

COLORADO

Department of Transportation

I-25 Central PEL

Stakeholder Focus Group (SFG) Meeting #4

Level 3 Evaluation Results and Study Conclusion

Meeting purpose:

Share the outcomes of Level 3 evaluation, and identify ideas/remaining issues for the action plan and future NEPA studies.

Agenda

1. Introductions
2. Project review/update
3. Alternatives evaluation and results
4. Breakout table sessions
 - Traffic and Safety, Community Benefits and Impacts, and Engineering
5. Next Steps

Project Review/Update

SFG Meeting #1 (July 2018):

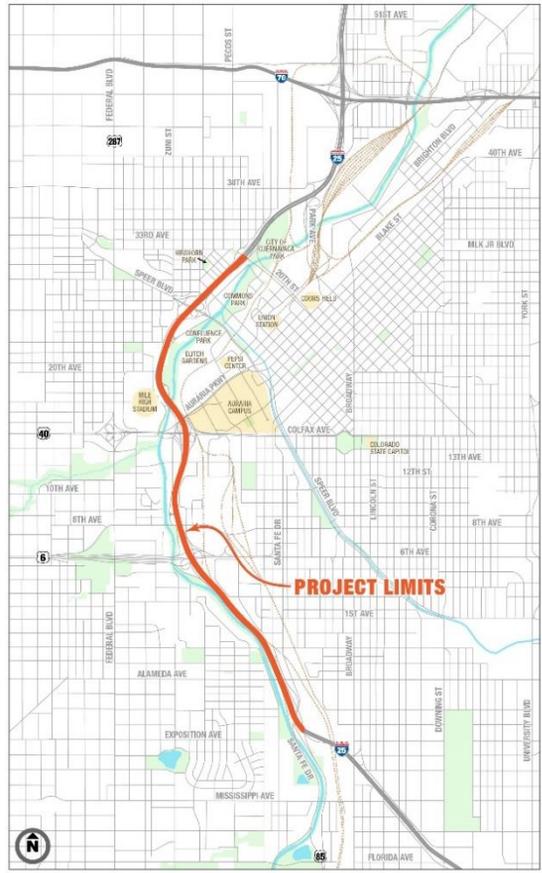
Purpose & Need, goals and objectives, and existing conditions

SFG Meeting #2 (Dec 2018):

Level 1 Evaluation Results
(Purpose & Need)

SFG Meeting #3 (April 2019):

Level 2 Evaluation Results
(Goals and objectives)



Public Involvement



Alternatives Evaluation Process

Level 1

Does the alternative meet the project's purpose and need?

Yes/No/Neutral

Level 2

Does the alternative address the needs, goals, and objectives to a satisfactory level?

Yes/No/Neutral with qualitative discussion

Level 3

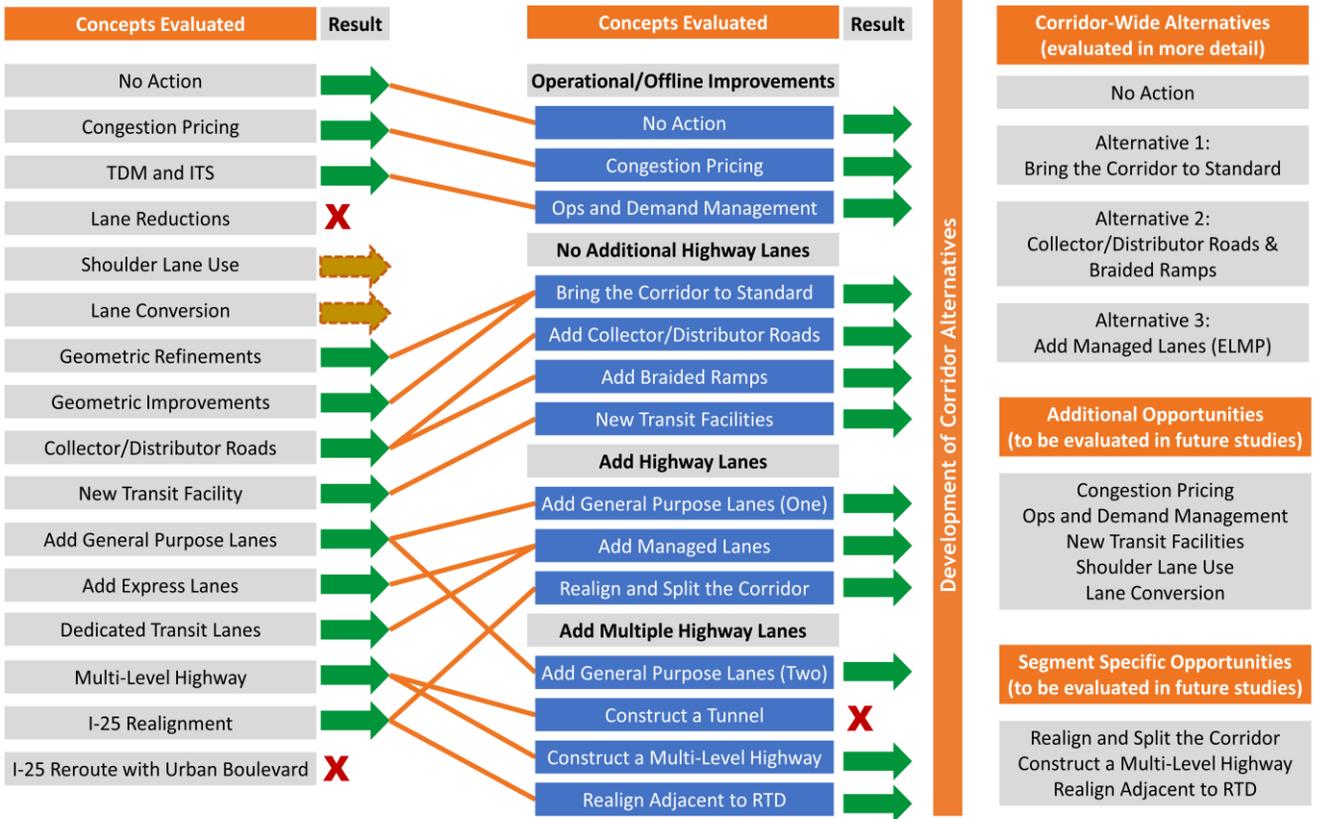
Does the alternative address the needs, goals, and objectives to a satisfactory level and balance trade-offs?

Quantitative data and qualitative discussion

Action Plan

Identifying comparative impacts and benefits of alternative elements for subsequent NEPA analysis

Level 1 Evaluation: Purpose & Need **Repackaging** **Level 2 Evaluation: Needs, Goals, and Objectives** **Level 3 Evaluation: Benefits & Impacts**



Development of Corridor Alternatives

➔ **Carried Forward**
 ➔ **Removed from Evaluation** Can be Packaged into Future Alternatives
 X **Not Recommended**

Alternatives Evaluated and Modeled

No Action

- Baseline condition, no improvements to I-25 Central
- Includes other planned improvements per DRCOG 2040 regional transportation plan

Bring the Corridor to Standard

- Shoulders
- Smooth curves
- Acceleration and deceleration lanes
- Improve sight distances
- Access eliminated at 8th & 17th

Braided Ramps & CD Roads

- Bring the Corridor to Standard (excluding access closures)
- Add parallel collector/distributor roads to I-25
- Add braided ramps for traffic entering/exiting the highway

Managed Lanes

- Bring the Corridor to Standard (with eliminated access)
- One managed lane in each direction
- Direct connections at select locations (Speer, Colfax, and US6)
- No entry from general-purpose lanes

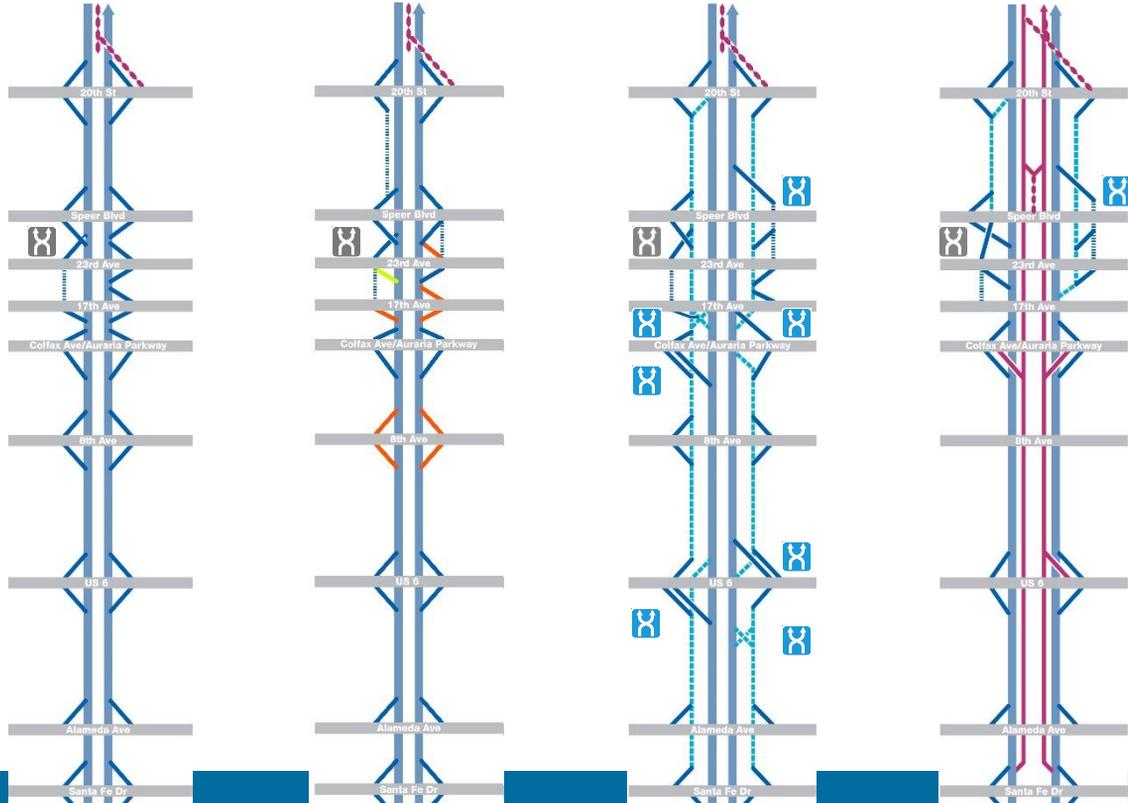
Alternatives Evaluated in Level 3

No Action

Bring the Corridor to Standard

CD/Braids

Managed Lanes



-  Mainline Freeway
-  Managed Lane
-  Reversible Managed Lane
-  CD Road
-  Ramp
-  Local Ramp Connection
-  Existing Braided Ramp
-  Proposed Braided Ramp

Evaluation of Corridor Alternatives

To what degree can alternatives meet purpose & need, and satisfy goals & objectives?

Safety, congestion, and travel time reliability:

- Can access and geometric fixes alone meet current and future needs?
- How many additional lanes, if any, are needed on I-25 to support current and future needs?
- Is there an option for a reasonable guarantee of consistent travel times?

Access, cross connectivity, and additional goals:

- How will the highway effect parallel and cross-streets?
- What will be the impact to the surrounding environment?
- Does the alternative provide for future flexibility?

Results of Evaluation

Safety

Alternative	Key Considerations
No Action	<p>Worse than existing conditions because volumes on I-25 increase.</p> <ul style="list-style-type: none"> • Approximately 1%-3% increase in all crashes as compared to existing conditions • Approximate 5%-7% increase in fatal and injury crashes
Bring the Corridor to Standard	<p>Improved geometrics and ramp spacing help optimize weaving and merging movements.</p> <ul style="list-style-type: none"> • About a 40% reduction in crashes as compared to No Action
Braided Ramps and CD Roads	<p>Minimizes the needs for vehicles to weave and manages ramp queueing.</p> <ul style="list-style-type: none"> • About a 50% reduction in crashes as compared to No Action
Managed Lanes	<p>Managed lanes with direct connections reduces the need for vehicles to weave and helps improve overall flow of the highway.</p> <ul style="list-style-type: none"> • Limited research on predicted crashes for managed lane facilities

Note: Crash reduction data is preliminary and is subject to change as the analysis is finalized.

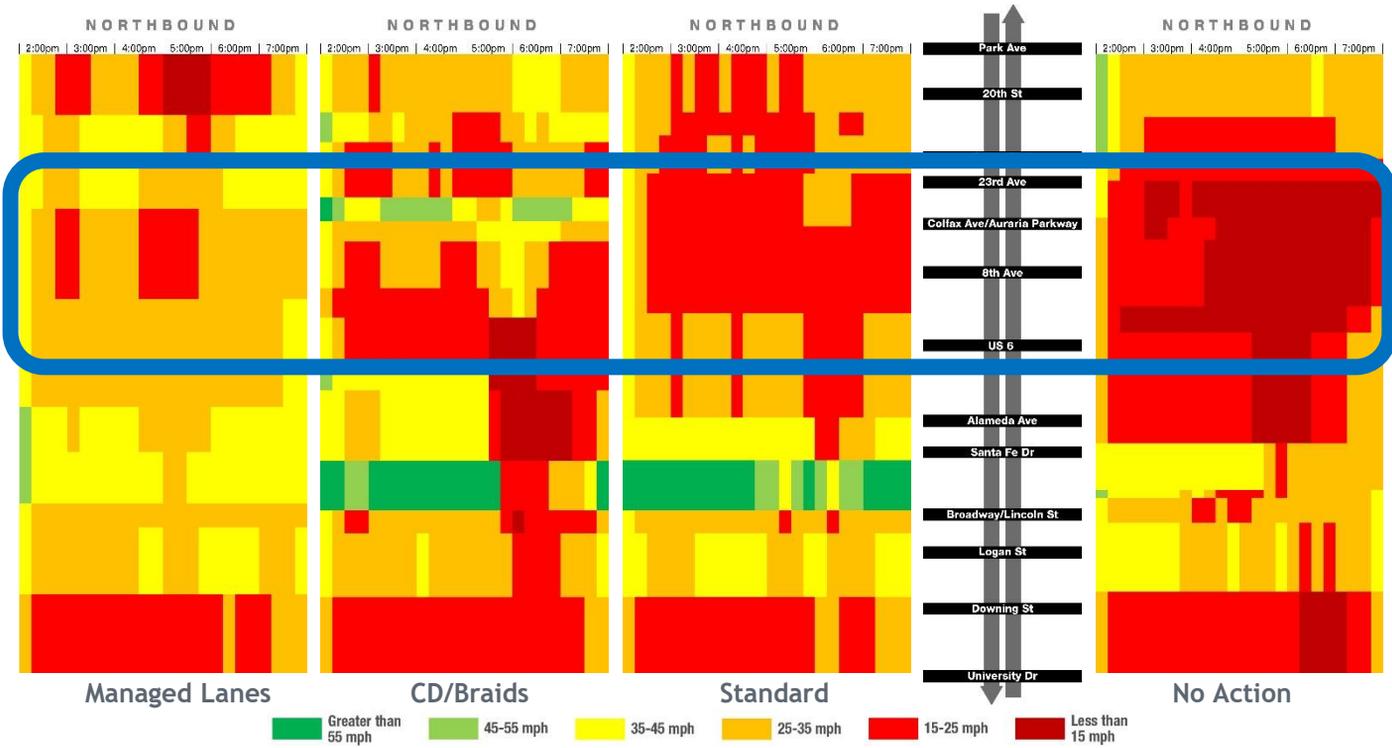
Results of Evaluation

Operations & congestion

Alternative	Key Considerations
No Action	No improvements; increasing congestion
Bring the Corridor to Standard	<p>Improves freeway operations</p> <ul style="list-style-type: none"> • Increased ramp spacing (removal of direct access at 8th & 17th) • Queues spillback onto mainline and local network
Braided Ramps and CD Roads	<p>Improves freeway operations; emphasis on access</p> <ul style="list-style-type: none"> • Increased ramp spacing (I-25 access served by CD roads) • CD roads hold queues off of the mainline • Separating major movements using braided ramps improves safety and congestion
Managed Lanes	<p>Improves freeway operations; emphasis on travel time reliability</p> <ul style="list-style-type: none"> • Increased ramp spacing (removal of direct access at 8th & 17th) • Additional capacity • Minor queue spillback onto mainline and local network

Results of Evaluation

Operations: Northbound PM Peak



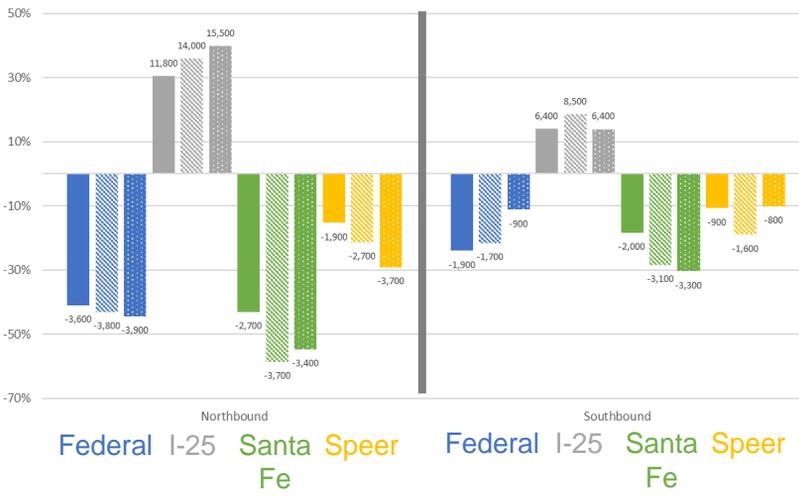
Results of Evaluation

Travel Time

Alternative		Peak Travel Time (in minutes)				Average Travel Time (in minutes)			
		Northbound		Southbound		Northbound		Southbound	
		AM	PM	AM	PM	AM	PM	AM	PM
Existing Conditions		12	30	13	18	10	21	11	14
No Action		15	25	17	17	13	18	14	14
Bring to Standard		11	21	17	15	10	13	14	13
CD/BR		17	21	12	13	13	15	11	11
Managed Lanes	GPs	11	14	10	13	10	12	10	12
	MLs	6	6	6	6	6	6	6	6

Results of Evaluation Effect on parallel routes and cross-streets

PM Screenline - Percent Volume Difference from No Action



Alternatives move traffic from the local network to I-25

Results of Evaluation Local Network

Alternative	Key Considerations
No Action	No improvements
Bring the Corridor to Standard	Pulls some traffic from local network to I-25
Braided Ramps and CD Roads	Pulls a large amount of traffic from local network to I-25 <ul style="list-style-type: none"> • CD Roads facilitate short, local trips
Managed Lanes	Pulls some traffic from local network to I-25



Multi-Modal connectivity analysis

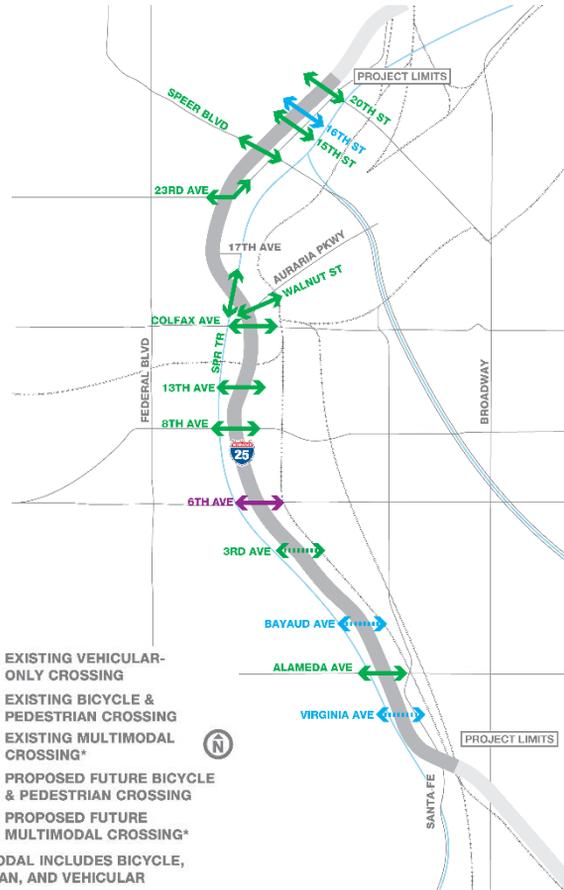
Coordinated with Denver plans and staff (Denver Moves, Downtown Area Plan, Park & Rec, Etc) to document already planned improvements and potential new crossings of the highway.

PEL alternatives considered the potential crossing opportunities along the corridor for all modes of travel.

Future studies and projects will address these crossings in more detail.

- EXISTING VEHICULAR-ONLY CROSSING
- EXISTING BICYCLE & PEDESTRIAN CROSSING
- EXISTING MULTIMODAL CROSSING*
- PROPOSED FUTURE BICYCLE & PEDESTRIAN CROSSING
- PROPOSED FUTURE MULTIMODAL CROSSING*

* MULTIMODAL INCLUDES BICYCLE, PEDESTRIAN, AND VEHICULAR

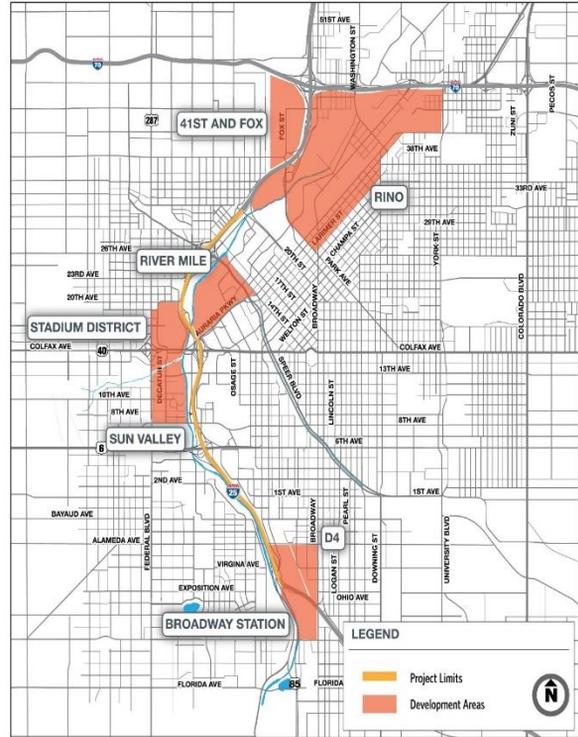


Sensitivity Analysis

- Land Use changes (Additional growth)
 - I-25 & Broadway, Sun Valley, Stadium District, River Mile, RINO, 41st/Fox
 - Additional 13,000 households and 90,000 jobs results in 116,000 daily trips on I-25

- Connected & Autonomous Vehicles (CAV):
 - At 75% adoption, highway can accommodate 15% more cars in general purpose lanes and 30% more in managed lanes

- Additional Transit Ridership:
 - BRT on Broadway/Lincoln and Federal, new LRT tracks between Broadway and Colfax
 - New transit carries up to 50,000 more riders removing approximately 15,000 trips from I-25



Results of Evaluation

Impact to the surrounding environment

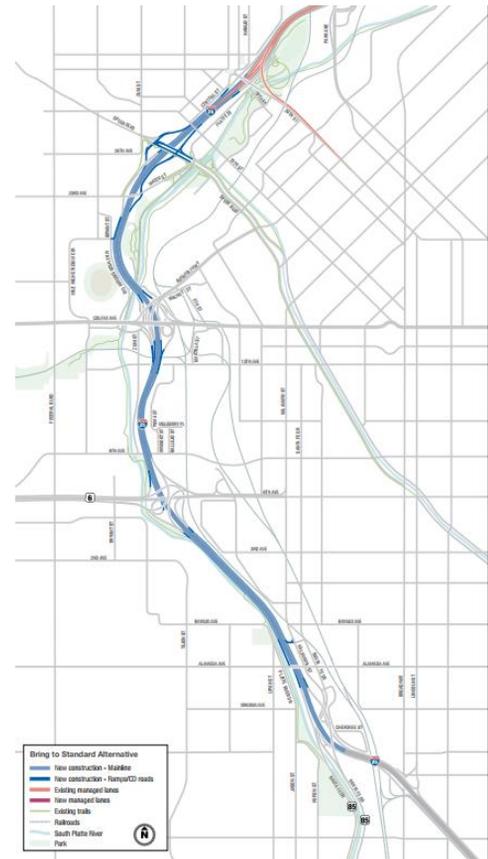
Alternative	Key Considerations
No Action	No impact
Bring the Corridor to Standard	Least impact (10 – 15 acres)
Braided Ramps and CD Roads	More impact (35 – 45 acres)
Managed Lanes	More impact (30 – 40 acres)

**Location and magnitude of impacts to be determined during NEPA*

Table Sessions

Key Quantifiable Outcomes:

- Geometric improvements common to all three alternatives provide:
 - 40% reduction in crashes
 - Opportunity to enhance crossings for pedestrians, bicycles and local vehicular circulation
- Improving on and off-ramp locations via braided ramps and/or collector-distributor roads further improves safety
 - An additional 10% reduction in crashes (for a total of about a 50% reduction in crashes as compared to No Action)
- Managed Lanes provide travel time reliability and additional through capacity
 - A predictable 6 minute travel time through the corridor can be provided by managed lanes - compared to 10-30 minutes in other lanes
- Improvements for all modes of travel will be necessary to meet future needs



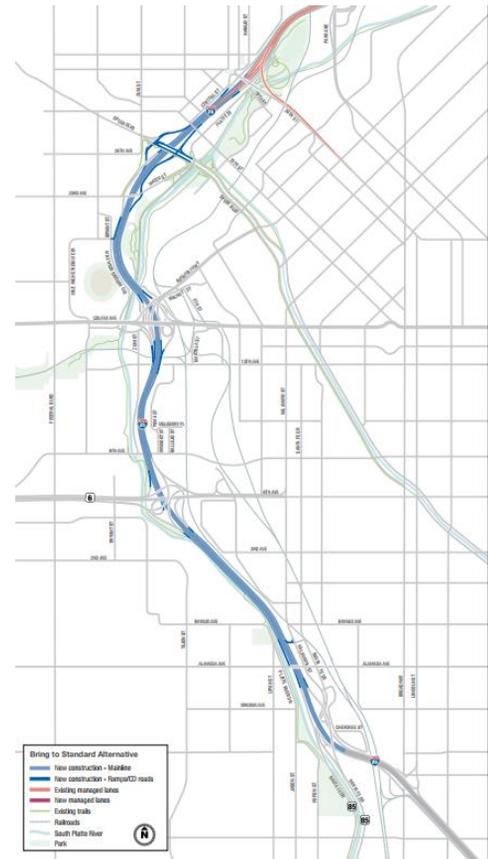
Action Plan

Action Plan will identify individually beneficial projects and provide information for each such as:

- Anticipated benefits and potential impacts
- Prerequisite projects or actions
- Partners and stakeholders
- Potential funding sources

Future Actions will include:

- Determination of which projects to move forward and potential funding
 - Detailed alternative analysis
 - Additional public and agency coordination
- Final design and permitting



Anticipated next steps:

- Publish PEL document in March 2020
- NEPA analysis and 30% design of 23rd Avenue and Speer Boulevard bridges
 - Bridge deficiencies (FASTER funding provides funds for replace)
 - Very tight NB weave between 23rd on- and Speer off-ramps
 - Opportunity for managed lane extension and connection, with recognized benefits to transit and downtown bound HOT lane users
 - Improve multimodal crossing facilities
- Potential revival of Valley Highway EIS analysis from Santa Fe to 6th Ave
- Completion of design and construction of the Alameda Bridge over the S. Platte



Upcoming Meetings/Outreach Activities

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- August 2017 - Project initiation/kick-off
 - February to August 2018 - Purpose and Need
Develop evaluation process and alternatives
 - October to December 2018 - Review alternatives and level 1 evaluation
 - Spring/Summer 2019 - Review level 2 evaluation
Public open house
 - Fall 2019 - Review level 3 evaluation
SFG Meeting: November 14 at 5:30
 - Winter 2019/2020 - PEL study complete, summary video

Questions / Final Thoughts