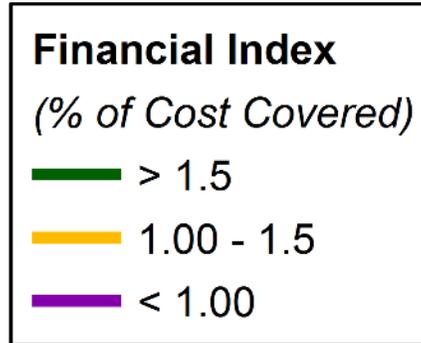


Financial Feasibility

Financial Results Summary

Financial Index Measure

- Percentage of Costs Covered by Lifecycle Revenue
- Indicator of Relative Financial Feasibility



Financial Results Summary

Financial Index Measure

Corridor	Segment	Financial Index	Corridor	Segment	Financial Index
I-270	I-25 to I-70	2.00	I-76	I-70 to I-270	1.11
I-25 North	Longmont to E-470	1.63	I-70	C-470 to Wadsworth	1.10
I-25 Central	US 36 to 20 th St	1.29	I-25 Central	20 th St to Santa Fe	1.07
I-225	I-70 to I-25	1.28	I-76	I-270 to E-470	1.04
I-70	Wadsworth to I-25	1.24	I-70	Silverthorne to Frisco	1.00
I-25 South	Santa Fe to I-225	1.22	I-70	Floyd Hill	0.99
I-25 South	C-470 to Castle Rock	1.16	I-70	Empire to Georgetown	0.92
I-25 South	I-225 to C-470	1.13	I-70	Georgetown to EJMT	0.92
C-470	I-70 to Wadsworth	1.12			

Financial Feasibility

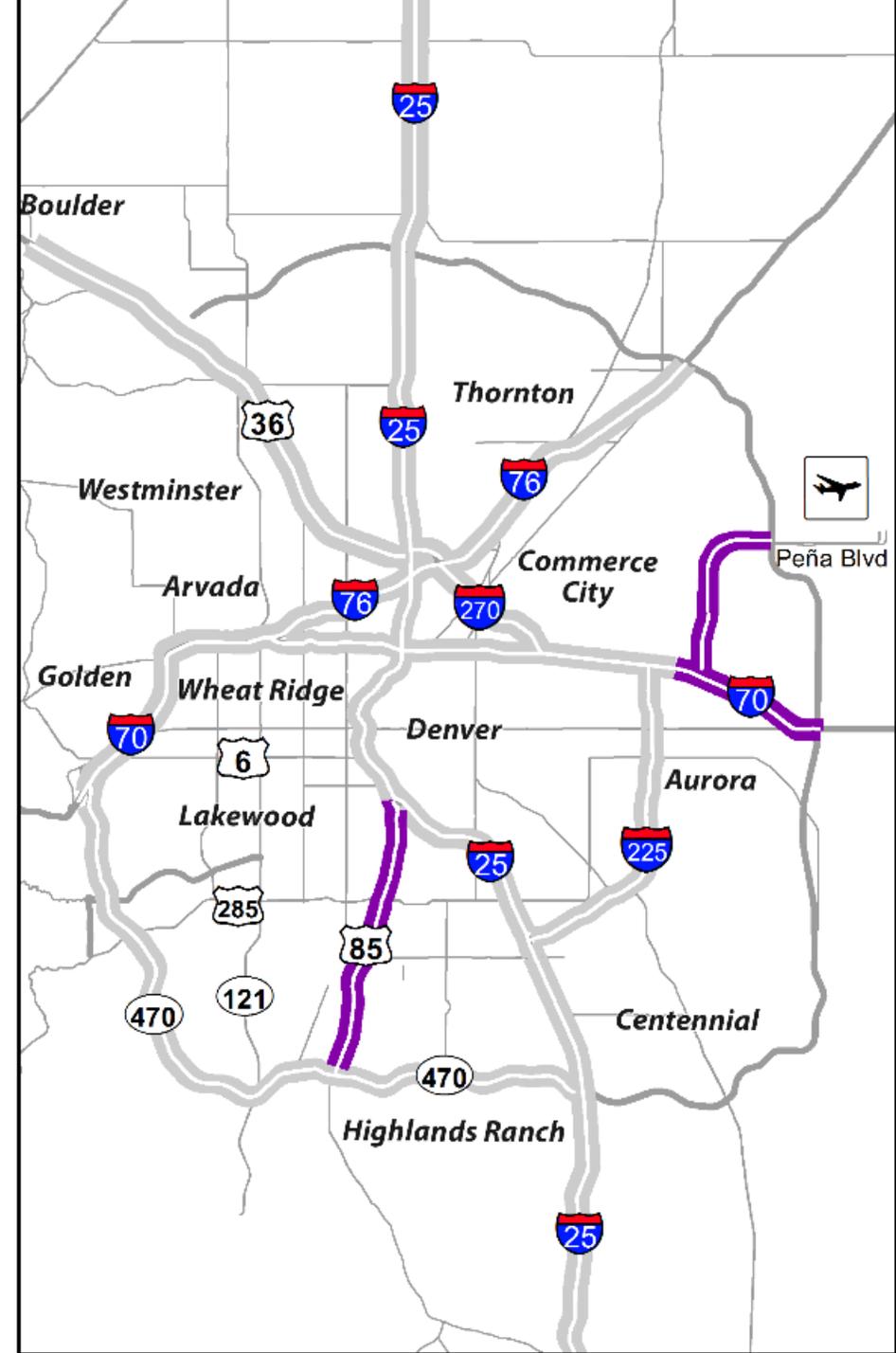
Elements Still Under Evaluation

Unique Corridors

- US 85 / Santa Fe
- Pena Blvd
- I-70 East Extension

Conceptual Design Elements

- Lane Configuration / Design Alternatives
- Express Lane Direct-Connect Ramps



Final Corridor Prioritization



Mobility Analysis

- Evaluation of corridors by traffic impact measures
- Final corridor prioritization based on financial feasibility & mobility analysis

Workshop #3

- Workshop #3 to review stakeholder input and technical analysis
- Inform final corridor recommendations

Express Lane Network Recommendations

- Prioritized List of Express Lane Corridors & Connections
- Develop financing program strategy for high-performing Express Lane corridors
- Final Report Document & Summary Map
- HPTE will conduct additional stakeholder and community outreach to to inform the design of any recommended future Express Lanes projects

