

I-70 Interchange in Grand Junction — TAC Meeting #11

April 18, 2024

Agenda

- ▶ Welcome and Introductions
- ▶ Screening Process Flowchart
- ▶ Review—Need and Benefit of New Interchange
- ▶ I-70 Traffic Mitigation Evaluation
- ▶ TDM Requirements
- ▶ Next Steps / SLS Documentation
- ▶ Schedule

Meeting Goal:

Agreement on advancing Interchange to the Transportation Commission



PRE-1601



1601/NEPA

**CURRENT PROCESS****GOAL:**

Is there a need for an interchange?

DETERMINATION OF NEED● **Traffic**

- Straight Model Results
- Freeway Analysis
- Select Limits/Select Grades
- Safety

● **Analysis Tools**

- MPO Model
- HCS (Freeway)

COMPLETED**LEVEL 1****SCREENING GOAL:**

29 Road or 30 Road?

EFFECTIVENESS & IMPACTS● **Traffic**

- Interchange Spacing
- Arterial Volume Changes
- Freeway LOS
- Activity Centers
- Land Use

● **Park-n-Ride/TDM**

- Roadway Plans
- Connectivity
- Planning History
- Activity Centers

● **Impacts**

- Community Context
- Access/Driveways
- Airport
- Historic
- Previous Public Involvement
- Planning History

● **Analysis Tools**

- MPO Model
- HCS (Freeway LOS)

**LEVEL 2****SCREENING GOAL:**Identify and Select Alignment and Interchange Configuration & Key Project Elements *(see next page for details)***IMPACTS**● **Traffic**

- Interchange Type (DDI, SPUI, Diamond)

● **Environmental**

- Noise
- Connectivity
- Air Quality
- Historic
- Air Quality

● **Roadway**

- 29 Road

● **Analysis Tools**

- Field Data
- CAP-X
- Crash Modification Factors (CMFs)

COMPLETED**LEVEL 3 ANALYSIS & REFINEMENT GOAL:**

CDOT 1601 Approval (including SLS) & FHWA IAR Approval

PREFERRED ALTERNATIVE EVALUATION● **Traffic**

- Operations
- Queuing
- Upstream/Downstream Interchange Effects
- Arterial Improvements

● **Safety**

- Safety Performance Functions (SPFs)

● **Multimodal**

- Accessibility

● **Guide Signing**

- Conceptual Plan

SUPPORTING ELEMENTS● **Traffic**

- I-70 Auxiliary Lane
- 29 Road
- Patterson Road

● **TDM**

- Park-n-Rides
- Bike Lanes
- Mobility Hubs

● **Environmental**

- Mitigation Commitments

● **Analysis Tools**

- Field Data
- Synchro / Rodel (arterials)
- HCS (Freeway)

- Level of Service (LOS)
- Diverging Diamond Interchange (DDI)
- Single-Point Urban Interchange (SPUI)

Review

Need for and
Benefit of New
Interchange

Project Purpose

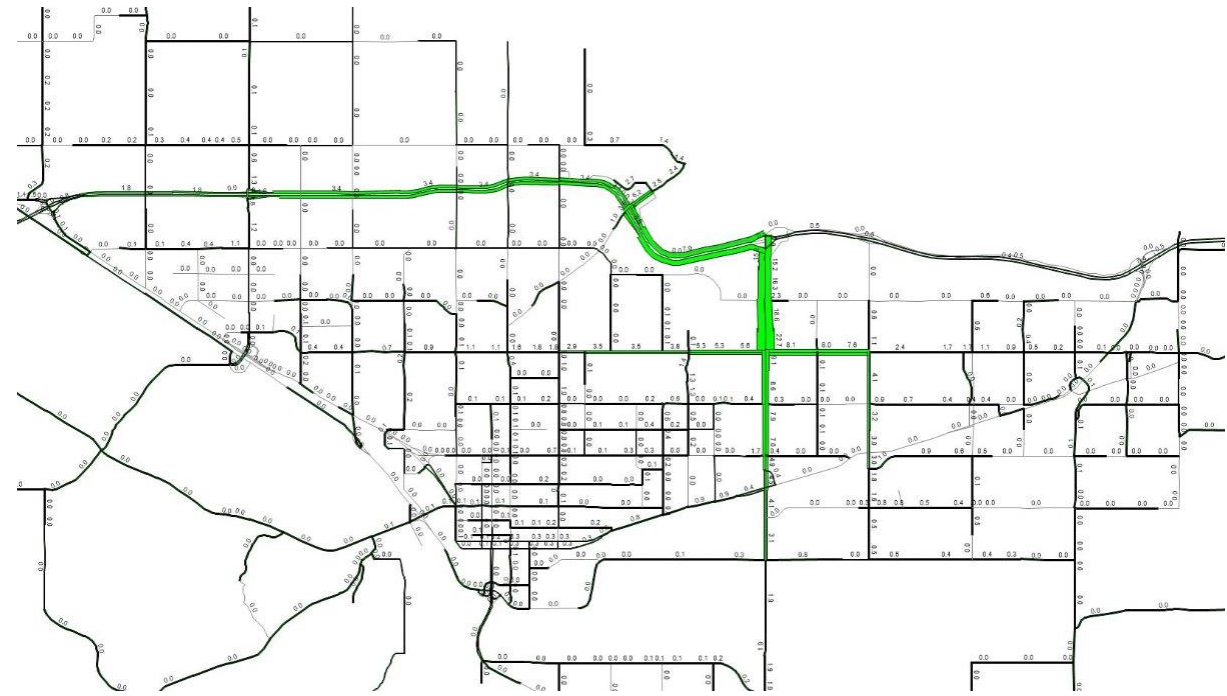
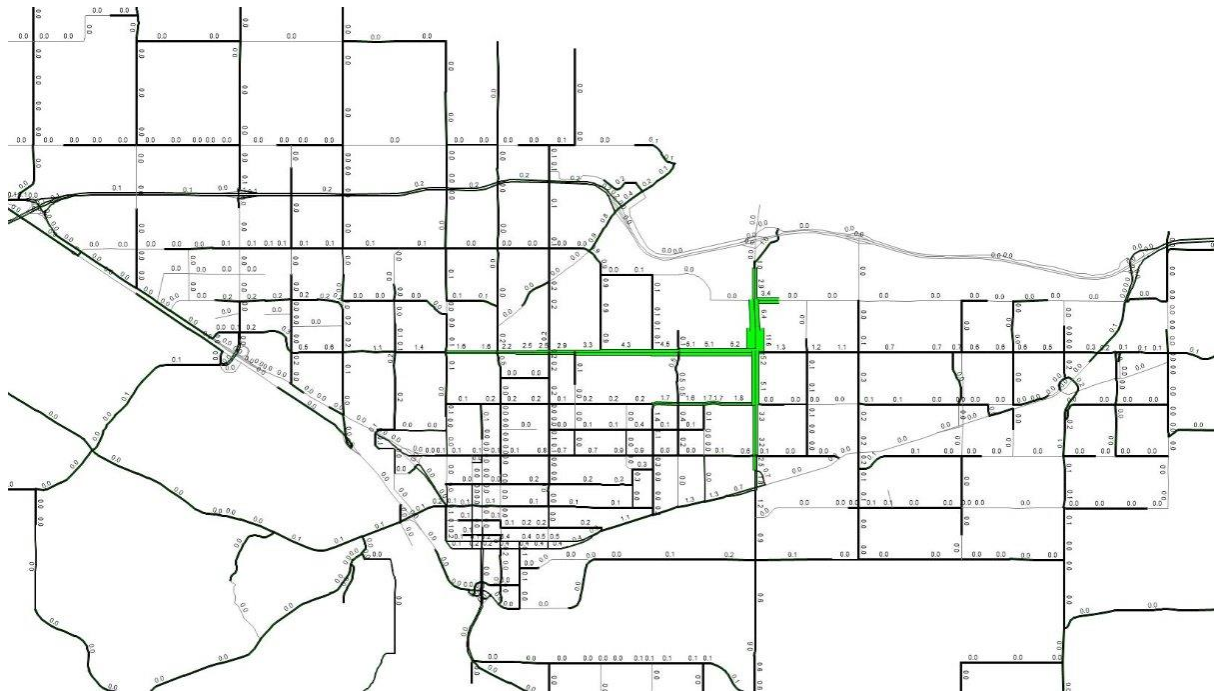
The purpose of the project is to enhance the eastern Grand Valley transportation network between I -70 Business Loop East Interchange and Horizon Drive Interchange to:

1. Improve local and regional connectivity, and
2. Provide enhanced access to planned land use surrounding I-70 in Grand Junction, Colorado.

Need:
***Improved
Connectivity***

Improved local and regional connectivity is needed to:

- Address limited regional transportation network connectivity with access to/from I-70 between I-70 Business and Horizon Drive interchanges
- Extend the functional longevity of the existing transportation system connecting to I-70



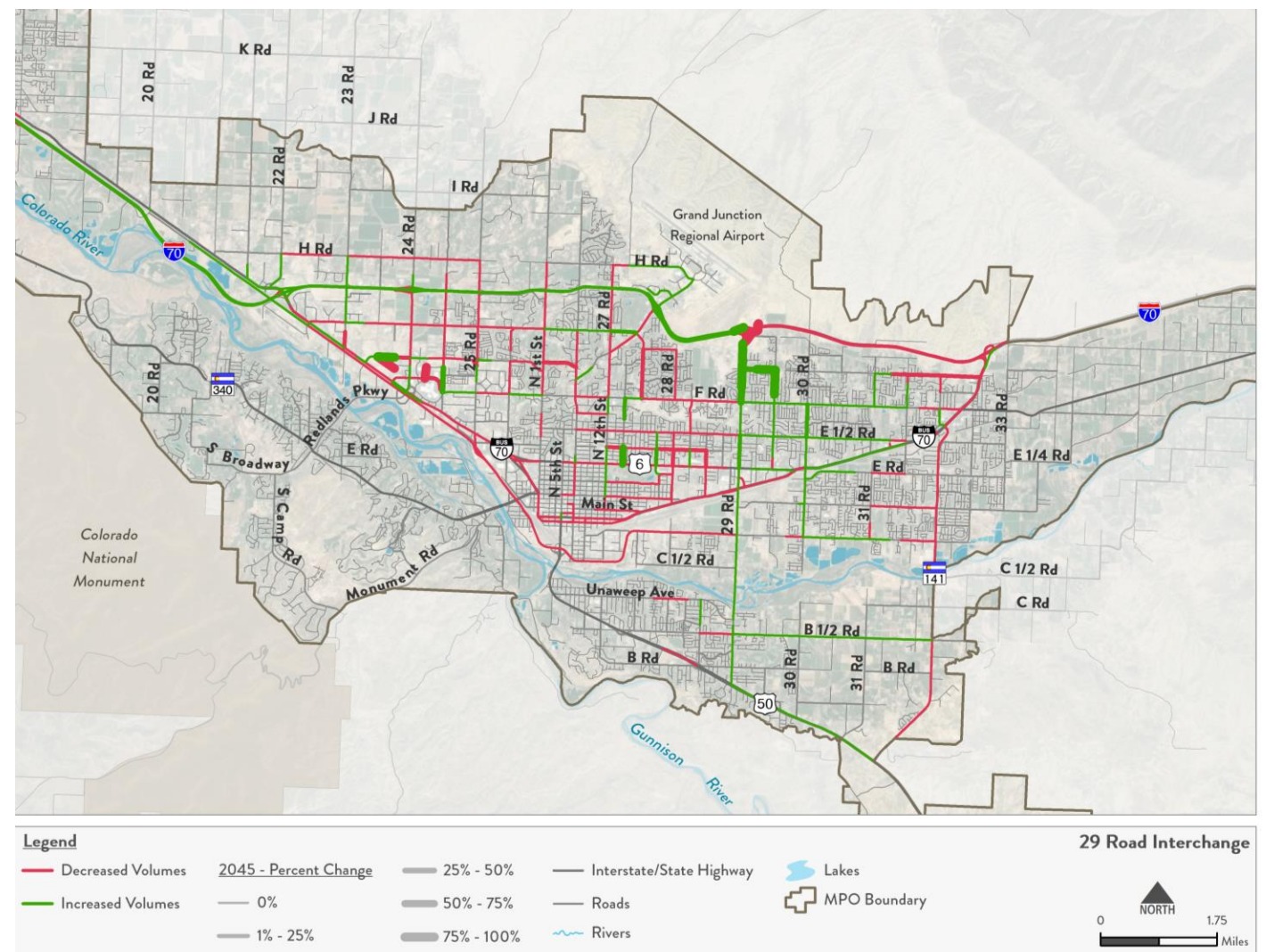
29 Road Select Link Analysis (TAC #1)

- ▶ About 45 percent of neighborhood trips to/from the west
 - ▶ New Interchange serves many of these trips
- ▶ 29 Road Scenario best meets this need

Provide Connectivity to/from I-70

Volume Change Map (TAC #2)

- ▶ Regional traffic decreases on:
 - ▶ I-70 (east)
 - ▶ Patterson Road (west)
 - ▶ North Avenue (US 6)
 - ▶ 32 Road (SH 141)
 - ▶ I-70B / Ute & Pitkin
 - ▶ Riverside Parkway
- ▶ Regional traffic increases on:
 - ▶ 29 Road
 - ▶ I-70 (west)
 - ▶ Patterson Road (east)



Extend Functional Longevity (regional)



		I-70								
Year	Scenario	I-70B/ US 6/ US 50 Interchange	I-70 mainline	24 Rd Interchange	I-70 mainline	Horizon Drive Interchange	I-70 mainline	New Interchange	I-70 mainline	I-70B/ Clifton Interchange
2018	Base Model	17,590	11,720	8,380	17,290	20,230	23,860	-	23,860	18,720
	Forecast Model	30,400	27,420	27,970	36,730	35,660	44,200	-	44,200	31,840
2045	29 Rd Interchange	-1%	5%	3%	16%	10%	32%	21,664	-10%	-12%
	30 Rd Interchange	-1%	2%	3%	12%	7%	23%	18,544	-17%	-19%
	North Frontage Road	-7%	-1%	-8%	-3%	-3%	-5%	-	-5%	-5%
	F1/2 Road Connection	0%	1%	-1%	0%	-1%	-3%	-	-3%	-3%

- ▶ I-70 volumes increase west of interchange and decrease east of interchange
 - ▶ Increases of up to 32 percent
 - ▶ Decreases of up to 19 percent
- ▶ North Frontage Road and F ½ Road options screened out.

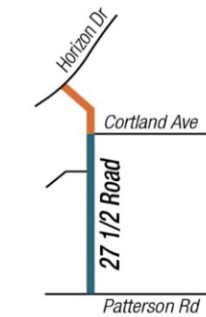
Extend Functional Longevity (I-70)



Year	Scenario	Patterson Rd					F Road	
		24 Rd to 26 Rd	26 Rd to 12th St	12th St to 27 1/2 Rd	27 1/2 Rd to 29 Rd	29 Rd to 30 Rd	30 Rd to 31 1/2 Rd	31 1/2 Rd to I-70B
2018	Base Model	20,630	25,460	28,930	34,110	24,640	13,980	9,600
	Forecast Model	27,260	29,760	31,670	37,760	30,070	17,600	12,700
2045	29 Rd Interchange	-2%	-2%	1%	-8%	12%	5%	-5%
	30 Rd Interchange	-2%	-1%	-1%	-5%	-9%	15%	8%
	North Frontage Road	-1%	-1%	0%	-4%	3%	2%	0%
	F1/2 Road Connection	0%	0%	6%	-6%	-4%	0%	1%

- ▶ Patterson Road volumes increase west of interchange connection and decrease east of interchange connection
 - ▶ Increases of up to 15 percent
 - ▶ Decreases of up to 9 percent
- ▶ North Frontage Road and F ½ Road options screened out.

Extend Functional Longevity (Patterson Road)



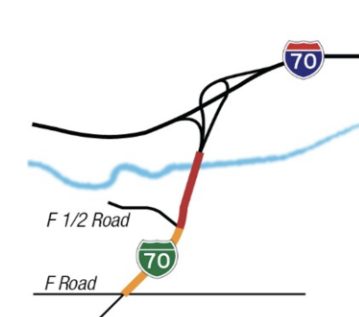
NORTH
NOTE: Drawing Not to Scale



NORTH
NOTE: Drawing Not to Scale



NORTH
NOTE: Drawing Not to Scale



NORTH
NOTE: Drawing Not to Scale

Year	Scenario	27 1/2 Road		29 Road		30 Road		I-70B	
		Patterson to Cortland	Cortland to Horizon	Patterson to F 1/2 Rd	F 1/2 Rd to I-70	Patterson to F 1/2 Rd	F 1/2 Rd to I-70	F Rd to F 1/2 Rd	F 1/2 to I-70
2018	Base Model	8,480	9,650	3,840	20	4,230	-	19,270	18,720
	Forecast Model	9,450	11,270	9,060	2,170	6,180	-	29,840	31,840
2045	29 Rd Interchange	-29%	-24%	138%	892%	1%	-	-8%	-12%
	30 Rd Interchange	-10%	-8%	0%	0%	201%	18,537	-13%	-19%
	North Frontage Road	-7%	-8%	20%	277%	1%	-	-3%	-3%
	F1/2 Road Connection	-38%	17%	9%	0%	-2%	-	-1%	-3%

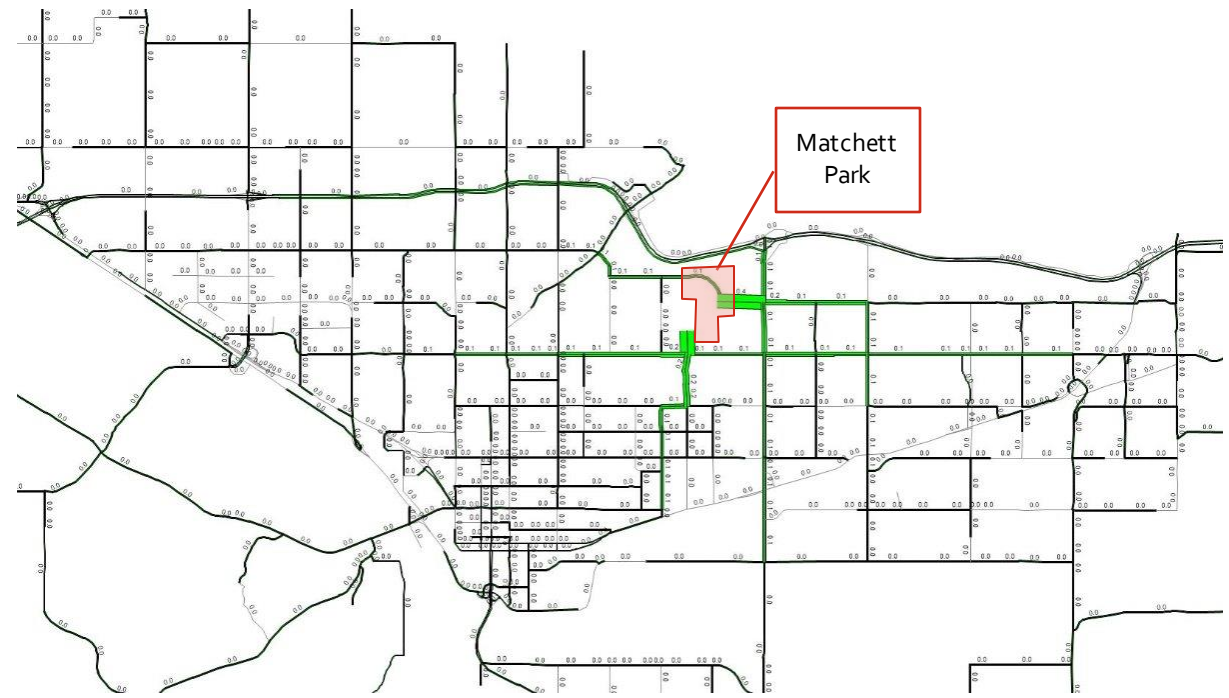
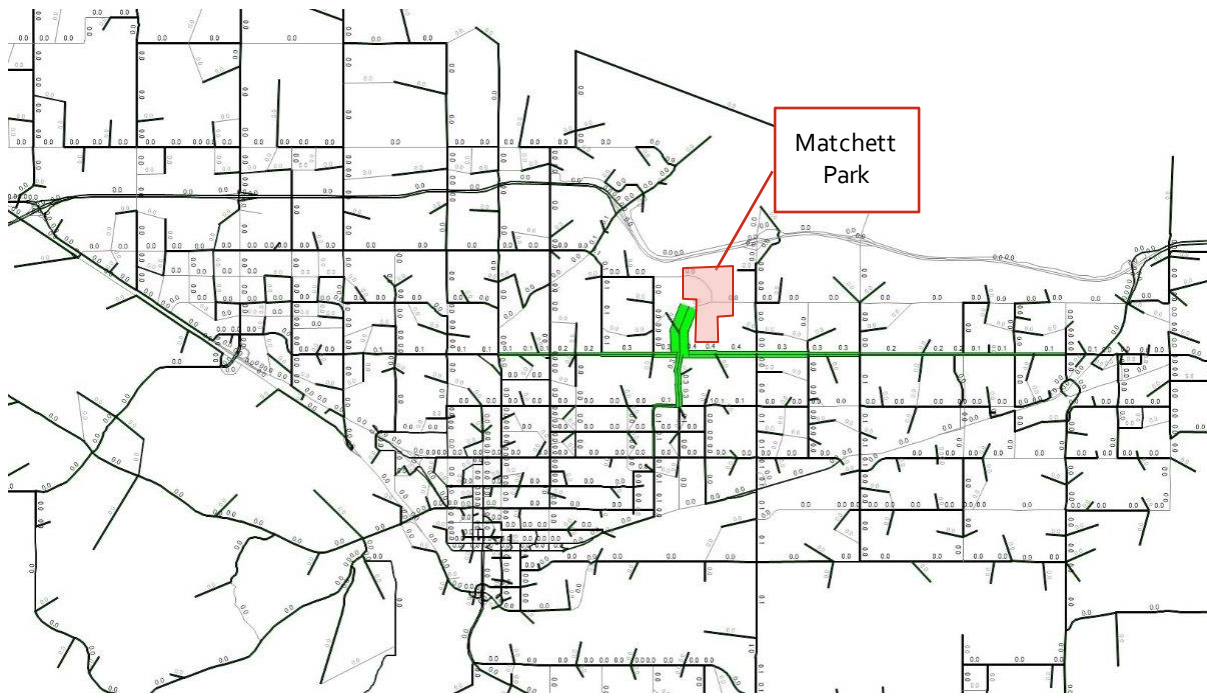
- Increases volumes on connectors and decreases volumes on 27½ Road and I-70B
 - Decreases of up to 29 percent on 27½ Road and 19 percent on I-70B
- North Frontage Road and F ½ Road options screened out.

Extend Functional Longevity (North / South)

**Need:
Improved
Access**

Improved access to I-70 is needed to:

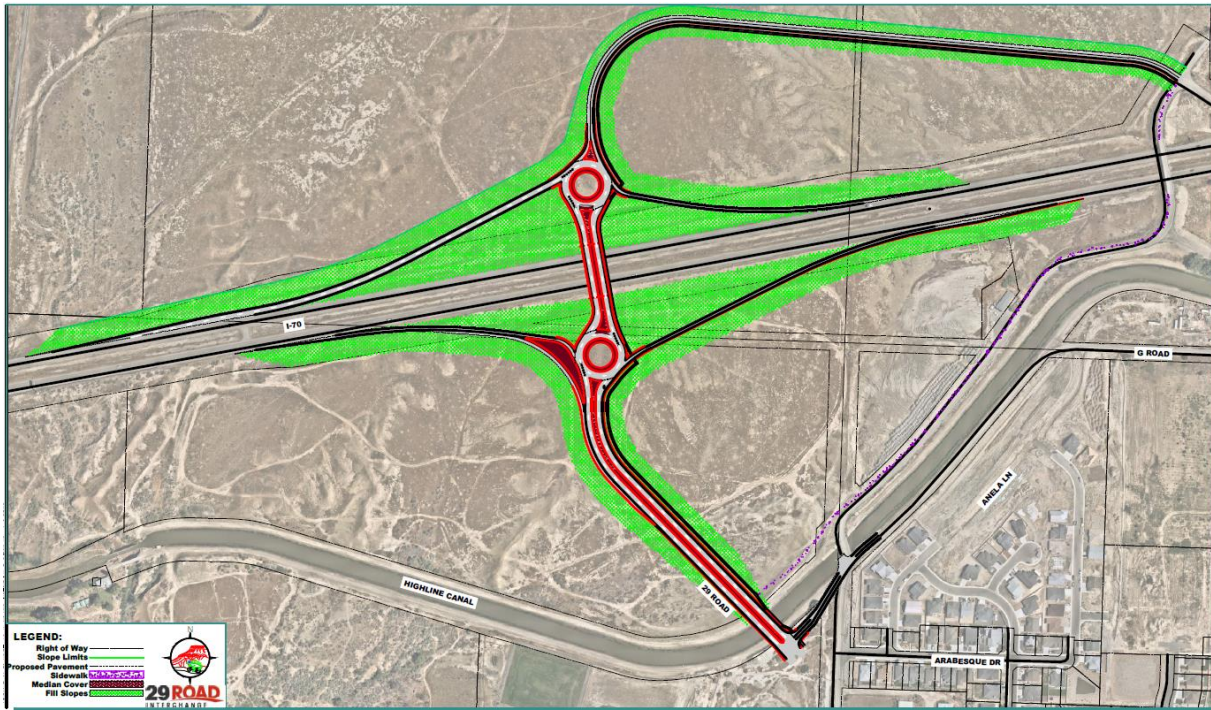
- Provide transportation infrastructure needed to accommodate planned land use surrounding I-70, and specifically, the future Matchett Park and its associated recreation center
- Provide transportation infrastructure needed to accommodate projected and regional traffic demands



Matchett Park Select Node Analysis (TAC #1)

- ▶ Improves Regional Access
- ▶ 29 Road Scenario best meets this need

Accommodate Planned Land Uses



Roundabout Interchange (Public Meeting)



29 Road Optimized Cross-section (TAC # 9)

Provide Transportation Infrastructure

Conclusion

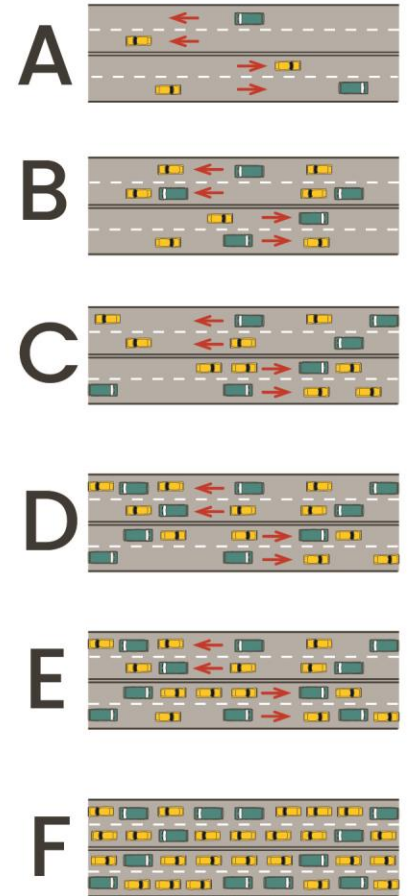
The Preferred Alternative:

- ▶ Provides improved local and regional connectivity:
 - ▶ Addresses limited regional transportation network connectivity with access to/from I-70
 - ▶ Extends the functional longevity of the existing transportation system connecting to I-70
- ▶ Improves access to I-70:
 - ▶ Accommodates planned land use surrounding I-70, including the future Matchett Park and associated recreation center
 - ▶ Provides transportation infrastructure needed to accommodate projected and regional traffic demands

I-70 Traffic Analysis Update

I-70 Traffic Operations: Background

- ▶ Evaluated I-70 from west of Horizon Drive to east of Clifton
 - ▶ Freeway, merge, and diverge segments
- ▶ Last TAC Meeting Presentation
 - ▶ 2045 No-Action: All segments at LOS D or better
 - ▶ 2045 Build: Several LOS E or F segments (westbound AM)
 - ▶ 2045 Mitigation: Return to LOS D, but still some decreases
 - ▶ Freeway operations do not reach LOS E/F until after 2040.



I-70 Traffic Operations: *Discussions with FHWA*

- ▶ Consider a range of metrics
 - ▶ Level of Service
 - ▶ Safety, longevity, etc.
 - ▶ Captured in Purpose and Need slides
- ▶ Consider how other IARs have evaluated benefits and drawbacks
 - ▶ I-70 at Picadilly
 - ▶ I-25 at Crystal Valley
 - ▶ Both show some decreases in LOS in preferred alternative

I-70 Traffic Operations:

Discussions with CDOT

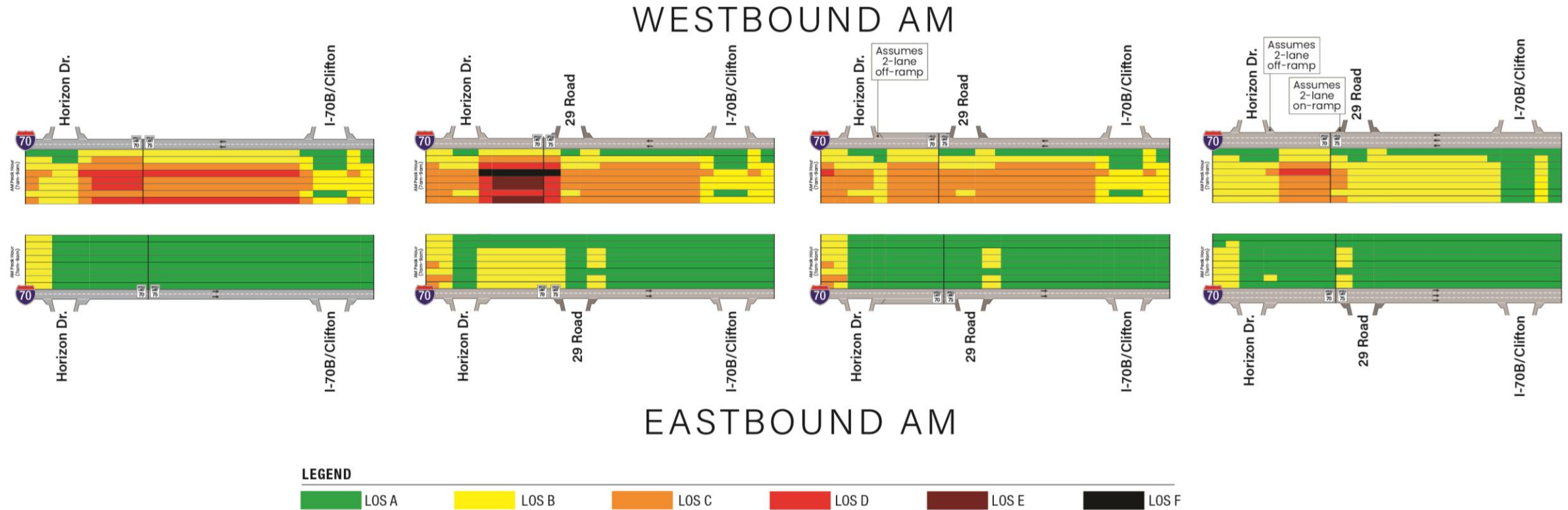
- ▶ Concept for widening I-70 through the Grand Valley
 - ▶ March 2024 meeting regarding I-70 / 24 Road Interchange
 - ▶ Goal to address existing and forecasted I-70 deficiencies
 - ▶ Discussed 6-lane Facility (3 per direction)
 - ▶ Limits not yet defined
- ▶ FHU Sensitivity Evaluation
 - ▶ Modeled six lanes from Exit 26 (I-70B / 22 Road) to Exit 42 (Palisade)
 - ▶ Re-examined study area freeway operations

2045 No Action

2045 With 29 Road

2045 with 29 Road and Aux Lane

2045 with 29 Road and 6 Lane (No Aux Lane)



I-70 No-Action Operations (2045 AM Peak Period)

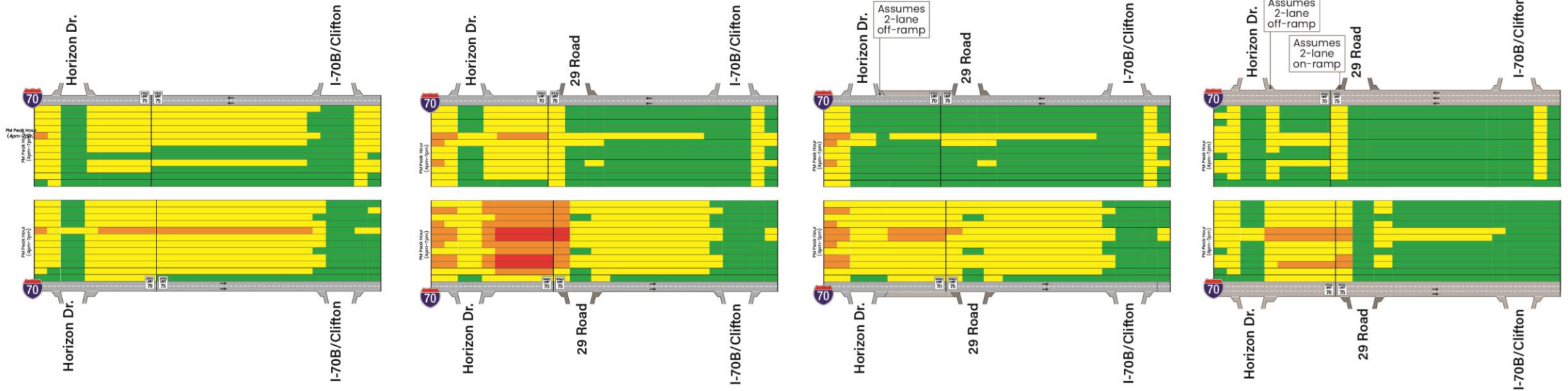
2045 No Action

2045 With 29 Road

2045 with 29 Road and Aux Lane

2045 with 29 Road and 6 Lane (No Aux Lane)

WESTBOUND PM



EASTBOUND PM

LEGEND



I-70 No-Action Operations (2045 PM Peak Period)

I-70 Traffic Operations: Conclusion

- ▶ 2045 No-Action shows reasonable operations
- ▶ Addition of the 29 Road interchange degrades operations
- ▶ Several concepts will provide reasonable operations
 - ▶ Project-specific mitigations
 - ▶ I-70 widening

Operational Concerns can be addressed



Other I-70 Metrics: Safety

- ▶ CDOT has addressed existing safety concerns at I-70 curve
 - ▶ Cable guardrail and speed limit reduction
 - ▶ New interchange will not extend to curve
- ▶ A new interchange will add conflict points on I-70
 - ▶ Interchange will be designed to meet current standards
- ▶ I-70 Crash Predictions
 - ▶ Volume reductions east of 29 Road would reduce crashes
 - ▶ Volume increases west of 29 Road would increase crashes

Safety Outcomes are Reasonable



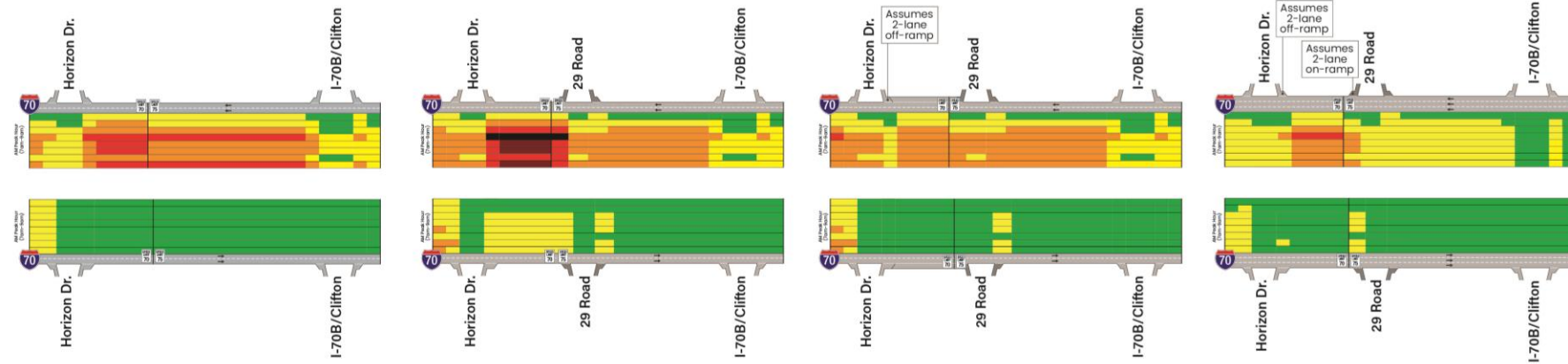
2045 No Action

2045 With 29 Road

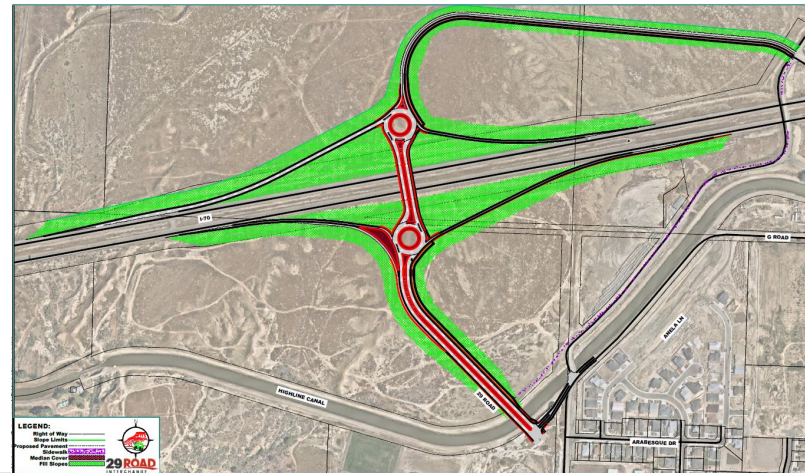
2045 with 29 Road and Aux Lane

2045 with 29 Road and 6 Lane
(No Aux Lane)

WESTBOUND AM



EASTBOUND AM



Advance the Interchange in SLS and TC

TDM Requirements

TDM Strategies & Evaluation Process

- ▶ *Step 1. Develop Memo #1 – Existing Conditions and TDM Background*
- ▶ *Step 2. Develop Memo #2 – Potential TDM Strategies (combined with Memo #1)*
- ▶ Step 3. Develop Memo #3 – TDM Strategies & TDM Strategies Assessment Form
- ▶ Step 4. CDOT Preliminary Approval of TDM Strategies
- ▶ Step 5. Finalize TDM Plan for inclusion in SLS
- ▶ Step 6. 1601 Approval Decision
- ▶ Step 7. Finalize the Operations and Maintenance IGA

I-70/29 Road Interchange Ramp Volumes

- ▶ Forecasted 2030 (Opening Day) Ramp Volumes
 - ▶ 7,660 total ADT
 - ▶ 3% daily trip reduction requirement – 230 trips
- ▶ Truck Trips (4% of total trips) = 305 trucks
 - ▶ $7,660 - 305 = 7,355$ personal vehicles
 - ▶ 3% daily trip reduction requirement = ***221 trips***

Implementation all TDM Strategies to support opening day

Potential I-70/29 Road TDM Strategies

- ▶ **Mobility Hubs**
- ▶ Intercity Transit
- ▶ Local Transit
- ▶ Shuttles, Feeders, & Paratransit
- ▶ Transit Service Upgrades
- ▶ Transit-Oriented Development
- ▶ Mixed-Use Development
- ▶ **Bicycle & Pedestrian Facilities**
- ▶ **Park-and-Ride Lots**
- ▶ Parking Management
- ▶ ITS
- ▶ **School Pool Program**
- ▶ Vanpool Program
- ▶ **Regional Ridesharing Programs**
- ▶ Transportation Management Organization Participation
- ▶ Event-Related TDM Program*
- ▶ Guaranteed Ride Home*
- ▶ **Car-Sharing***
- ▶ Modal Subsidies & Vouchers
- ▶ **Electric Vehicle Charging Stalls***

■ = Potential I-70/29 Road TDM Strategy

*Used as a supporting strategy

Viable Strategies & Next Steps

- ▶ Coordination meeting tomorrow with project team and CDOT HQ Land Use Planner
- ▶ Determine methodology for calculating trip reductions for TDM strategies
- ▶ Review strategies and forecasted reductions with County/City and obtain commitment on strategies to advance to CDOT (Step 3)

Next Steps

Overall Project & Decisions

- ▶ Complete Draft System Level Study
 - ▶ Required detail on 29 Road Corridor and intersection with Patterson?
 - ▶ TDM Inclusion
 - ▶ CDOT Review timeframe?
- ▶ Public Meeting
 - ▶ May 7th
- ▶ CDOT Transportation Commission Presentation/Vote
 - ▶ June/July or July/August
- ▶ Complete NEPA Analysis/Design
 - ▶ RSTC Determination (Air Quality / Environmental Justice)
 - ▶ Fall 2024

Thanks!

Schedule

▶ April / May

- ▶ Advance Conceptual Design (Interchange / 29 Road corridor)
- ▶ Complete SLS Documentation
- ▶ Continue moving NEPA documentation form
- ▶ TDM Analysis—Identification of methodology/scorecard
- ▶ Traffic Analysis—29 Road / Patterson intersection; safety
- ▶ Public Meeting (May 7, 2024)

▶ June / July

- ▶ Review/Revisions of SLS Documentation
- ▶ CDOT TC Workshop (TC Vote in August)
- ▶ Initial review of NEPA Documentation

Schedule