

WELCOME!

US 85

(I-76 TO 124th Avenue)

Project

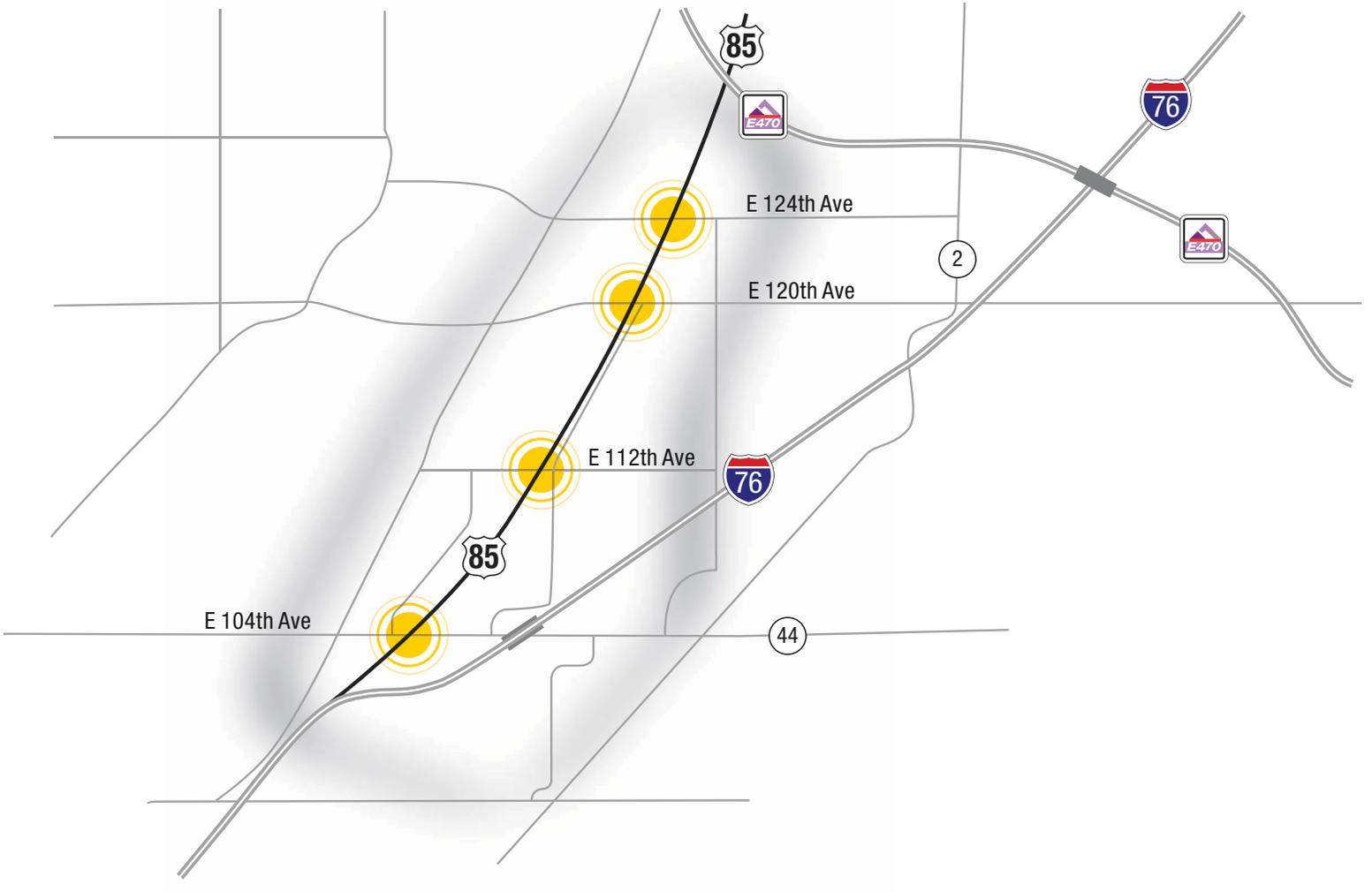


COLORADO

Department of
Transportation



Study Area & Vicinity





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at today's meeting



Visit the project website:



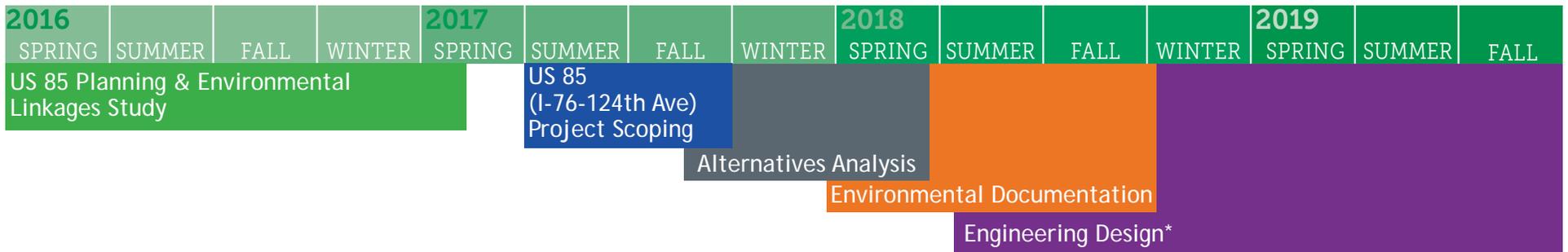
www.codot.gov/library/studies/us-85-from-i-76-to-124th-avenue-highway-design-improvements

Contact the US 85
(I-76 to 124th Ave)
Stakeholder Engagement team:
jody@jseassociates.com





Schedule



*When Funded construction may be within 24 months



What is the Purpose of the Transportation Improvements?

The purpose of the proposed transportation improvements in the US 85 corridor from I-76 to 124th Avenue are to:

-  Improve safety
-  Reduce existing and future traffic congestion
-  Improve connectivity for and between transit (bus), bicyclists, and pedestrians
-  Improve regional operations for cars, freight, and transit (bus), along US 85 between the Denver metropolitan area and communities in Adams and Weld Counties and provide reasonable access for existing and future land use



Why are the Transportation Improvements Needed?

Safety



There is a higher than expected number of rear-end crashes at the US 85/104th Avenue and US 85/120th Avenue intersections. The proximity of the railroad to the intersections is not adequate to safely accommodate queues that form between the railroad tracks and US 85 when a train is present.

Vehicle and Transit (Bus) Operations

Traffic operations along the corridor and at the intersections are congested today and are expected to worsen by 2040 due to local and regional population and employment growth.



Bicycle and Pedestrian Connectivity

Infrastructure for, and connectivity among, multimodal travel modes (transit, bicyclist, and pedestrian) do not meet the existing or future (2040) needs. Corridor demand for biking and walking trips east-west across the US 85 corridor and to access transit along US 85 is expected to increase in the future.



Regional Operations and Access Control

US 85 is a regionally significant corridor for regional operations for cars, freight movement (truck and rail), and transit. The spacing distance between the at-grade intersections of US 85/104th Avenue, US 85/Longs Peak Drive, US 85/112th Avenue, US 85/120th Avenue, and US 85/124th Avenue conflict with the corridor's mobility function.





Existing & Forecasted 2040 Operational Deficiencies

1 Existing daily traffic volumes along the corridor are approximately 32,000 to 42,000 vpd. Daily truck volumes are approximately 13 percent of the daily traffic volumes (4,100 to 5,500 trucks per day).

2 The distance between the railroad and US 85 ranges from approximately 200 to 220 feet between US 85 and the 112th Avenue, 120th Avenue, and 124th Avenue at-grade railroad crossings. The distance between US 85 and the 104th Avenue railroad crossing is approximately 800 feet.

Existing and projected average queues exceed the available storage between the railroad crossing and US 85 at these locations when a train is present. The eastbound vehicle queues can extend onto the northbound US 85 mainline causing northbound vehicles to come to a complete stop. There is a moderate risk of increased crash and severity rates on the northbound US 85 mainline.

3 Existing traffic operations for the US 85/104th Avenue, US 85/112th Avenue, US 85/120th Avenue, and US 85/124th Avenue intersections in the morning (AM) and evening (PM) are LOS D/E, LOS D/E, LOS C/D, and LOS B/D respectively.

Projected 2040 traffic volumes indicate that the US 85/104th Avenue, US 85/112th Avenue, US 85/120th Avenue, and US 85/124th Avenue intersections in the morning (AM) and evening (PM) are F/F, E/E, F/F, and E/D respectively.

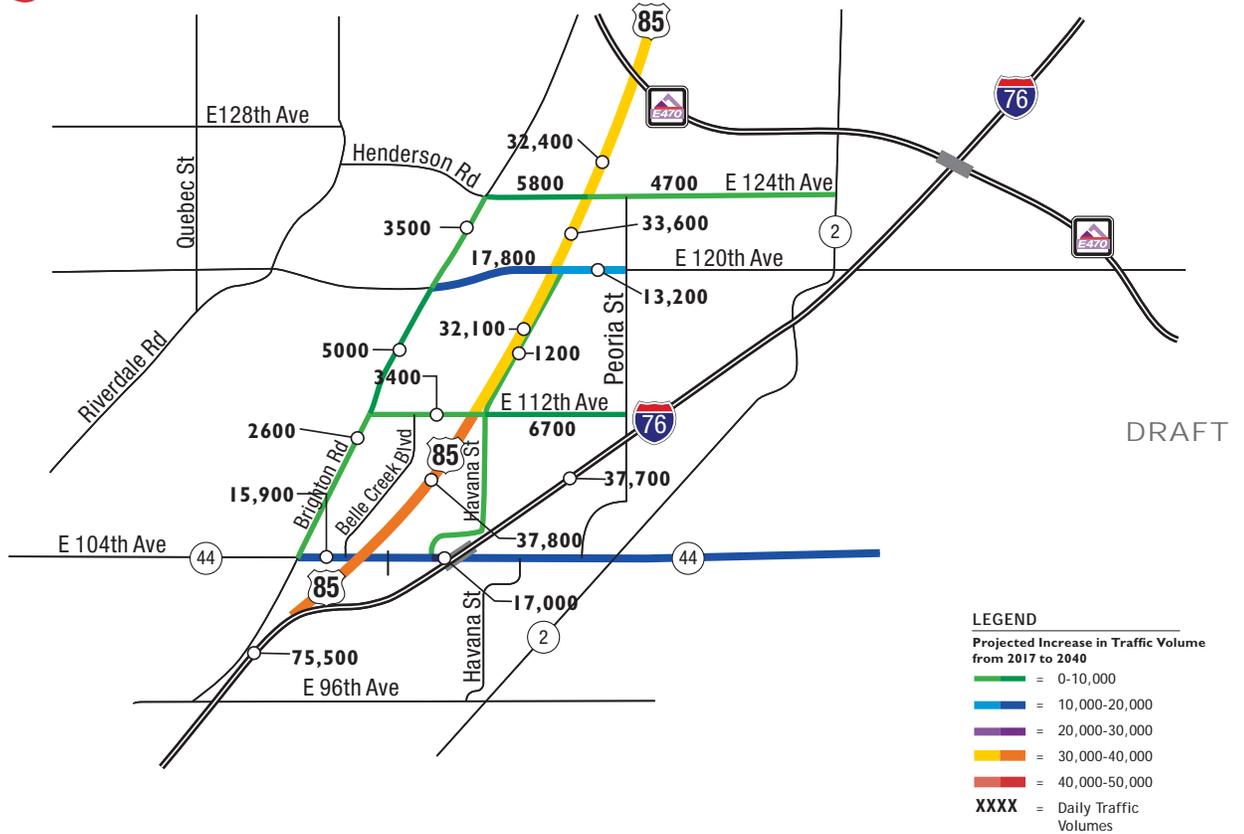
4 The US 85/104th Avenue, US 85/112th Avenue, US 85/120th Avenue, and the US 85/124th Avenue intersections have an above average number of rear end crashes compared to other similar facilities. Fatalities have occurred at US 85/112th Avenue, US 85/120th Avenue, US 85/124th Avenue, and in the median along the corridor.

5 Sidewalks for pedestrians and transit users do not exist at US 85/112th Avenue, US 85/120th Avenue, and the US 85/124th Avenue intersections. Northbound and southbound bus stops are located along US 85 at 104th Avenue, 112th Avenue, and 120th Avenue. Eastbound and westbound bus stops are located along 104th Avenue and 120th Avenue.

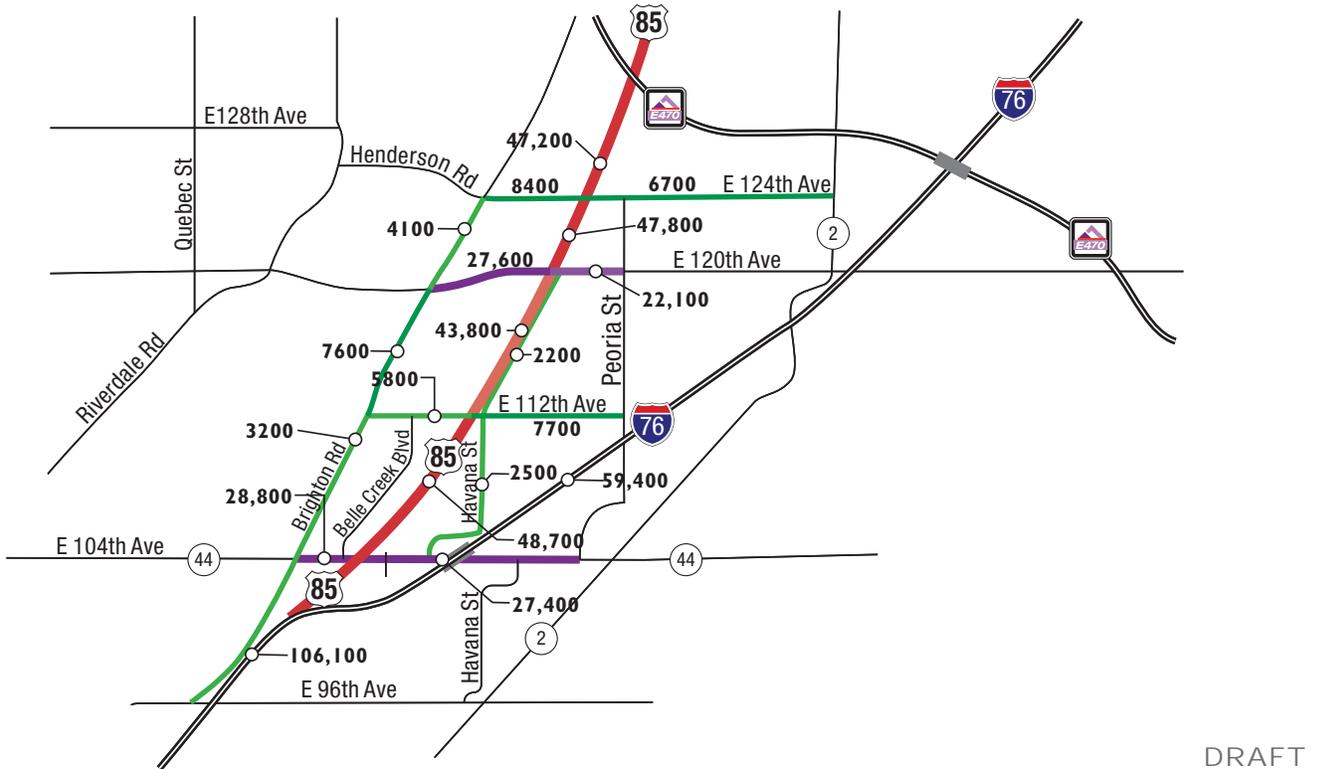




Existing Conditions



2040 No-Action



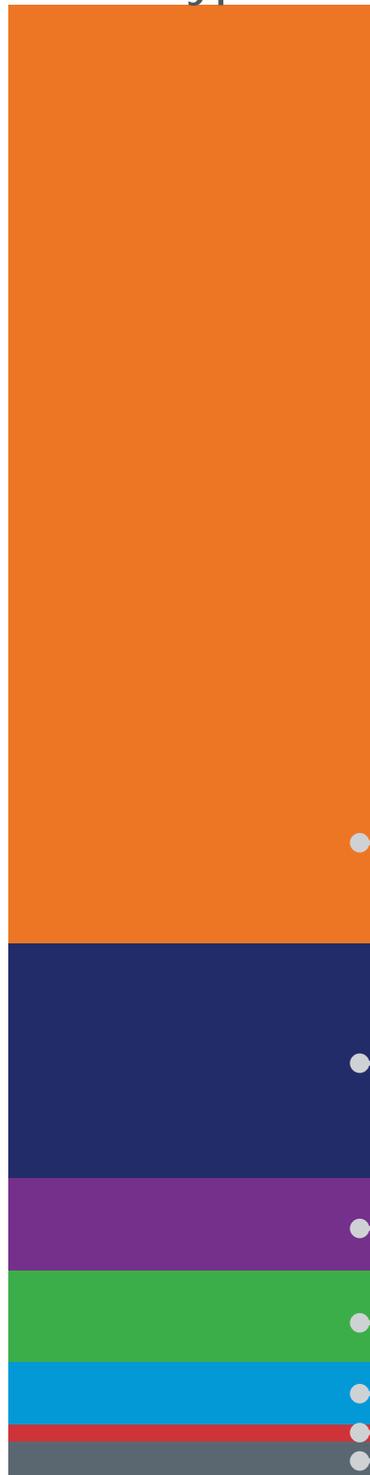


Corridor Crash History

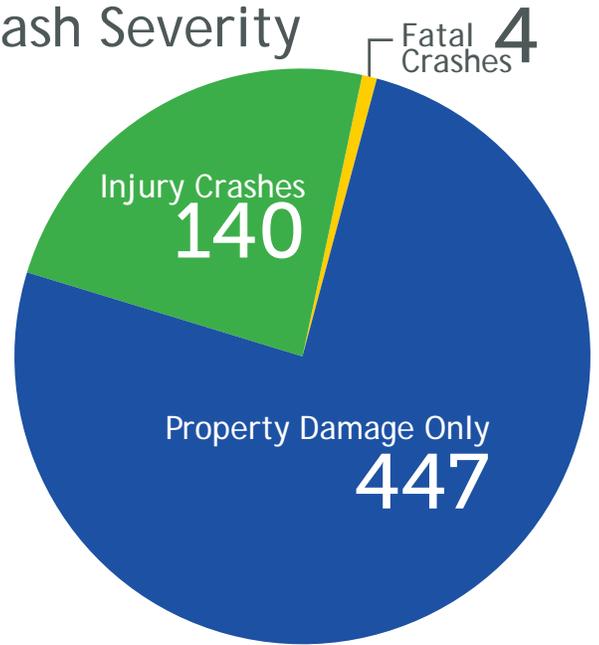
January 1st, 2011-June 30th 2016

(Intersection and Non-Intersection Related Crashes)

Crash Types



Crash Severity





Existing Conditions

Existing (2017) LOS Morning (AM)

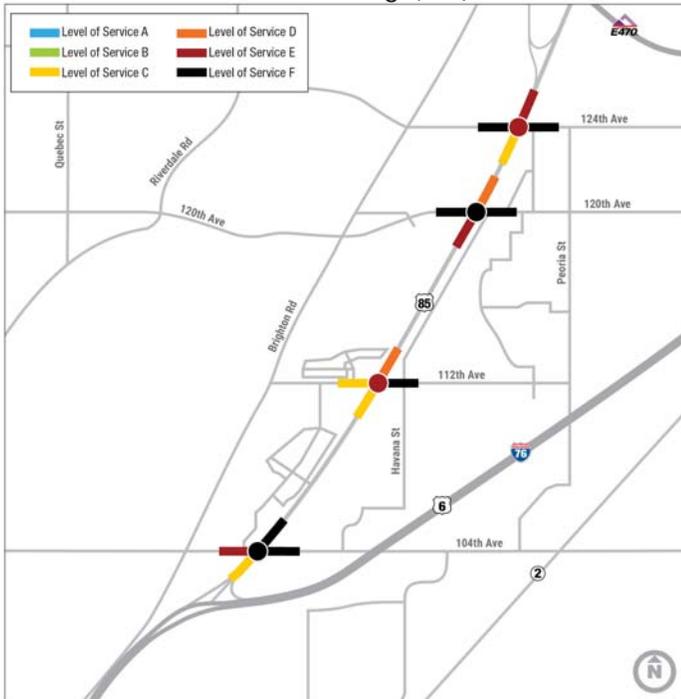


Existing (2017) LOS Evening (PM)

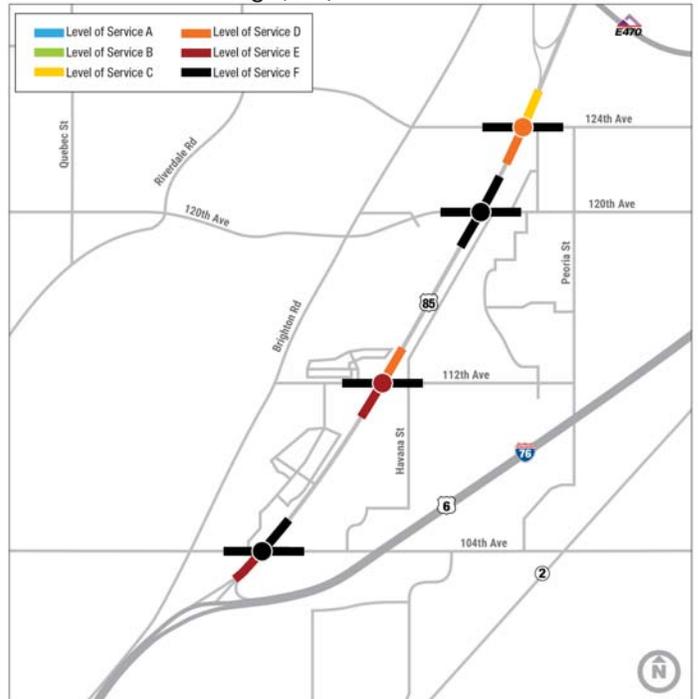


2040 No-Action

2040 No Action LOS Morning (AM)



2040 LOS Evening (PM)

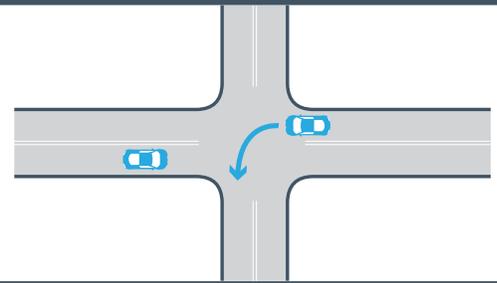




Level of Service (LOS)

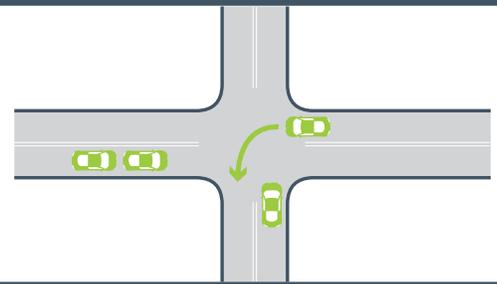
A

No vehicle waits longer than one signal cycle.



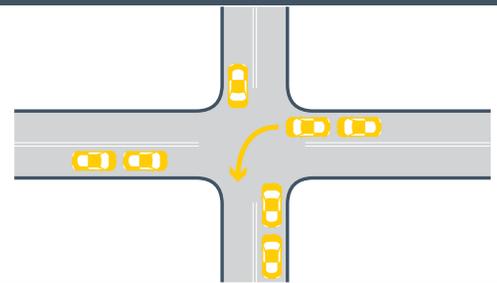
B

On rare occasions vehicles wait through more than one signal indication.



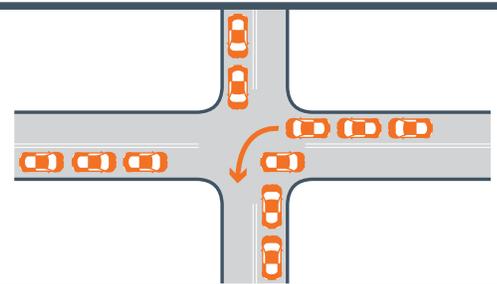
C

Vehicles wait intermittently through more than one signal cycle. Occasionally backups may develop. Traffic flow is still stable.



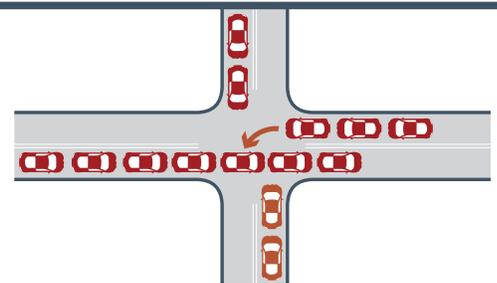
D

Delays at intersections may become extensive, but enough cycles with lower demand occur to permit periodic clearance, preventing excessive backups. LOS D has historically been regarded as a desirable design objective in urban areas.



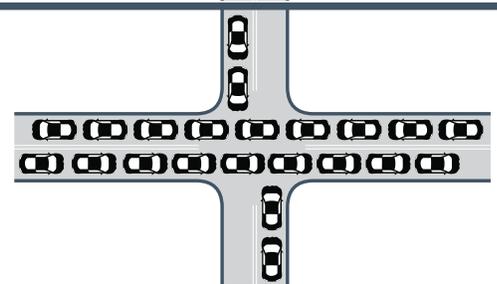
E

Very long queues may create lengthy delays.



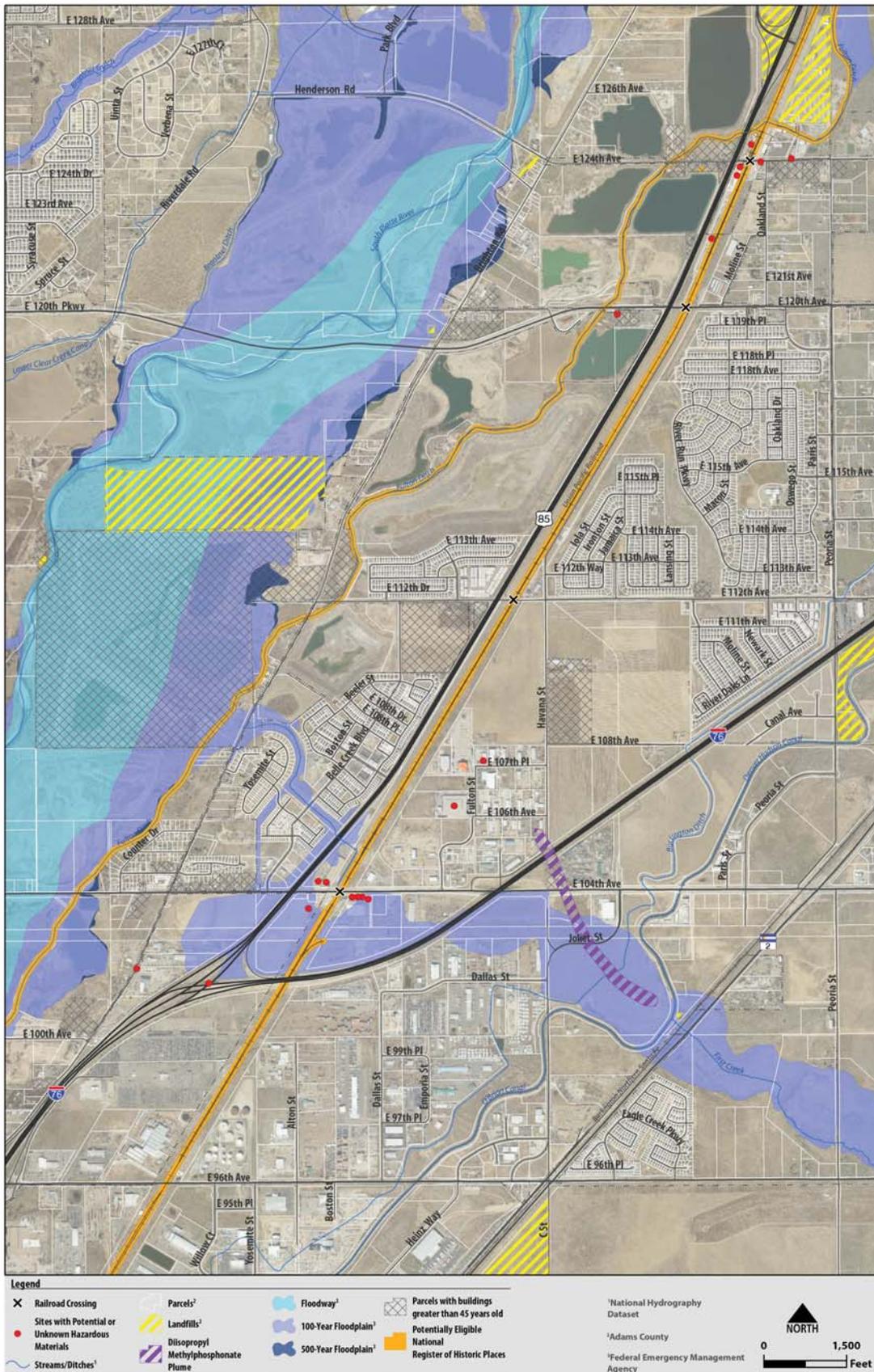
F

Backups from locations downstream restrict or prevent movement of vehicles out of approach, creating "gridlock" condition.



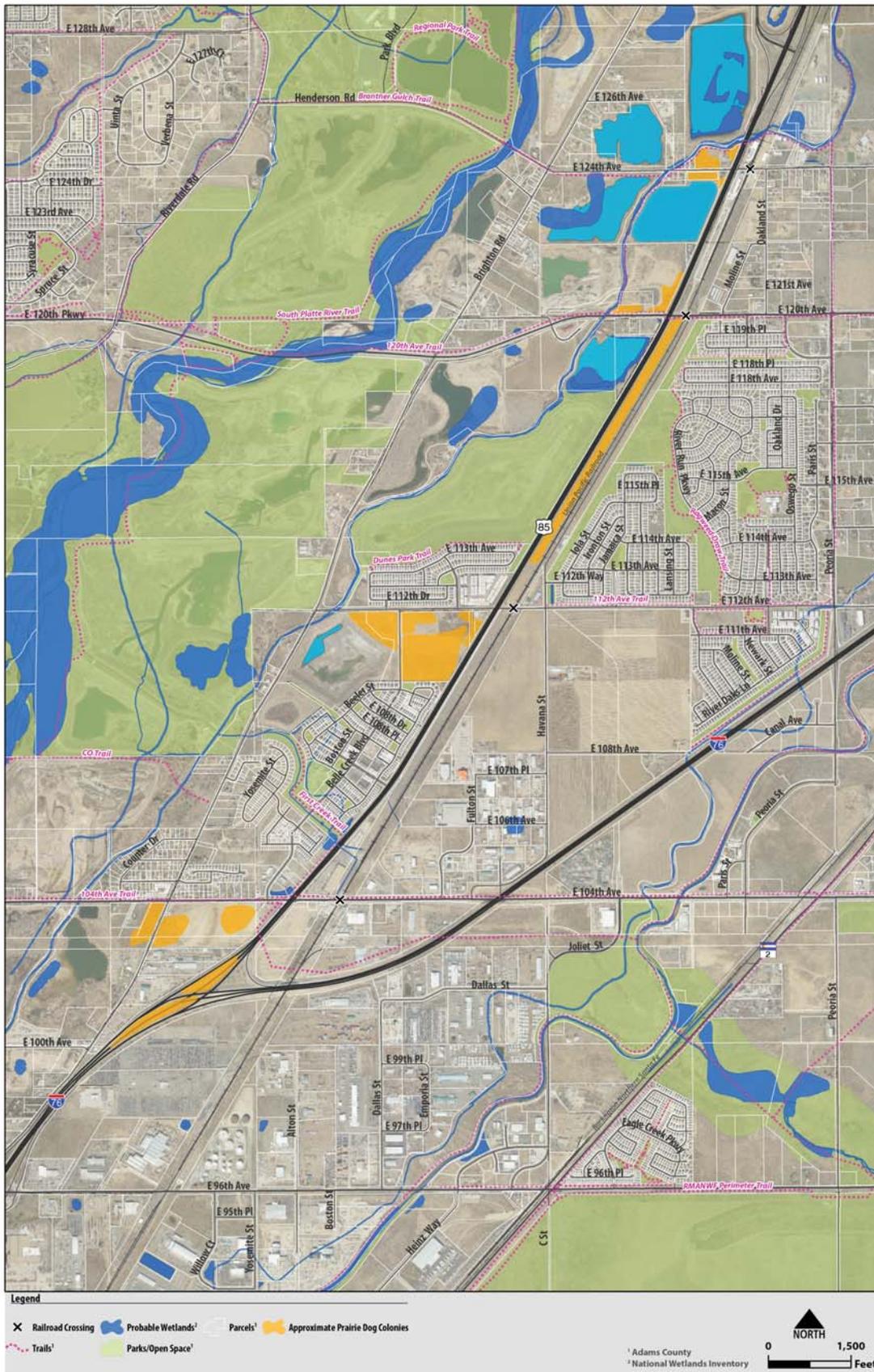


Environmental Resources



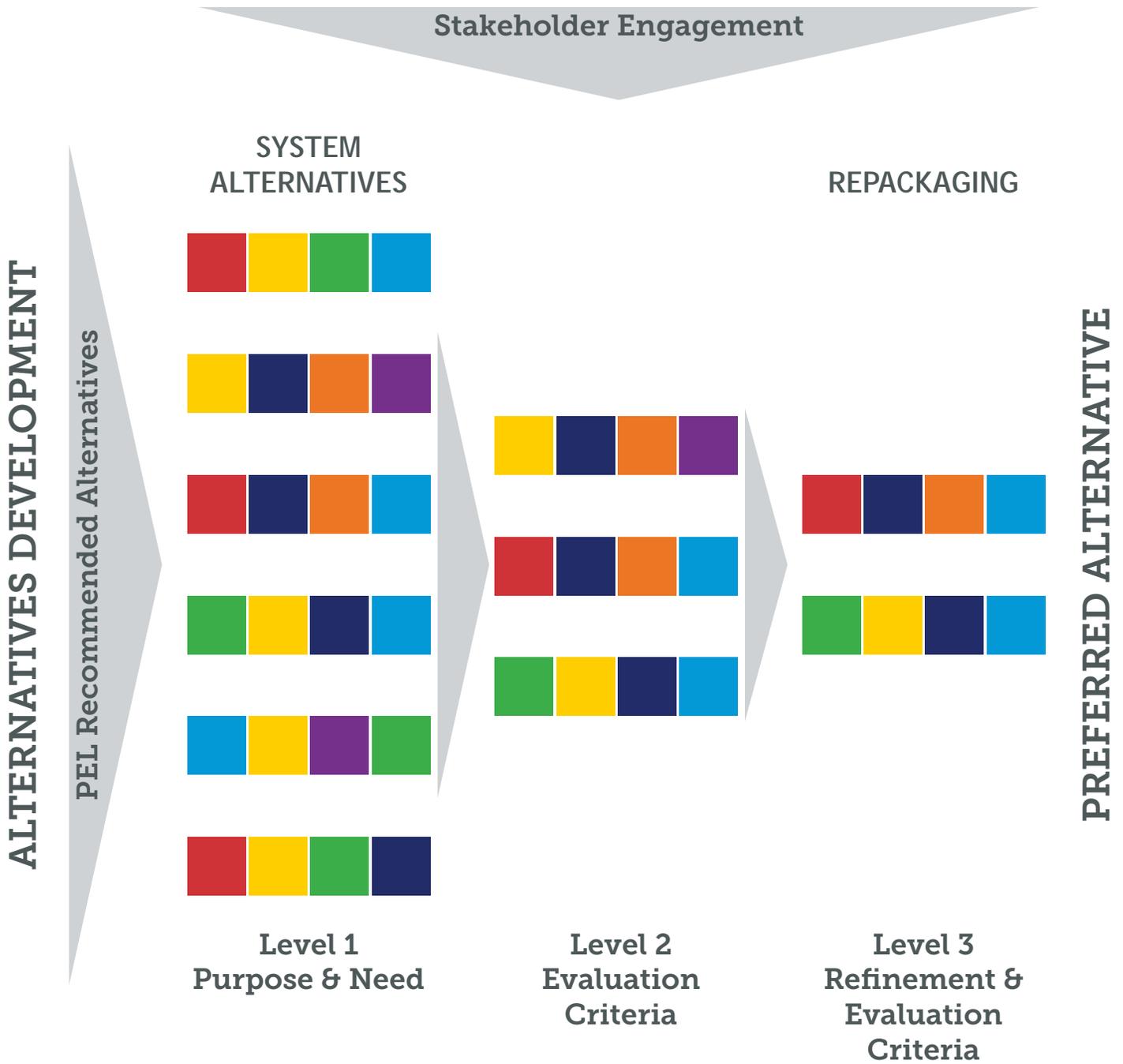


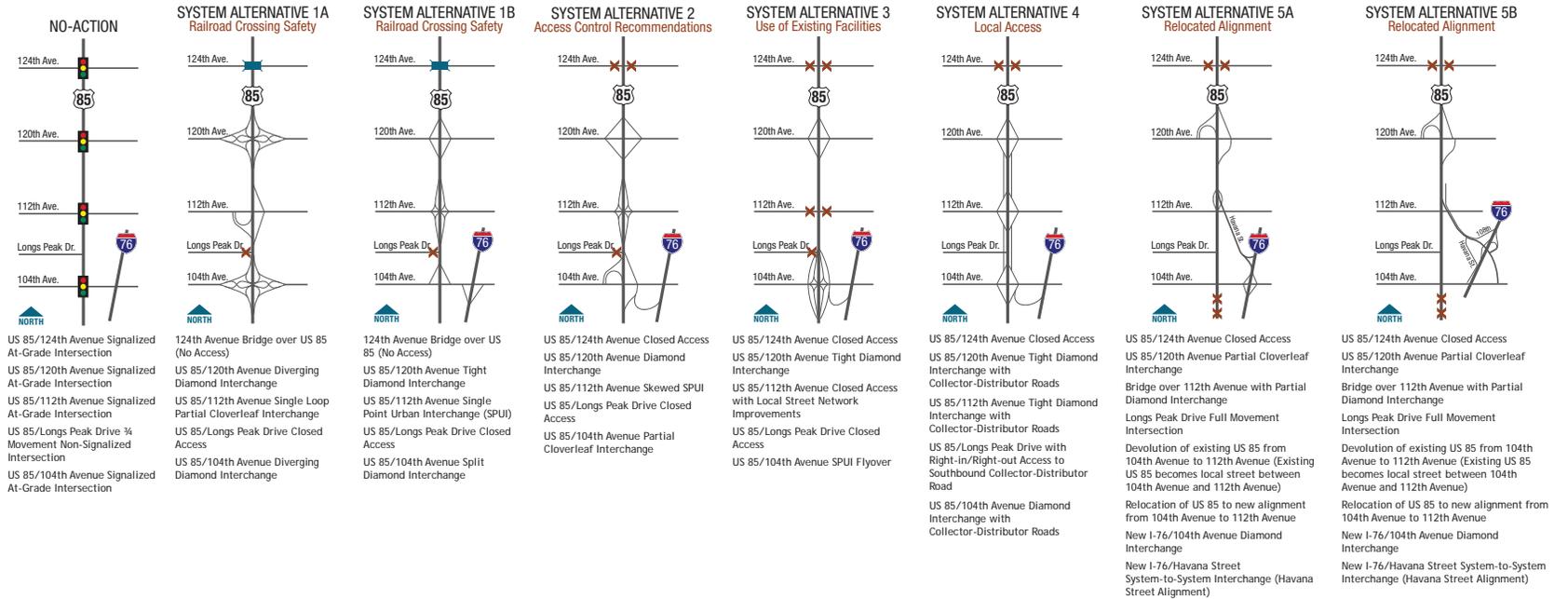
Environmental Resources





Alternatives Evaluation Process





Purpose and Need

Safety: Does the alternative improve existing and future conditions that contribute to higher than expected crash rates at the US 85/104th Avenue and US 85/120th Avenue intersections?

NO

YES

YES

YES

YES

YES

YES

YES

Vehicle and Transit (Bus) Operations: Does the alternative improve existing and future traffic operations along the US 85 corridor?

NO

YES

YES

YES

YES

YES

YES

YES

Bicycle and Pedestrian Connectivity: Does the alternative include infrastructure for and connectivity between bicyclists/pedestrians across the US 85 corridor and accessing existing and planned transit along the US 85 corridor?

NO

YES

YES

YES

YES

YES

YES

YES

Regional Operations and Access Control: Does the alternative improve regional operations for northern Colorado along US 85?

NO

YES

YES

YES

YES

YES

YES

NO

Summary of Results

Retained

Retained

Retained

Retained

Retained

Retained

Retained

Eliminated

Notes

The No-Action Alternative has been retained for baseline comparison purposes.

Retained for further analysis because this system alternative meets purpose and need

Retained for further analysis because this system alternative meets purpose and need.

Existing I-76 to US 85 system-to-system interchange access would be preserved with the US 85/104th Avenue Split Diamond Interchange. Although access would be preserved, the westbound I-76 off-ramp to US 85 would not access 104th Avenue. Existing traffic volumes (2017) on the westbound I-76 off-ramp to 104th Avenue and northbound US 85 are less than 100 vehicles in the morning (AM) and evening (PM) peak hours.

Retained for further analysis because this system alternative meets purpose and need. Existing I-76 to US 85 system-to-system interchange access would be preserved with the US 85/104th Avenue Partial Cloverleaf Interchange. Although access would be preserved, the westbound I-76 off-ramp to 104th Avenue and northbound US 85 would access US 85 through a signalized intersection at the US 85 northbound on- and off-ramps to 104th Avenue. Existing traffic volumes (2017) on the westbound I-76 off-ramp to northbound US 85 are less than 100 vehicles in the morning (AM) and evening (PM) peak hours. The US 85/104th Avenue ¾ Single Point Urban Interchange (SPUI) sub-alternative would preserve the existing free-flow movement from the westbound I-76 off-ramp to northbound US 85.

Retained for further analysis because this system alternative meets purpose and need. Existing I-76 to US 85 system-to-system interchange access would be preserved with the US 85/104th Avenue SPUI Fly-over Interchange. Although access would be preserved, the westbound I-76 off-ramp to northbound US 85 would not access 104th Avenue. Existing traffic volumes (2017) on the westbound I-76 off-ramp to northbound US 85 are less than 100 vehicles in the morning (AM) and evening (PM) peak hours.

Retained for further analysis because this system alternative meets purpose and need. Existing I-76 to US 85 system-to-system interchange access would be preserved with the US 85/104th Avenue Diamond Interchange. Although access would be preserved, the westbound I-76 off-ramp to 104th Avenue and northbound US 85 would access US 85 through a signalized intersection at the US 85 northbound on- and off-ramps to 104th Avenue. Existing traffic volumes (2017) on the westbound I-76 off-ramp to northbound US 85 are less than 100 vehicles in the morning (AM) and evening (PM) peak hours.

Retained for further analysis because this system alternative meets purpose and need.

Eliminated in the Level 1 Evaluation. This system alternative is not responsive to purpose and need because it would reduce regional operations for northern Colorado along US 85. Existing daily traffic volumes along the US 85 corridor are approximately 38,000 to 47,000 vehicles per day (vpd), and the existing I-76/US 85 directional interchange is a system-to-system movement. The proposed I-76/Havana Street Single Loop Partial Cloverleaf Interchange would not be able to process as much volume (vpd) as the existing I-76/US 85 directional interchange with direct connect ramps at US 85-1-76. The reduced capacity at the proposed I-76/Havana Street Single Loop Partial Cloverleaf Interchange would reduce regional operations along US 85.

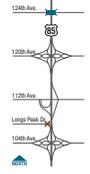


System Alternative

NO ACTION



SYSTEM ALTERNATIVE 1A
Railroad Crossing Safety



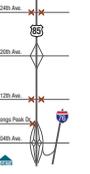
SYSTEM ALTERNATIVE 1B
Railroad Crossing Safety



SYSTEM ALTERNATIVE 2
Access Control Recommendations



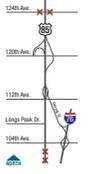
SYSTEM ALTERNATIVE 3
Use of Existing Facilities



SYSTEM ALTERNATIVE 4
Local Access



SYSTEM ALTERNATIVE 5A
Relocated Alignment



Evaluation Criteria/Results

Minimize temporary impacts on existing residents, businesses, and properties during construction.	YES No temporary impacts would occur if the no-action alternative is selected, since no construction is proposed.	YES Existing residents, businesses, and properties near 104th Ave., 112th Ave., 120th Ave., and 124th Ave. would be temporarily impacted during construction.	YES Existing residents, businesses, and properties near 104th Ave., 112th Ave., 120th Ave., and 124th Ave. would be temporarily impacted during construction.	YES Existing residents, businesses, and properties near 104th Ave., 112th Ave., 120th Ave., and 124th Ave. would be temporarily impacted during construction.	YES Existing residents, businesses, and properties near 104th Ave., 112th Ave., 120th Ave., and 124th Ave. would be temporarily impacted during construction.	YES Existing residents, businesses, and properties near 104th Ave., 112th Ave., 120th Ave., and 124th Ave. would be temporarily impacted during construction.	YES Existing residents, businesses, and properties near 104th Ave., 112th Ave., 120th Ave., and 124th Ave. would be temporarily impacted during construction.
Facilitate development or redevelopment and support future planned growth.	NO Ease of movement along US 85 and side streets is expected to worsen by 20% due to local and regional population and employment growth. This would hinder opportunities for redevelopment and support of future planned growth.	YES Maintains existing development opportunities along US 85 with approximately 1 mile spacing of interchanges. Increased operations throughout the corridor would aid the planned residential and industrial development.	YES Maintains existing development opportunities along US 85 with approximately 1 mile spacing of interchanges. Increased operations throughout the corridor would aid the planned residential and industrial development.	YES Maintains existing development opportunities along US 85 with approximately 1 mile spacing of interchanges. Increased operations throughout the corridor would aid the planned residential and industrial development.	YES Maintains existing development opportunities along US 85 with approximately 1 mile spacing of interchanges. Increased operations throughout the corridor would aid the planned residential and industrial development.	YES Maintains existing development opportunities along US 85 with approximately 1 mile spacing of interchanges. Increased operations throughout the corridor would aid the planned residential and industrial development.	NO Reduces existing development opportunities along US 85 with creation of a barrier along near-Phase Alignment. Properties east of the UPRR between 104th Ave. and 112th Ave. would have reduced access to US 85. With the closure of 124th Ave. and reduced access at 112th Ave., only northbound access to US 85 would be provided access to 112th, access to US 85 would be reduced to the US 85/120th Ave. interchange for approximately 3.4 miles between 1-76 and I-470.
Improve the ability of local residents to access community facilities both across and along US 85.	NO Ease of movement along US 85 and side streets is expected to worsen by 20% due to local and regional population and employment growth. This alternative would not improve access to community facilities.	YES This alternative provides grade separated interchanges for 104th, 112th, 120th, and 124th Ave., providing connectivity for the communities along the east-west regional roads.	YES This alternative provides grade separated interchanges for 104th, 112th, 120th, and 124th Ave., providing connectivity for the communities along the east-west regional roads.	YES This alternative provides grade separated interchanges for 104th, 112th, 120th, and 124th Ave., providing connectivity for the communities along the east-west regional roads.	YES This alternative provides grade separated interchanges for 104th, 112th, 120th, and 124th Ave., providing connectivity for the communities along the east-west regional roads.	NO This alternative provides a grade separated interchange from US 85 to 120th Ave., providing connectivity for the communities along the east-west regional roads. 112th and 124th Ave. would be closed, reducing east-west connectivity. Local street network improvements may improve connectivity at the closed intersections.	YES This alternative provides a grade separation from US 85 for 120th and 124th Ave., improving east-west regional connectivity.
Minimize properties to be acquired for right-of-way.	YES No properties would be acquired or displaced with this alternative.	YES 45 acres of property to be acquired for ROW.	YES 30 acres of property to be acquired for ROW.	YES 41 acres of property to be acquired for ROW.	YES 13 acres of property to be acquired for ROW.	YES 36 acres of property to be acquired for ROW.	YES 49 acres of property to be acquired for ROW.
Improve east-west regional connectivity along 104th and 120th Ave. across US 85.	NO Ease of movement along east-west 104th Ave. and 120th Ave. is expected to worsen by 20% due to local and regional population and employment growth. This alternative would not improve 104th Ave. and 120th Ave. connectivity across US 85.	YES This alternative provides grade separated interchanges at US 85/104th Ave. and US 85/120th Ave., which would improve east-west regional connectivity along 104th Ave. and 120th Ave. The existing US 85/104th Ave. and US 85/120th Ave. signalized intersections would be replaced by two signalized intersections at the northbound and southbound ramps.	YES This alternative provides grade separated interchanges at US 85/104th Ave. and US 85/120th Ave., which would improve east-west regional connectivity along 104th Ave. and 120th Ave. The existing US 85/104th Ave. signalized intersection at the northbound and southbound ramps due to the split diamond configuration, and the US 85/120th Ave. signalized intersection would be replaced by two signalized intersections at the northbound and southbound ramps.	YES This alternative provides grade separated interchanges at US 85/104th Ave. and US 85/120th Ave., which would improve east-west regional connectivity along 104th Ave. and 120th Ave. The existing US 85/104th Ave. signalized intersection at the northbound and southbound ramps, and the US 85/120th Ave. signalized intersection would be replaced by two signalized intersections at the northbound and southbound ramps.	YES This alternative provides a grade separated interchange from US 85 to 120th Ave., which would improve east-west regional connectivity along 104th Ave. and 120th Ave. The existing US 85/104th Ave. signalized intersection would be replaced by a single signalized intersection at the northbound and southbound ramps. The US 85/120th Ave. signalized intersection would be replaced by two signalized intersections at the northbound and southbound ramps.	YES This alternative provides grade separated interchanges at US 85/104th Ave. and US 85/120th Ave., which would improve east-west regional connectivity along 104th Ave. and 120th Ave. The existing US 85/104th Ave. and US 85/120th Ave. signalized intersections would be replaced by two signalized intersections at the northbound and southbound ramps.	YES This alternative provides grade separated interchanges at US 85/104th Ave. and US 85/120th Ave., which would improve east-west regional connectivity along 104th Ave. and 120th Ave. The existing US 85/104th Ave. signalized intersection would remain with two additional at the US 85/104th Ave. signalized intersection ramp terminals. The US 85/120th Ave. signalized intersection would be replaced by two signalized intersections at the northbound and southbound ramps.
Enhance local street connectivity to US 85.	NO This alternative does not enhance local street connectivity as the existing configuration remains.	YES 104th and 112th Ave. would be grade separated over the railroad. Access on 104th and 112th Ave. are too close to the bridge structure for the side streets to meet existing access points. The local street network would be impacted and may hinder local street connectivity. 120th and 124th Ave. grade separate over the railroad but opportunities may be available to enhance local street connectivity at 120th and 124th Ave.	YES 104th and 112th Ave. would be grade separated over the railroad. Access on 104th and 112th Ave. are too close to the bridge structure for the side streets to meet existing access points. The local street network would be impacted and may hinder local street connectivity. 120th and 124th Ave. grade separate over the railroad but opportunities may be available to enhance local street connectivity at 120th and 124th Ave.	YES 104th and 112th Ave. would be grade separated over the railroad. Access on 104th and 112th Ave. are too close to the bridge structure for the side streets to meet existing access points. The local street network would be impacted and may hinder local street connectivity. 120th and 124th Ave. grade separate over the railroad but opportunities may be available to enhance local street connectivity at 120th and 124th Ave.	YES 104th and 112th Ave. would be grade separated over the railroad. Access on 104th and 112th Ave. are too close to the bridge structure for the side streets to meet existing access points. The local street network would be impacted and may hinder local street connectivity. 120th and 124th Ave. grade separate over the railroad but opportunities may be available to enhance local street connectivity at 120th and 124th Ave.	YES 104th, 112th, and 120th Ave. would remain at grade with the railroad and underneath US 85. The local street connectivity is maintained, however, future queues due to the railroad crossing may reduce overall travel time. Local street network circulation would not be maintained at 124th Ave. due to closure.	NO This alternative relocates US 85 to the east. Local street access is impacted and there are opportunities for re-establishing local networks. However, it creates out of direction access for 104th and 112th Ave. This out of direction travel may hinder local street connectivity. 124th Ave. would be closed which reduces the east-west connectivity rather than enhancing connectivity.
Maintain local street network circulation.	YES Changes to the current local street network circulation.	YES 104th and 112th Ave. would be grade separated over US 85 and the railroad. Access on 104th and 112th Ave. are too close to the bridge structure for the side streets to meet existing access points. The local street network would be impacted and may hinder local street connectivity. 120th and 124th Ave. grade separate over the railroad but opportunities may be available to enhance local street network circulation at 120th and 124th Ave.	YES 104th and 112th Ave. would be grade separated over US 85 and the railroad. Access on 104th and 112th Ave. are too close to the bridge structure for the side streets to meet existing access points. The local street network would be impacted and may hinder local street connectivity. 120th and 124th Ave. grade separate over the railroad but opportunities may be available to enhance local street network circulation at 120th and 124th Ave.	YES 104th and 112th Ave. would be grade separated over US 85 and the railroad. Access on 104th and 112th Ave. are too close to the bridge structure for the side streets to meet existing access points. The local street network would be impacted and may hinder local street connectivity. 120th and 124th Ave. grade separate over the railroad but opportunities may be available to enhance local street network circulation at 120th and 124th Ave.	YES 104th Ave. would remain at grade at the railroad with US 85 overhead. The local street connectivity would be maintained. 120th Ave. grade would separate over the railroad but opportunities are available to enhance local street connectivity at 120th Ave. Local street network circulation would not be maintained at 124th Ave. due to closure.	YES 104th, 112th, and 120th Ave. would remain at grade with the railroad and underneath US 85. The local street connectivity is maintained, however, future queues due to the railroad crossing may reduce overall travel time. Local street network circulation would not be maintained at 124th Ave. due to closure.	NO This alternative relocates US 85 to the east. Local street access is impacted and there are opportunities for re-establishing local networks. However, it creates out of direction access for 104th and 112th Ave. This out of direction travel may hinder local street connectivity. 124th Ave. would be closed which reduces the east-west connectivity rather than enhancing connectivity.
Avoid and minimize direct impacts to parks, open space, and trails.	YES No direct impacts to parks, open space, or trails with this alternative.	NO Impact approximately 0.3 acres of parks and open space, 0.5 miles existing trails, and 1.4 miles of proposed trail.	YES Impact approximately 0.2 acres of parks and open space, 0.5 miles existing trails, and 1.0 miles of proposed trail.	YES Impact approximately 0.3 acres of parks and open space, 0.5 miles existing trails, and 1.3 miles of proposed trail.	YES 0.04 acres of parks and open space, 0.4 miles existing trails and 0.9 miles of proposed trails impacted.	YES No acres of parks and open space impacted. Approximately 0.3 miles existing trails and 0.5 miles of proposed trail.	YES 1.7 acres of parks and open space, 0.1 miles existing trails, and 0.3 miles of proposed trails.
Avoid and minimize traffic noise impacts to noise receptors along the corridor by maintaining or moving the edge of roadway.	YES No additional noise receptors affected by this alternative. Existing noise receptors currently affected would continue to be affected.	YES 90 noise receptors within 500 feet of this alternative that would potentially be affected.	YES 77 noise receptors within 500 feet of this alternative that would potentially be affected.	YES 94 noise receptors within 500 feet of this alternative that would potentially be affected.	YES 48 noise receptors within 500 feet of this alternative that would potentially be affected.	YES 104 noise receptors within 500 feet of this alternative that would potentially be affected.	YES 419 noise receptors within 500 feet of this alternative that would potentially be affected.
Avoid and minimize direct impacts to previously identified and potential historic sites.	YES No potential or previously identified historic sites are impacted with this alternative.	YES 14 properties greater than 45 years of age and the UPRR and Fulton Ditch affected by this alternative.	YES 12 properties greater than 45 years of age and the UPRR and Fulton Ditch affected by this alternative.	YES 8 properties greater than 45 years of age and the UPRR and Fulton Ditch affected by this alternative.	YES 7 properties greater than 45 years of age and the UPRR and Fulton Ditch affected by this alternative.	YES 4 properties greater than 45 years of age and the UPRR affected by this alternative.	YES 4 properties greater than 45 years of age and the UPRR affected by this alternative.
Avoid and minimize direct impacts to floodplains.	YES No floodplains would be impacted with this alternative.	YES Approximately 30 acres of FEMA floodplains impacted with this alternative.	YES Approximately 37 acres of FEMA floodplains impacted with this alternative.	YES Approximately 35 acres of FEMA floodplains impacted with this alternative.	YES Approximately 15 acres of FEMA floodplains impacted with this alternative.	YES Approximately 29 acres of FEMA floodplains impacted with this alternative.	YES Approximately 7 acres of FEMA floodplains impacted with this alternative.
Avoid and minimize direct impacts to wetlands and other waters of the US.	YES No direct impacts to wetlands and other waters of the US with this alternative.	YES Approximately 1.5 acres of wetlands and other waters of the US impacted with this alternative.	YES Approximately 0.4 acres of wetlands and other waters of the US impacted.	YES Approximately 0.4 acres of wetlands and other waters of the US impacted.	YES Approximately 0.2 acres of wetlands and other waters of the US impacted.	YES Approximately 0.5 acres of wetlands and other waters of the US impacted.	YES Approximately 0.3 acres of wetlands and other waters of the US impacted.
Avoid and minimize direct impacts to sensitive species.	YES No direct impacts to sensitive species with this alternative.	YES Approximately 9.2 acres of prairie dog colony habitat impacted.	YES Approximately 4.0 acres of prairie dog colony habitat impacted.	YES Approximately 4.6 acres of prairie dog colony habitat impacted.	YES Approximately 4.6 acres of prairie dog colony habitat impacted.	YES Approximately 5.0 acres of prairie dog colony habitat impacted.	YES Approximately 7.0 acres of prairie dog colony habitat impacted.
Avoid and minimize direct impacts to sites with hazardous materials concerns.	YES No direct impacts to sites with hazardous materials concerns with this alternative.	YES Approximately 10 sites with hazardous materials concerns impacted with this alternative.	YES Approximately 5 sites with hazardous materials concerns impacted with this alternative.	YES Approximately 5 sites with hazardous materials concerns impacted with this alternative.	YES Approximately 5 sites with hazardous materials concerns impacted with this alternative.	YES Approximately 4 sites with hazardous materials concerns impacted with this alternative.	YES Approximately 1 site with hazardous materials concerns impacted with this alternative.
Avoid and minimize visual impacts.	YES No direct impacts to visual resources with this alternative.	NO This alternative would result in the strong levels of visual contrast to high sensitivity viewers at US 85/104th Ave., US 85/120th Ave., and US 85/124th Ave.	NO This alternative would have strong levels of visual contrast to high sensitivity viewers at US 85/104th Ave., US 85/120th Ave., and US 85/124th Ave.	NO This system alternative would have strong levels of visual contrast to high sensitivity viewers at US 85/104th Ave., US 85/120th Ave., and US 85/124th Ave.	YES This system alternative would have strong levels of visual contrast to high sensitivity viewers at US 85/104th Ave., US 85/120th Ave., and US 85/124th Ave.	NO This system alternative would avoid visual strong levels of contrast to high sensitivity viewers at US 85/104th Ave., US 85/120th Ave., and US 85/124th Ave.	NO This system alternative would have strong levels of visual contrast to high sensitivity viewers at US 85/104th Ave., US 85/120th Ave., and US 85/124th Ave.
Maximize the use of existing infrastructure.	YES This alternative does not require modifications to the existing infrastructure.	YES US 85 may be maintained but existing 104th, 112th, 120th, 124th Ave., and local street network would be reconstructed in its entirety to accommodate larger interchange footprints and grade separation from US 85 and the railroad.	YES US 85 may be maintained but existing 104th, 112th, 120th, 124th Ave., and local street network would be reconstructed in its entirety to accommodate larger interchange footprints and grade separation from US 85 and the railroad.	YES US 85, 104th, 112th, 120th, and local street network would be reconstructed in its entirety to accommodate larger interchange footprints and grade separation from US 85 and the railroad.	YES US 85, 104th, 112th, 120th, and local street network would be reconstructed in its entirety to accommodate larger interchange footprints and grade separation from US 85 and the railroad.	YES US 85 would be reconstructed in its entirety to accommodate the grade separation over east-west streets. 104th, 112th, 120th, and 124th Ave. remain at grade and the existing infrastructure may be maintained with additional widening.	YES Existing US 85 would be maintained between 104th and 112th Ave. and reconstructed between 112th and 120th Ave. and made at 104th/1-76 and could utilize some existing infrastructure. The existing 1-76/US 85 interchange would be removed.
Minimize impacts to rail (freight) operations.	YES This alternative maintains existing at grade rail (freight) operations. No reconstruction would impact rail (freight) operations.	YES 104th, 112th, 120th, and 124th would grade separate over the railroad. Access on 104th, 112th, 120th, and 124th Ave. would be above the tracks. Side street improvements would be required at grade at 104th Ave. to maintain access to properties. This may impact rail (freight) operations to construct a new side street crossing.	YES 104th, 112th, 120th, and 124th would grade separate over the railroad. Access on 104th, 112th, 120th, and 124th Ave. would be above the tracks. Side street improvements would be required at grade at 104th Ave. to maintain access to properties. This may impact rail (freight) operations to construct a new side street crossing.	YES 112th, 120th, and 124th would grade separate the railroad. Access on 112th, 120th, and 124th Ave. would be above the tracks. The large interchange footprint at 104th Ave. may impact rail (freight) operations due to proximity to tracks. Side street improvements would be required at grade at 104th Ave. to maintain access to properties. This may impact rail (freight) operations to construct a new side street crossing.	YES 104th Ave. remains at grade with the railroad tracks and the railroad. Access on 104th Ave. would be above the tracks. Side street improvements would be required at grade at 104th Ave. to maintain access to properties. This may impact rail (freight) operations. Therefore, 104th, 112th, and 124th Ave. would grade separate the railroad remaining the at-grade crossing. Impacts to the rail (freight) operations may be minimized since construction would be above the tracks.	NO 104th, 112th, and 120th Ave. would remain at grade with the railroad and underneath US 85. The local street connectivity is maintained, however, future queues due to the railroad crossing may reduce overall travel time. Local street network circulation would not be maintained at 124th Ave. due to closure.	YES Existing US 85 would be maintained between 104th and 112th Ave. and reconstructed between 112th and 120th Ave. and made at 104th/1-76 and could utilize some existing infrastructure. The existing 1-76/US 85 interchange would be removed.
Avoid and minimize impacts to major utilities.	NO Impacts to utilities are expected at 104th, 112th, 120th, and 124th Ave. Relocations or improvements likely required due to large fill heights, walls, or bridge piers.	NO Impacts to utilities are expected at 104th, 112th, 120th, and 124th Ave. Relocations or improvements likely required due to large fill heights, walls, or bridge piers.	NO Impacts to utilities are expected at 104th, 112th, 120th, and 124th Ave. Relocations or improvements likely required due to large fill heights, walls, or bridge piers.	NO Impacts to utilities are expected at 104th, 112th, 120th, and 124th Ave. Relocations or improvements likely required due to large fill heights, walls, or bridge piers. Substantial utility impacts likely at 104th Ave.	NO Impacts to utilities are expected at 104th and 120th Ave. Relocations or improvements likely required due to large fill heights, walls, or bridge piers at 120th.	YES Utility impacts are minimized by maintaining at grade crossings of 104th, 112th, and 120th Ave. and closing 124th Ave.	NO Impacts to utilities are expected east of 112th at the relocated US85 alignment, and 120th Ave., Relocations or improvements likely required due to large fill heights, walls, or bridge piers.
Avoid and minimize UPRR property to be acquired for right-of-way.	YES No UPRR property necessary to acquire for right-of-way with this alternative.	YES 35 acres of UPRR right-of-way necessary to acquire for this alternative.	YES 19 acres of UPRR right-of-way necessary to acquire for this alternative.	YES 38 acres of UPRR right-of-way necessary to acquire for this alternative.	YES 33 acres of UPRR right-of-way necessary to acquire for this alternative.	YES 19 acres of UPRR right-of-way necessary to acquire for this alternative.	YES 13 acres of UPRR right-of-way necessary to acquire for this alternative.
Avoid and minimize UPRR property to be acquired for right-of-way.	YES No UPRR property necessary to acquire for right-of-way with this alternative.	YES 35 acres of UPRR right-of-way necessary to acquire for this alternative.	YES 19 acres of UPRR right-of-way necessary to acquire for this alternative.	YES 38 acres of UPRR right-of-way necessary to acquire for this alternative.	YES 33 acres of UPRR right-of-way necessary to acquire for this alternative.	YES 19 acres of UPRR right-of-way necessary to acquire for this alternative.	YES 13 acres of UPRR right-of-way necessary to acquire for this alternative.

COMMUNITY

ENVIRONMENTAL AND CULTURAL RESOURCES

CONSTRUCTIBILITY



System Alternative

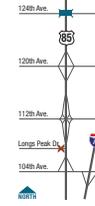
NO ACTION



SYSTEM ALTERNATIVE 1A
Railroad Crossing Safety



SYSTEM ALTERNATIVE 1B
Railroad Crossing Safety



SYSTEM ALTERNATIVE 2
Access Control Recommendations



SYSTEM ALTERNATIVE 3
Use of Existing Facilities



SYSTEM ALTERNATIVE 4
Local Access



SYSTEM ALTERNATIVE 5A
Relocated Alignment



Results

RETAINED

RETAINED

ELIMINATED

RETAINED

RETAINED

ELIMINATED

ELIMINATED

Summary of Results

The No-Action Alternative has been retained for baseline comparison purposes.

Retained for further analysis in the Level 3 Evaluation.

This alternative was eliminated in the Level 2 Evaluation because it does not meet driver expectancy. It does not provide typical traffic operations as at other Colorado interchanges. This alternative would require motorists to remain on I-76 and exit at 104th Avenue instead of exiting at US 85 and 104th Avenue as currently exists. Motorists traveling eastbound on I-76 would no longer exit directly onto 104th from US 85. Neither the US 85/104th Avenue interchange nor the I-76/104th Avenue interchange would contain the same directional movements as the existing I-76/US 85 interchange.

Retained for further analysis in the Level 3 Evaluation.

Retained for further analysis in the Level 3 Evaluation.

This alternative was eliminated in the Level 2 Evaluation because 104th Avenue, 112th Avenue, and 120th Avenue would remain at grade with the railroad crossing. The eastbound vehicles queues could extend onto the existing northbound US 85 mainline causing northbound vehicles to come to a complete stop at the US 85/104th Avenue, US 85/112th Avenue, and US 85/120th Avenue intersections. 104th Avenue, 112th Avenue, and 120th Avenue would remain at grade with the railroad crossing. Westbound vehicles would queue at the signalized intersection at the northbound US 85 ramp terminal with 104th Avenue, 112th Avenue, and 120th Avenue and could extend across the railroad tracks. Rail (freight) operations would be affected at these locations.

The collector-distributor roads benefit local access and may be incorporated into the Level 3 Evaluation. The standard diamond interchange at US 85/104th was also retained for additional evaluation.

This alternative was eliminated in the Level 2 Evaluation because it reduces existing development opportunities along US 85 with the creation of a barrier (relocated US 85) along the new Havana Alignment. Properties east of the UPRR between 104th Avenue and 112th Avenue would have reduced access to US 85. With the closure of 124th Avenue and reduced access at 112th Avenue (only northbound access to US 85 from 112th Avenue and southbound access to 112th Avenue from southbound US 85), full movement access to US 85 would be reduced to the US 85/120th Avenue interchange. The US 85/120th Avenue interchange would be the only full movement access between I-76 and E-470, which is a distance of approximately 3.4 miles.

Local street access is impacted and there are opportunities for re-establishing local networks, however, it creates out of direction access for 104th and 112th Avenue. This out of direction travel does not maintain local street network circulation.

Existing US 85 would be maintained between 104th Avenue and 112th Avenue. Interchange modifications would be made at 104th/I-76 and could utilize some existing infrastructure. The existing I-76/US 85 interchange would be removed.

Notes

Existing I-76 to US 85 system-to-system interchange access would be preserved with the US 85/104th Avenue diverging diamond interchange. Although access would be preserved, the westbound I-76 off-ramp to US 85 would not access 104th Avenue. Existing traffic volumes (2017) on the westbound I-76 off-ramp to 104th Avenue and northbound US 85 are less than 100 vehicles in the morning (AM) and evening (PM) peak hours.

Approximately 1.5 acres of wetlands and other waters of the U.S. impacted.

This alternative would result in the strong levels of visual contrast to high sensitivity viewers at US 85/104th Avenue, US 85/112th Avenue, US 85/120th Avenue, and US 85/124th Avenue.

Existing I-76 to US 85 system-to-system interchange access would be preserved with the US 85/104th Avenue split diamond interchange. Although access would be preserved, the westbound I-76 off-ramp to US 85 would not access 104th Avenue. Existing traffic volumes (2017) on the westbound I-76 off-ramp to 104th Avenue and northbound US 85 are less than 100 vehicles in the morning (AM) and evening (PM) peak hours.

This alternative would have strong levels of visual contrast to high sensitivity viewers at US 85/104th Avenue, US 85/112th Avenue, US 85/120th Avenue, and US 85/124th Avenue.

Bicyclists and pedestrians would no longer be able to cross US 85 at 124th Avenue.

This system alternative would have strong levels of visual contrast to high sensitivity viewers at US 85/112th Avenue and US 85/120th Avenue.

Transit users would no longer have access to the north-south bus service along US 85 at 112th Avenue.

Existing I-76 to US 85 system-to-system interchange access would be preserved with the US 85/104th Avenue SPUI Flyover interchange. Although access would be preserved, the westbound I-76 off-ramp to US 85 would not access 104th Avenue. Existing traffic volumes (2017) on the westbound I-76 off-ramp to 104th Avenue and northbound US 85 are less than 100 vehicles in the morning (AM) and evening (PM) peak hours.

Bicyclists and pedestrians would no longer be able to cross US 85 at 112th Avenue and 124th Avenue.

This system alternative would have strong levels of visual contrast to high sensitivity viewers at US 85/120th Avenue.

Bicyclists and pedestrians would no longer be able to cross US 85 at 124th Avenue.

This system alternative would avoid visual strong levels of contrast to high sensitivity viewers at US 85/104th Avenue, US 85/112th Avenue, and US 85/120th Avenue.

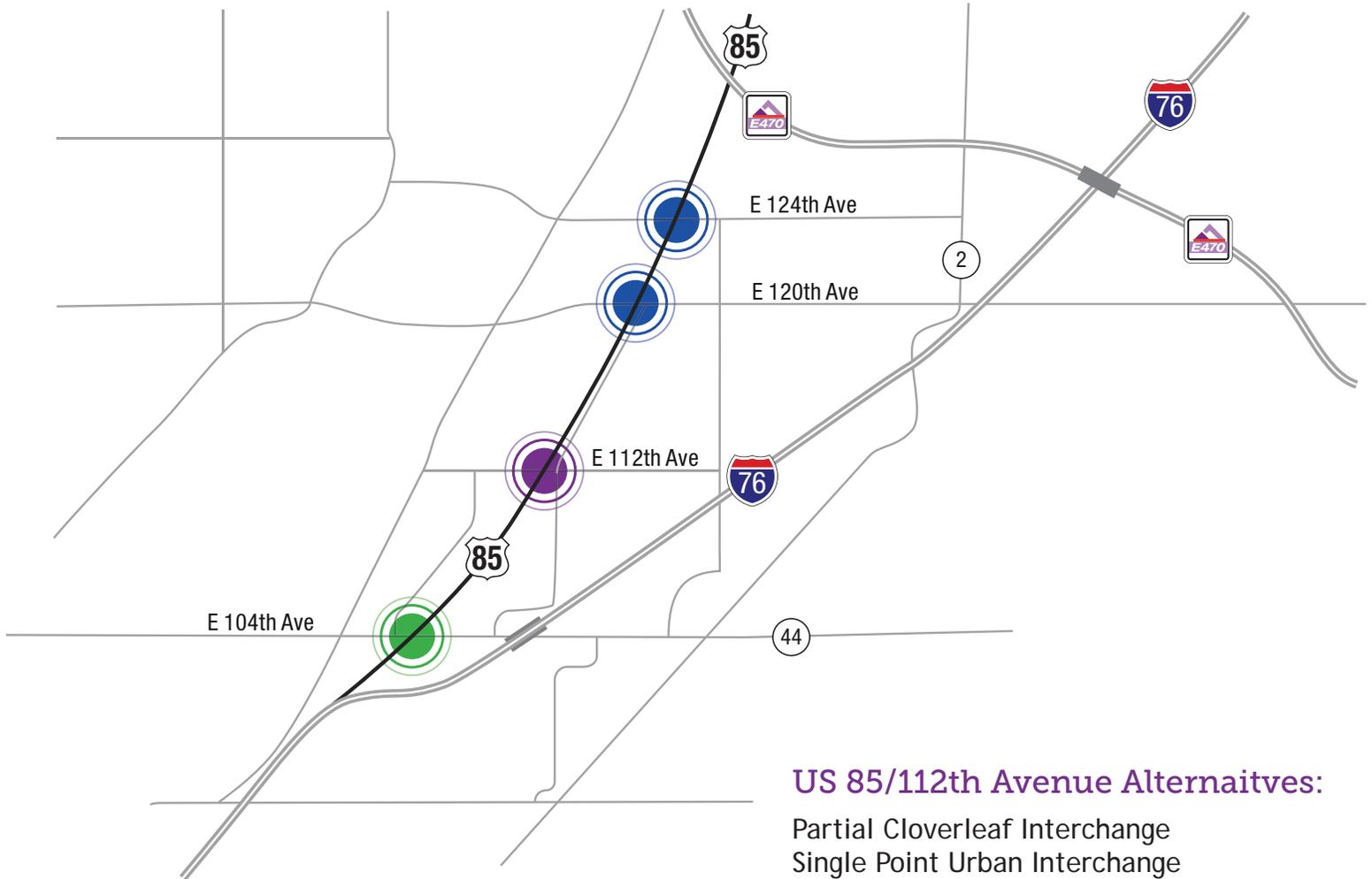
Transit users would no longer have access to the north-south bus service along US 85 at 104th Avenue and 112th Avenue.

Bicyclists and pedestrians would no longer be able to cross US 85 at 124th Avenue.

This system alternative would have strong levels of visual contrast to high sensitivity viewers at 85/112th Avenue and US 85/120th Avenue.



Remaining Interchange Alternatives



US 85/120th Avenue and US 85/124th Avenue Alternatives:

US85/120th Avenue:

- Diverging Diamond Interchange
- Standard Diamond Interchange
- No-Action

US 85/124th Avenue:

- Bridge over UPRR and US 85 (No Access)
- Closure
- No-Action

US 85/112th Avenue Alternatives:

- Partial Cloverleaf Interchange
- Single Point Urban Interchange
- Bridge over UPRR and US 85 (No Access)
- Closure
- No-Action

US 85/104th Avenue Alternatives:

- Diverging Diamond Interchange
- Standard Diamond Interchange
- Partial Cloverleaf Interchange
- Single Point Urban Interchange Flyover
- 3/4 Single Point Urban Interchange
- No-Action



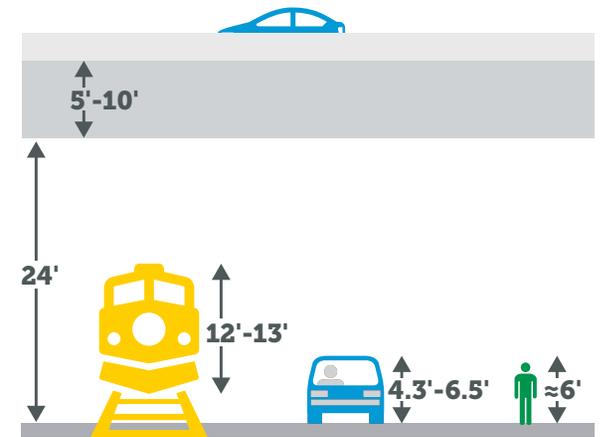
Plan View



Perspective



Proposed
Bridge
Height



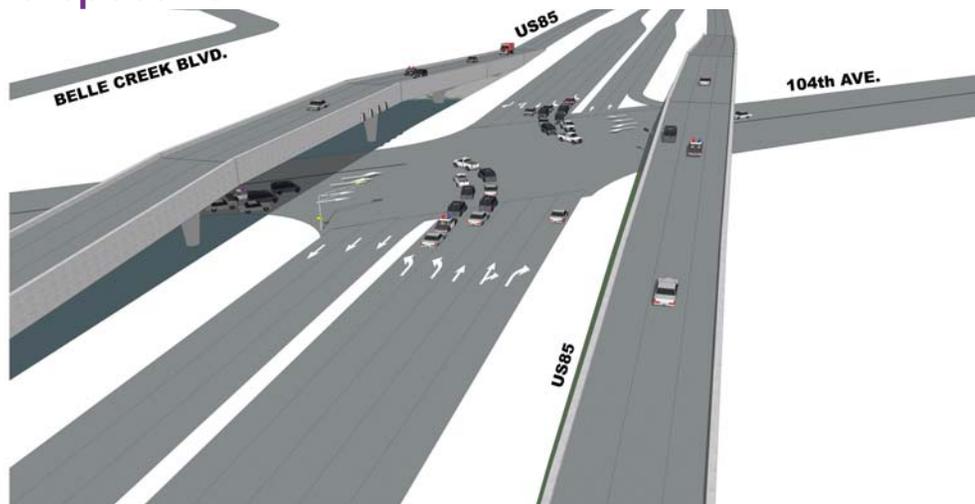
FOR ILLUSTRATIVE PURPOSES ONLY



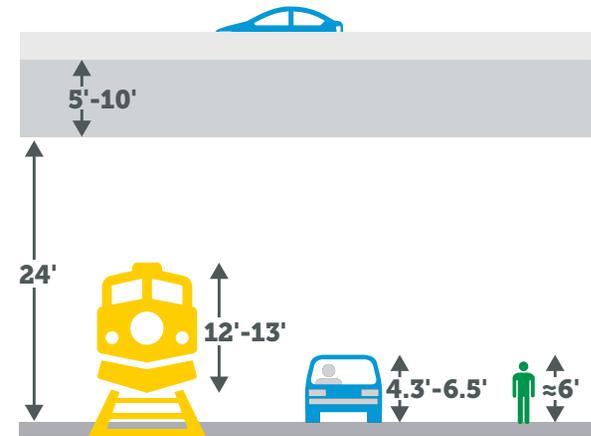
Plan View



Perspective



Proposed
Bridge
Height



FOR ILLUSTRATIVE PURPOSES ONLY



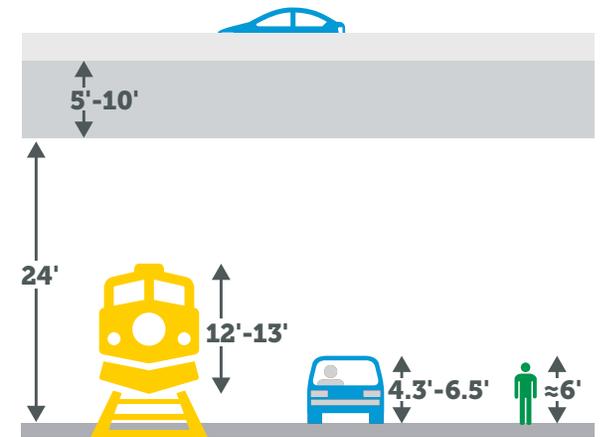
Plan View



Perspective



Proposed
Bridge
Height



FOR ILLUSTRATIVE PURPOSES ONLY



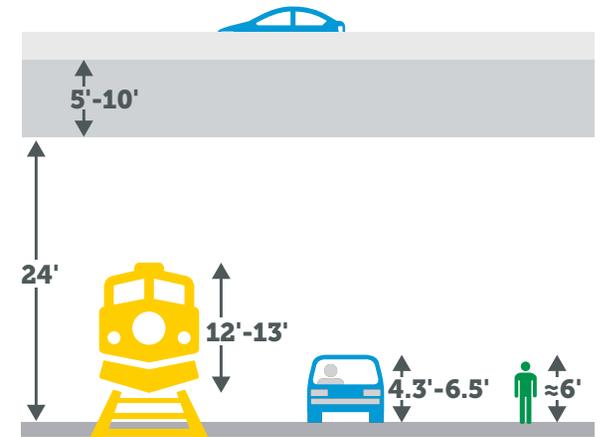
Plan View



Perspective



Proposed
Bridge
Height



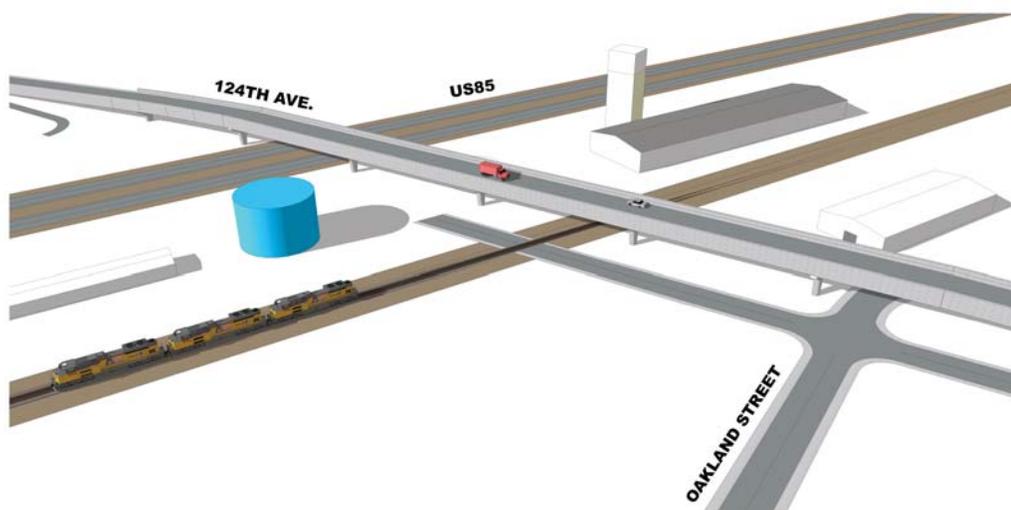
FOR ILLUSTRATIVE PURPOSES ONLY



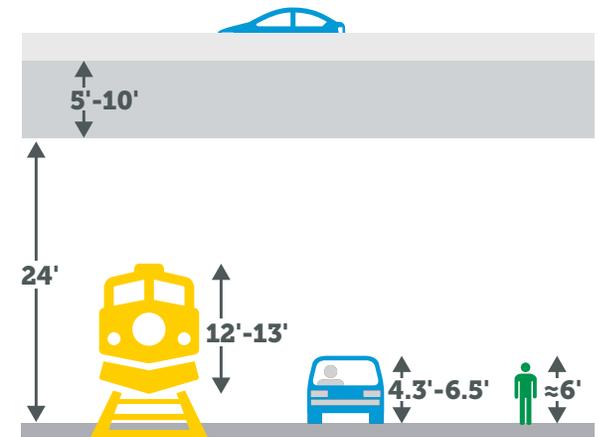
Plan View



Perspective



Proposed
Bridge
Height



FOR ILLUSTRATIVE PURPOSES ONLY



104th - DDI
400 Scale
Maintain Exist US 85



104th - ParClo
400 Scale
Shift US 85



104th - Diamond
400 Scale
Shift US 85



104th - 3/4 SPUI
400 Scale
Maintain Exist US 85



104th - SPUI Flyover
400 Scale
Maintain Exist US 85



112th - Closed
400 Scale



112th - Overpass
400 Scale
Maintain Exist US 85



112th - ParClo
400 Scale
Maintain Exist US 85



112th - Skewed SPUI
400 Scale
Maintain Exist US 85



120th - DDI
400 Scale
Shift US 85



120th - Diamond
400 Scale
Shift US 85



120th - Tight Diamond
400 Scale
Shift US 85



124th - Closed
400 Scale
Maintain Exist US85



124th - Overpass
400 Scale
Maintain Exist US 85