



VOLUME II SECTION 1

CIMARRON INTERCHANGE WITH I-25

Prepared for:

CDOT Region 2

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Section 1 – Cimarron Interchange

Policy Point 1

The existing interchanges and/or local roads and streets in the corridor can neither provide the necessary access nor be improved to satisfactorily accommodate the design-year traffic demands while at the same time providing the access intended by the proposal.

Community Access and Growth

The Cimarron Street interchange with I-25 not only provides a major access points to the downtown Colorado Springs area, but also provides a connection to communities to the west such as Manitou Springs and Woodland Park. Although growth in the immediate area of the interchange has remained fairly constant, the planned redevelopment of the Confluence Park area as well as the growth west of I-25 has increased the need for improvements to this interchange. The PPACG travel demand model projects significant growth west of I-25.

Analysis Boundary

Because this interchange is adjacent to the Bijou Street interchange, concepts for the two individual interchanges are inter-related and must be looked at as a system. The system boundary shown in Figure 1-1 (A) shows the boundary that was used for the analysis of both the Bijou Street and Cimarron Street interchanges. In addition, many of the concepts that will be discussed in Policy Point 2 combine traffic from both interchanges. It is because of this that both interchanges were analyzed and conceptually designed together. Although the analysis summarized in this section focuses on the Cimarron Street interchange only, this analysis was done in conjunction with the Bijou Street interchange.

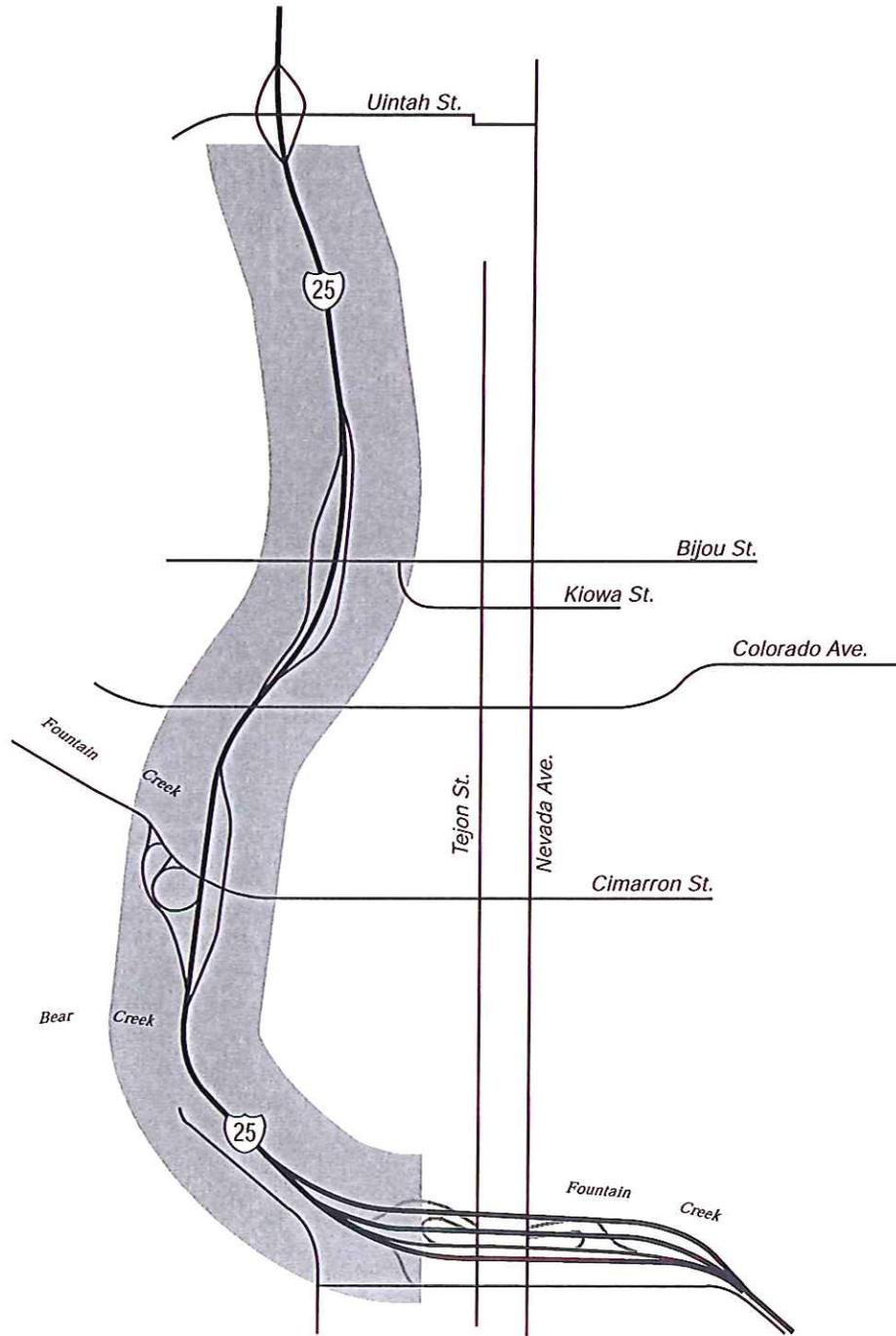
Existing Roadway Network

Various geometric improvements are needed along I-25 between Cimarron Street and Bijou Street. The planned widening of the I-25 corridor, which is currently in the Environmental Assessment phase, also identifies the following modifications to these two interchanges to bring them up to current FHWA standards. These improvements include:

- Lengthening the I-25 acceleration/deceleration lanes between Bijou Street and Cimarron Street which are currently sub-standard
- Improvements to the adjacent local street network in order to lessen traffic congestion at the interstate on and off ramps
- Softening the curved sections of the interstate and improving sight distances between Cimarron Street/US 24 and Bijou Street, thus improving driving and safety conditions.

Figure 1-1 (A) Analysis Boundary

I-25 Interstate Access Request



PIKES PEAK REGION

Cimarron Interchange





- Reconstruction of the overpass bridges at Cimarron Street, and associated bridges at Fountain and Monument Creeks

The traffic volumes depicted in Figure 1-1 (B) show the existing traffic conditions for the Cimarron Street interchange as well as the adjacent segments of I-25. Although this is known as the Cimarron Street interchange, Cimarron Street becomes the Midland Expressway (US 24) west of I-25. This interchange is configured as a single loop Partial Cloverleaf with the southbound off ramp loop replacing a standard off ramp in the northwest quadrant. This existing interchange also includes two signalized intersections at the existing off-ramps from I-25. Both traffic signals are run from one traffic signal controller with the existing AM and PM peak hour cycle length being 140 seconds. The east ramp terminal traffic signal phasing allows protected / permitted left turns. An un-signalized intersection with the southbound on ramp is located immediately west of the loop off ramp. The existing loop ramp at the Cimarron Street interchange is substandard.

Existing Traffic and Level of Service

The predominant traffic movements are eastbound to southbound and northbound to westbound in both the AM and PM peak hours. Existing interchange Levels of Service (LOS) as shown in Figure 1-1 (B) are generally acceptable. Existing operations are good at the west side intersections with Levels of Service B and C and Level of Service C for the un-signalized left turn movement during the AM and PM Peak hours. Levels of Service for the east side intersection are C for the AM and PM peak hours. Freeway operations for existing conditions are summarized:

- Mainline I-25 LOS is acceptable at LOS C and D
- Merge LOS at the southbound on ramp is failing in both the AM and PM peak hours.
- Diverge LOS at the northbound off ramp is failing in the AM peak hour

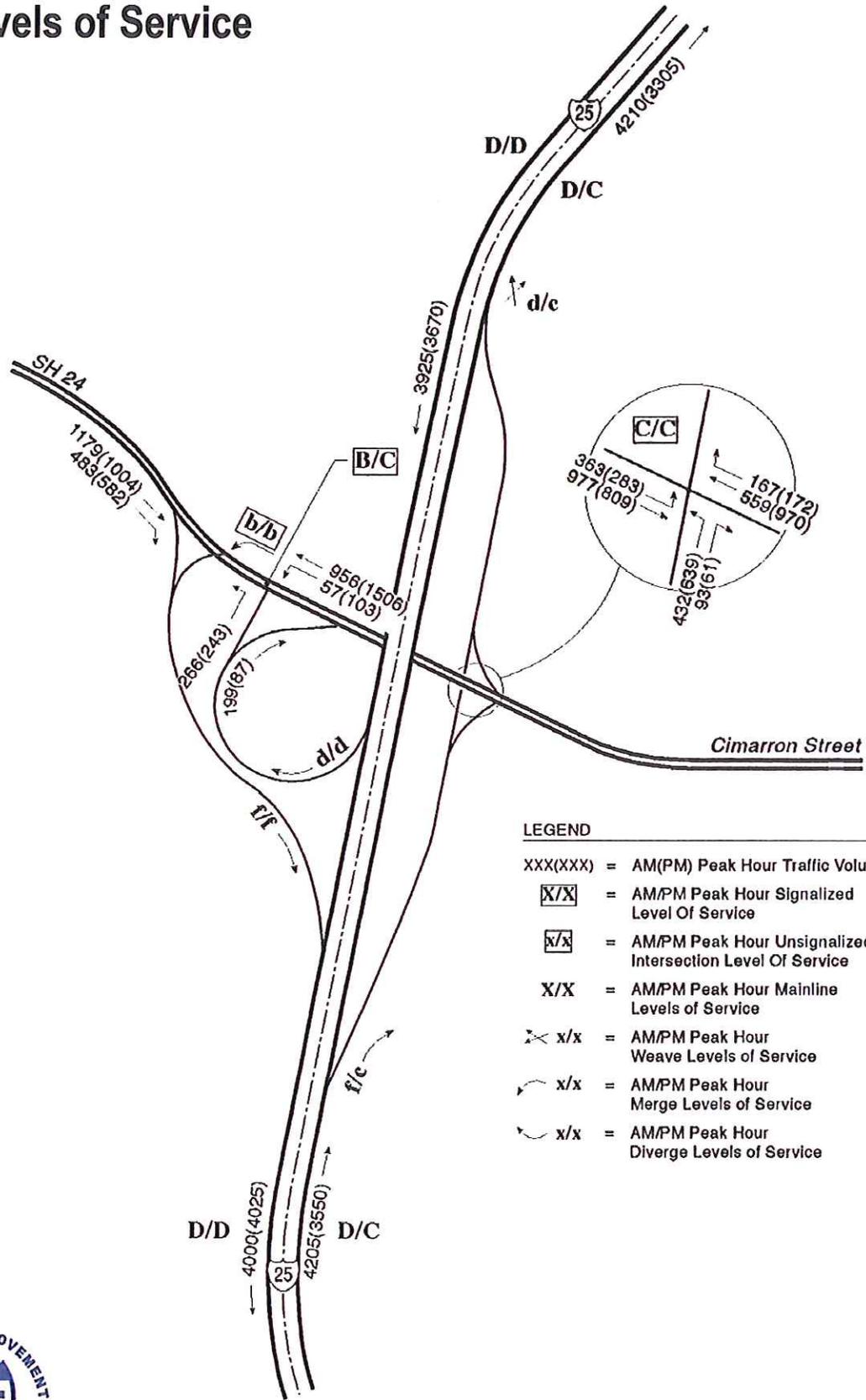
No Build Traffic and Level of Service

Future peak hour traffic projections for the 2025 No-Build case are depicted in Figure 1-1 (C). These traffic volumes were derived from the PPACG 2025 travel demand model. The No-Build peak hour traffic also reflects some magnitude of trip diversion due the congested peak hour conditions. A significant amount of growth in traffic is expected west of the interchange. It is projected that traffic along US 24 west of I-25 would more than double from the year 2000 to the year 2025. This would result in sharp increases in the following movements:

- Northbound to Westbound
- Eastbound to Southbound
- Eastbound to Northbound
- Southbound to Westbound

Figure 1-1 (B)
Existing Traffic Volumes
and Levels of Service

I-25 Interstate Access Request



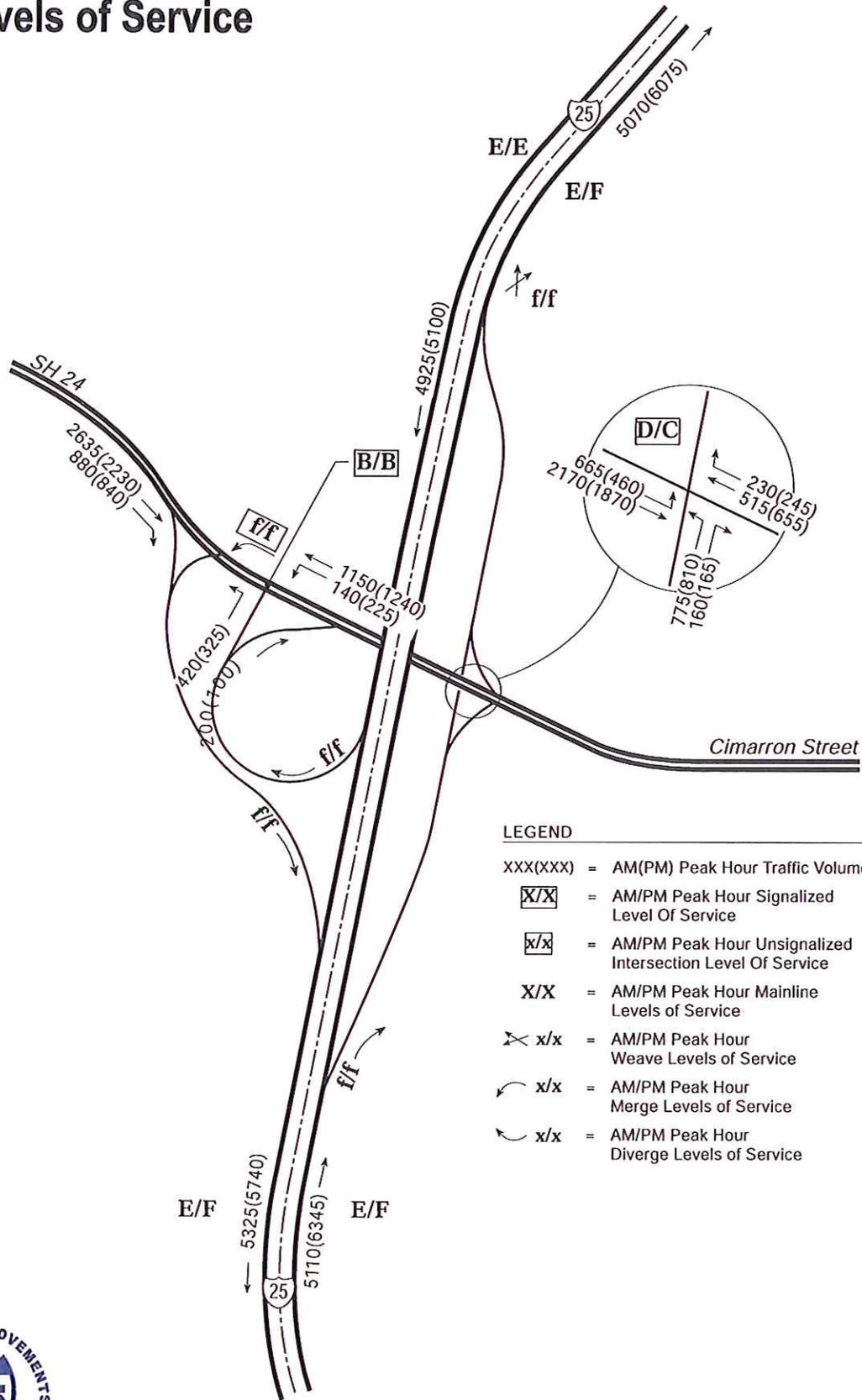
PIKES PEAK REGION

Cimarron Interchange



Figure 1-1 (C) 2025 No-Build Traffic Volumes and Levels of Service

I-25 Interstate Access Request



- LEGEND**
- XXX(XXX) = AM(PM) Peak Hour Traffic Volumes
 - X/X** = AM/PM Peak Hour Signalized Level Of Service
 - x/x** = AM/PM Peak Hour Unsignalized Intersection Level Of Service
 - X/X** = AM/PM Peak Hour Mainline Levels of Service
 - x/x** = AM/PM Peak Hour Weave Levels of Service
 - x/x** = AM/PM Peak Hour Merge Levels of Service
 - x/x** = AM/PM Peak Hour Diverge Levels of Service



PIKES PEAK REGION

Cimarron Interchange





The No-build analysis of the ramp terminals of the existing interchanges depicted in Figure 1-1 (C) show adequate Levels of Service (LOS). At the Cimarron Street interchange, the No Build LOS would be LOS D at the east ramp terminal. It is important to note that the No-Build volumes do not reflect the actual demand at the ramp terminals that would be present without the congestion of the freeway hence, these No-build volumes result in LOS at the ramp terminals that are better than what would be expected.

Freeway operations and ramp operations area also summarized. The following areas are noteworthy operationally:

- Failing operations along mainline I-25 and the weave sections highlight the capacity deficiencies.
- Merge / Diverge LOS also fails under No-build conditions.

Because of the failing operations of I-25, the design of the ramp terminal intersections and signal spacing was done to accommodate the actual demand which is more accurately reflected in the 2025 Build volumes.



Policy Point 2

All reasonable alternatives for design options, location and transportation system management type improvements (such as ramp metering, mass transit, and HOV facilities) have been assessed and provided for if currently justified, or provisions are included for accommodating such facilities if a future need is identified.

The alternative evaluation process for the interchanges at Cimarron Street and Bijou Street investigated alternatives that could be considered stand-alone for each interchange location. The process also investigated several alternatives that combined configurations from both interchange locations to form a complex-wide interchange alternative. Because the complex-wide alternatives considered both interchange locations and because of the proximity of the two interchanges, the alternatives analysis, and therefore Policy Point 2, is documented in this section for Cimarron and Bijou. Policy Point 2 for the Bijou Interchange in Section 2 should reference the discussion below.

Initial Alternatives

The project team developed seventeen initial alternatives for the interchange complex, and these alternatives were presented to the public at an open house on October 14, 1999. Some alternatives were exclusive to either the Bijou interchange or the Cimarron Interchange, and therefore could be combined to produce a complex-wide interchange concept. Other alternatives were complex-wide alternatives and were intended to depict all of the improvements needed for the complex as a whole. The initial alternatives were the result of brainstorming sessions by the project team.

The initial alternatives were developed to address the forecasted traffic volumes on the interstate facility and local roadways, as well as improve the geometry of the interstate and ramps. The alternatives are grouped as follows:

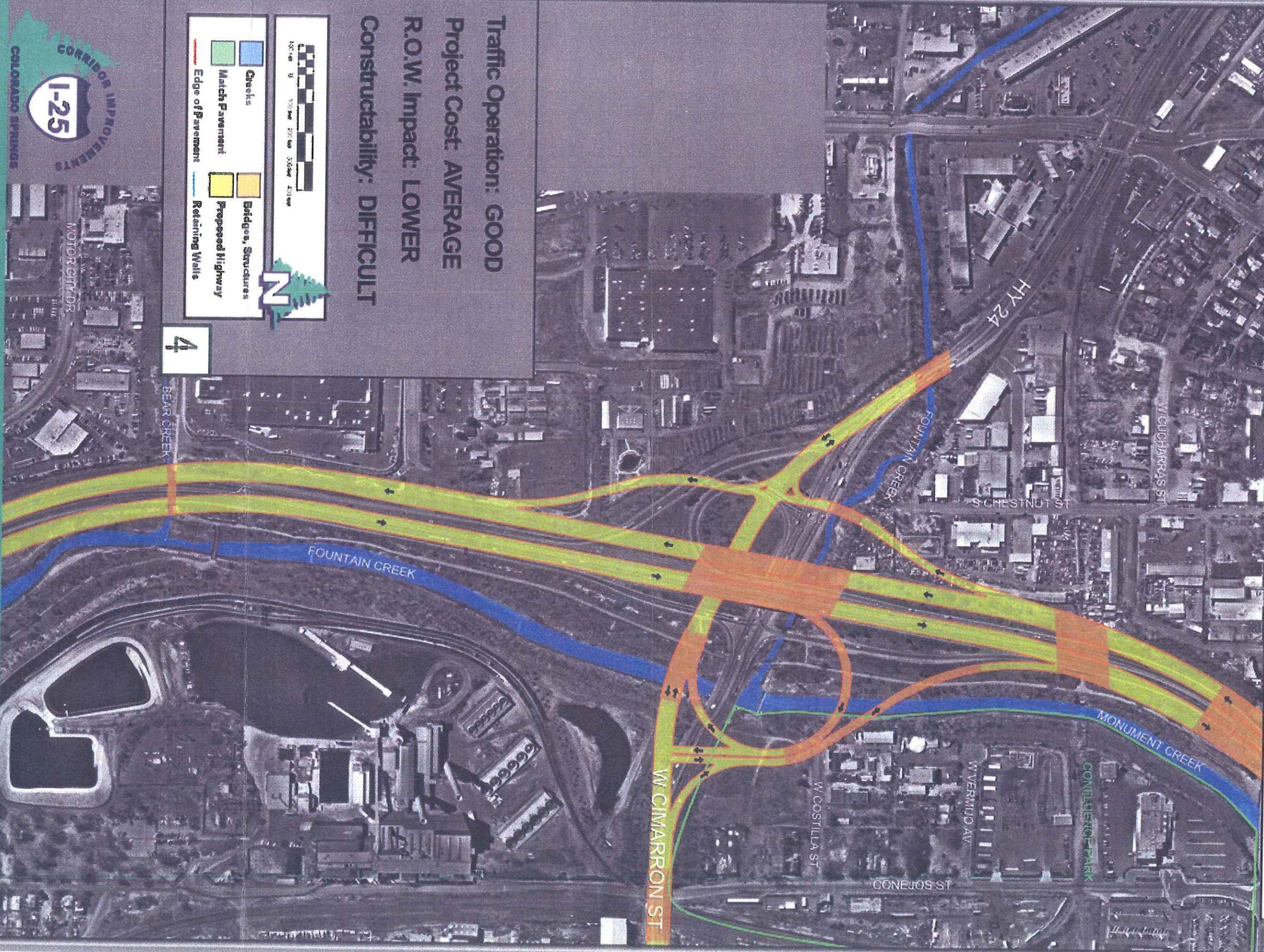
- **Cimarron Interchange Alternatives (5)** – These alternatives address improvements to the Cimarron Street Interchange only and can be combined with other Bijou Street Interchange alternatives.
- **Bijou Interchange Alternatives (5)** – These alternatives address improvements to the Bijou Street Interchange only and can be combined with other Cimarron Street Interchange alternatives.
- **Colorado Avenue Alternatives (3)** – These alternatives provide access to I-25 at Colorado Avenue in some fashion and include improvements to the Cimarron Street Interchange. Each Colorado Avenue alternative eliminates ramp access at Bijou Street.
- **Combined Alternatives (4)** – These alternatives provide access to the interstate from Cimarron, Colorado, and Bijou with configurations that are not typical of service interchanges.



Cimarron Alternatives

- **Cimarron Partial Clover 1** – Access to, and from northbound I-25 is provided via a partial cloverleaf configuration in the northeast quadrant of I-25 and Cimarron Street. Access to, and from southbound I-25 is provided via a standard diamond ramp configuration on the west side of I-25.
- **Cimarron Partial Clover 2** – Cloverleaf ramps provide access to, and from I-25 in the southeast and southwest quadrants of the interchange. An off-ramp flyover provides access from northbound I-25 to westbound US24. Free-flow ramps on the north side of the interchange provide southbound off-ramp access from I-25 and northbound on-ramp access to I-25.
- **Cimarron Partial Clover 3** – Cloverleaf ramps provide access to, and from I-25 in the northeast and southwest quadrants of the interchange. A free-flow ramp provides southbound off-ramp access from I-25 to westbound US 24. Another free-flow ramp provides northbound off-ramp access from I-25 to eastbound Cimarron Street.
- **Cimarron Diamond** – Access to, and from I-25 is provided via a typical diamond configuration with signalized ramp intersections east and west of I-25 on Cimarron Street.
- **Cimarron Urban** – Access to, and from I-25 is provided similar to the Cimarron Diamond, except that both signalized ramp intersections with Cimarron Street are combined into a single, signalized intersection directly under I-25.

CIMARRON PARTIAL CLOVER 1



Traffic Operation: **GOOD**
Project Cost: **AVERAGE**
R.O.W. Impact: **LOWER**
Constructability: **DIFFICULT**

Legend:

- Green: Match Pavement
- Yellow: Proposed Highway
- Orange: Bridges, Structures
- Blue: Retaining Walls

4

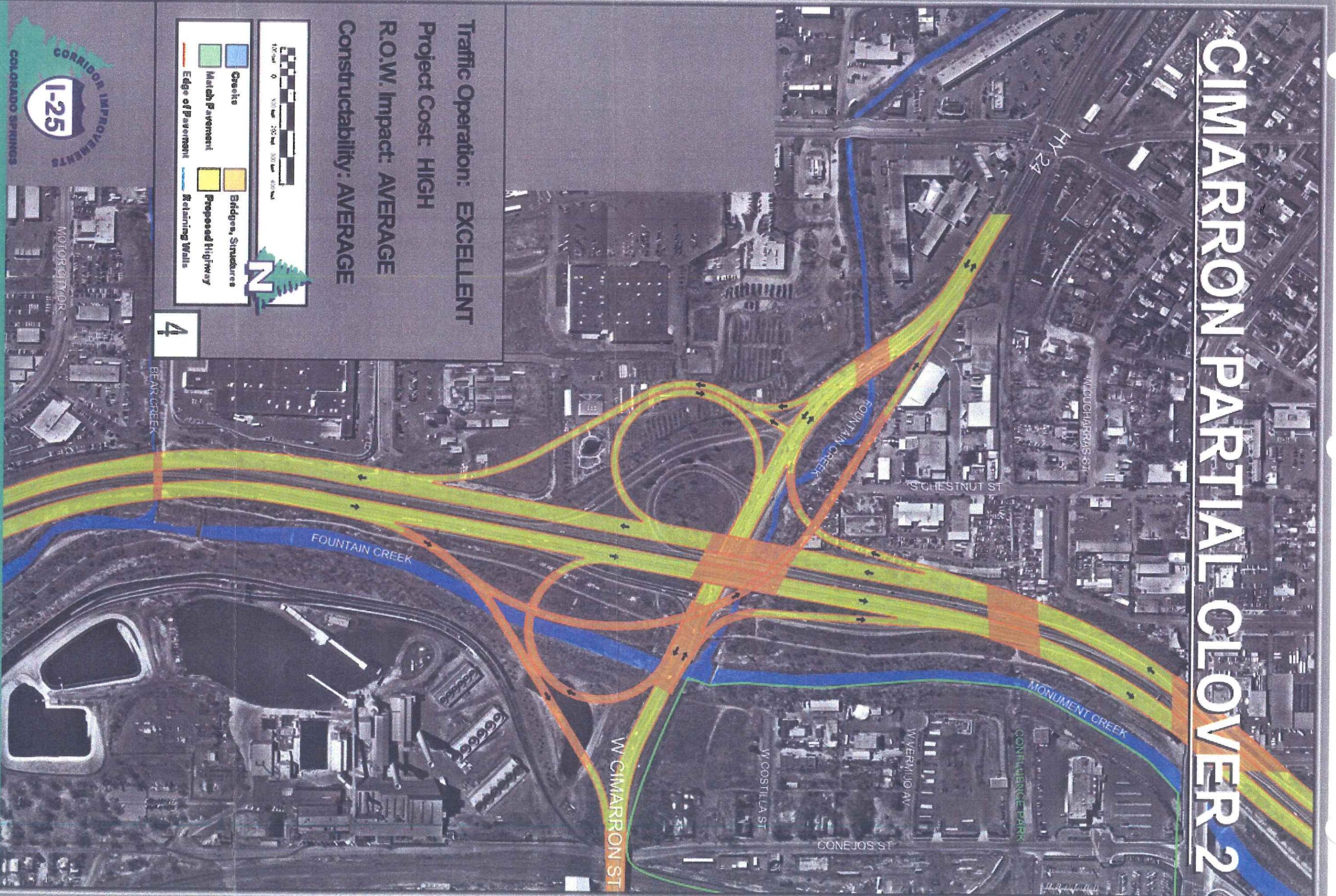


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CIMARRON PARTIAL CLOVER 2



Traffic Operation: EXCELLENT
Project Cost: HIGH
R.O.W. Impact: AVERAGE
Constructability: AVERAGE

- Grates
- Match Pavement
- Bridges, Structures
- Prepared Highway
- Edge of Pavement
- Retaining Walls

4

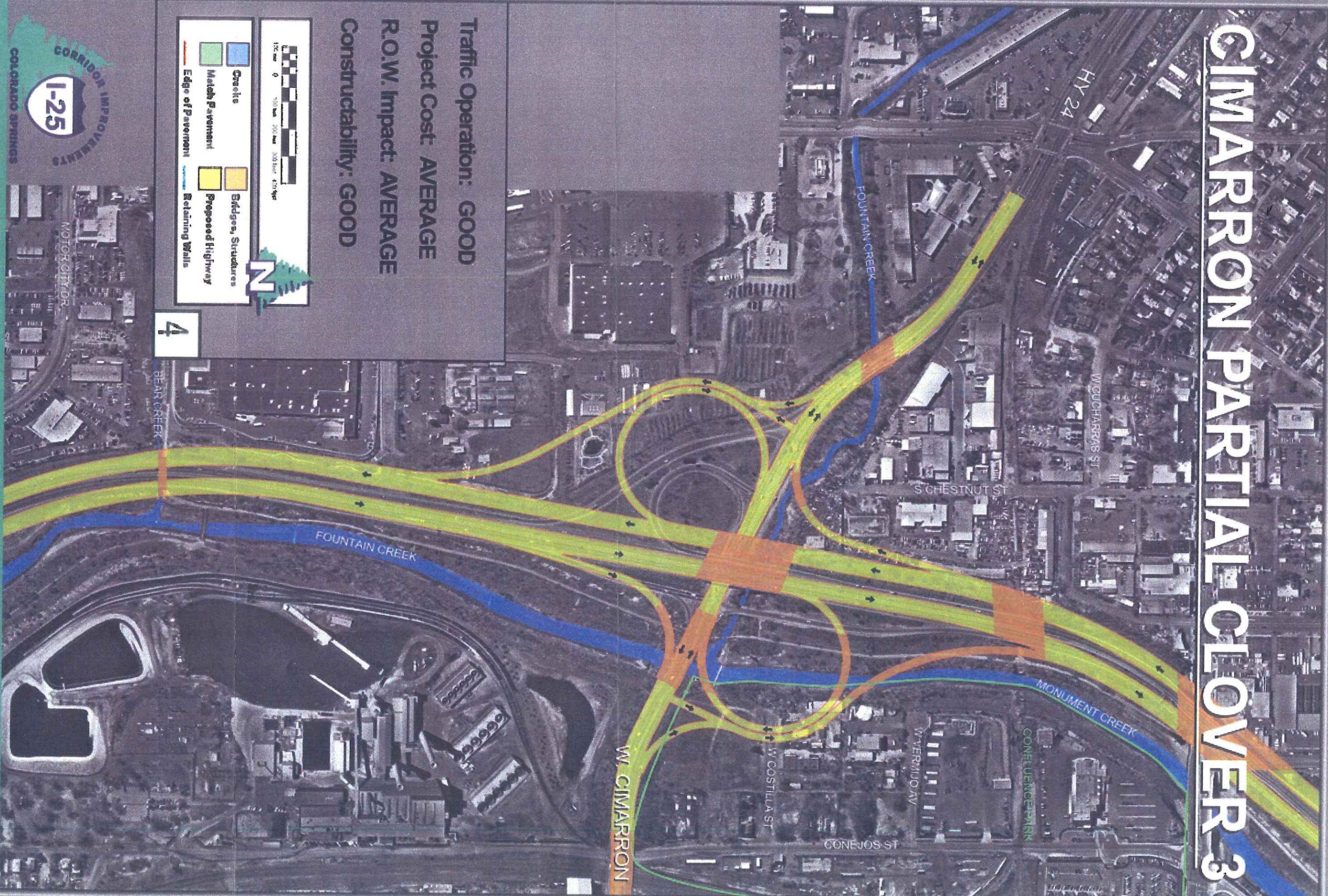


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CIMARRON PARTIAL CLOVER 3



Traffic Operation: **GOOD**
Project Cost: **AVERAGE**
R.O.W. Impact: **AVERAGE**
Constructability: **GOOD**

1" = 500' 0" 100' 200' 300' 400'

Creeks **Bridges, Structures**

Match Pavement **Proposed Highway**

Edge of Pavement **Retaining Walls**

4



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CIMARRON DIAMOND



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CIMARRON URBAN



Traffic Operation: **AVERAGE**
Project Cost: **LOWER**
R.O.W. Impact: **LOWER**
Constructability: **AVERAGE**

Legend

- Creeks
- Match Pavement
- Bridges, Structures
- Proposed Highway
- Edge of Pavement
- Retaining Walls

4



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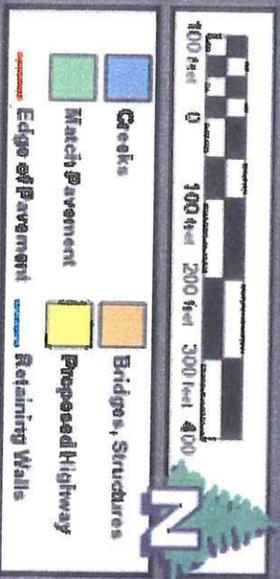


Bijou Alternatives

- **Bijou Diamond 1** – Access to, and from I-25 to Bijou Street is provided via a tight-diamond ramp configuration, with signalized ramp intersections east and west of I-25 along Bijou Street. Bijou Street would bridge over I-25, similar to the existing interchange configuration.
- **Bijou Diamond 2** – Access to, and from I-25 is similar to the Bijou Diamond 1, except that I-25 bridges over Bijou Street.
- **Bijou Partial Clover** – This configuration is similar to the Bijou Diamond 1, with the addition of a loop ramp in the southwest quadrant of the interchange. The southbound off-ramp in the northwest quadrant would be limited to vehicles proceeding west on Bijou Street. The highest turning movement traffic volume is southbound I-25 to eastbound Bijou. This movement is provided by the loop ramp in the southwest quadrant.
- **Bijou Expanded Diamond** – This alternative provides access to, and from I-25 via one-way roadways into, and out of the downtown area. Bijou Street, east of I-25 would be converted to a one-way roadway, with vehicles traveling west. Kiowa Street would be connected across I-25 and would provide one-way movements easterly into the downtown area. Access ramps to, and from I-25 would be provided north of Bijou Street and south of Kiowa Street. One-way roadways connect Bijou and Kiowa east (on the east edge of Monument Valley Park) and west (immediately adjacent to mainline) of I-25, to provide full vehicles movements to, and from the interstate.
- **Bijou Urban** – Access to, and from I-25 is provided similar to the Bijou Diamond 1, except that both signalized ramp intersections are combined into a single, signalized intersection directly over I-25.

BIJOU DIAMOND 1

Traffic Operation: **AVERAGE**
Project Cost: **AVERAGE**
R.O.W. Impact: **AVERAGE**
Constructability: **AVERAGE**



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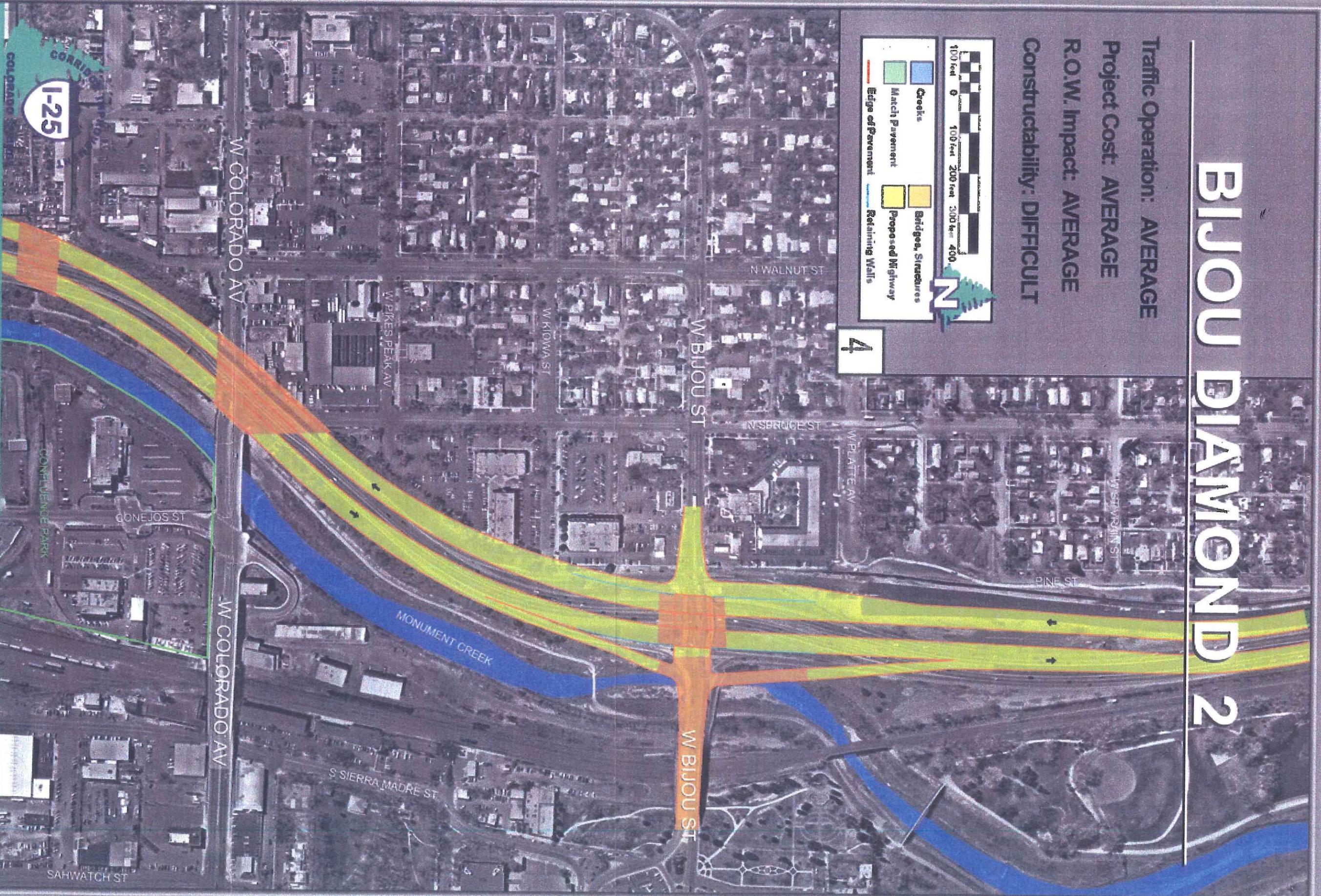
BIJOU DIAMOND 2

Traffic Operation: **AVERAGE**
Project Cost: **AVERAGE**
R.O.W. Impact: **AVERAGE**
Constructability: **DIFFICULT**



- Creeks
- Match Pavement
- Edge of Pavement
- Bridges, Structures
- Proposed Highway
- Retaining Walls

4



CIMARRON - BIJOU PROJECT

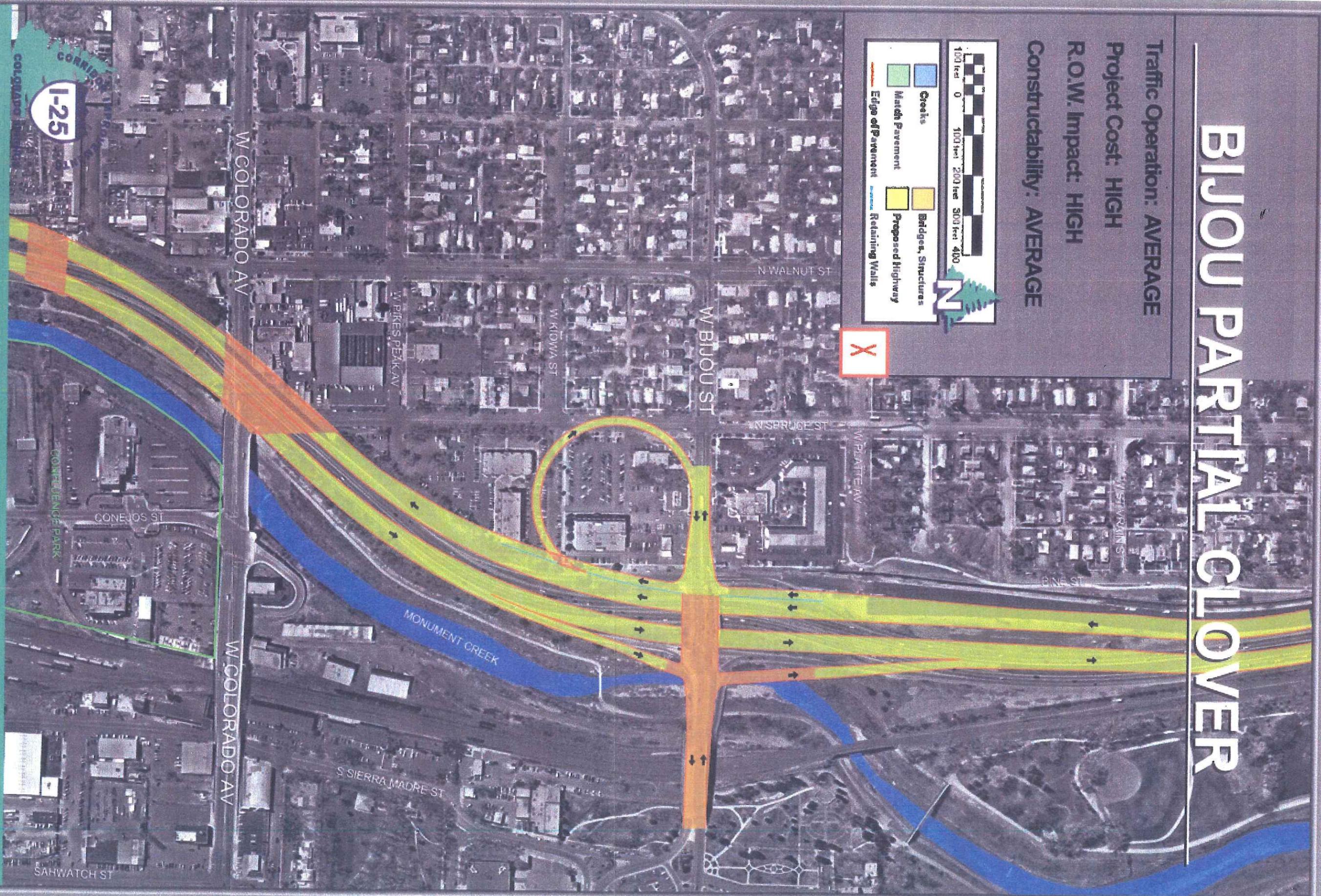
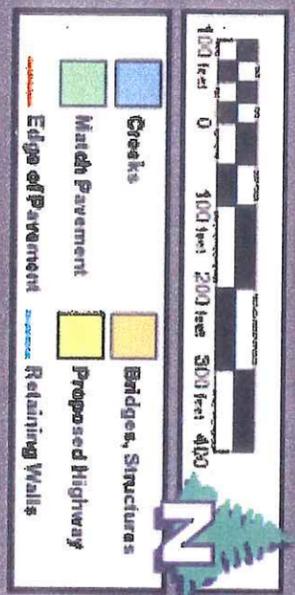
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HOLT &
ULTING

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BIJOU PARTIAL CLOVER

Traffic Operation: **AVERAGE**
Project Cost: **HIGH**
R.O.W. Impact: **HIGH**
Constructability: **AVERAGE**



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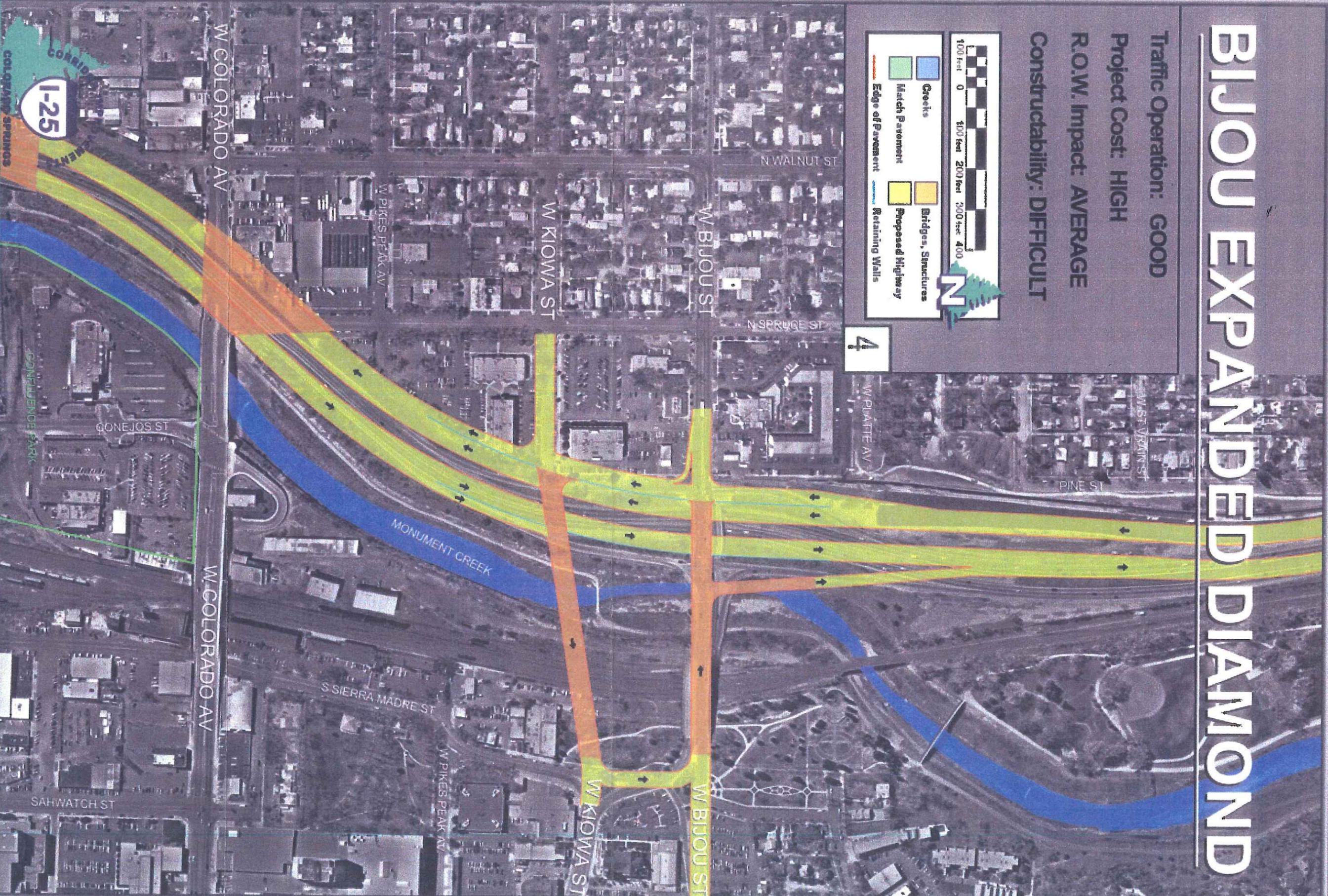
BIJOU EXPANDED DIAMOND

Traffic Operation: **GOOD**
Project Cost: **HIGH**
R.O.W. Impact: **AVERAGE**
Constructability: **DIFFICULT**



Creeks	Bridges, Structures
Match Pavement	Proposed Highway
Edge of Pavement	Retaining Walls

4



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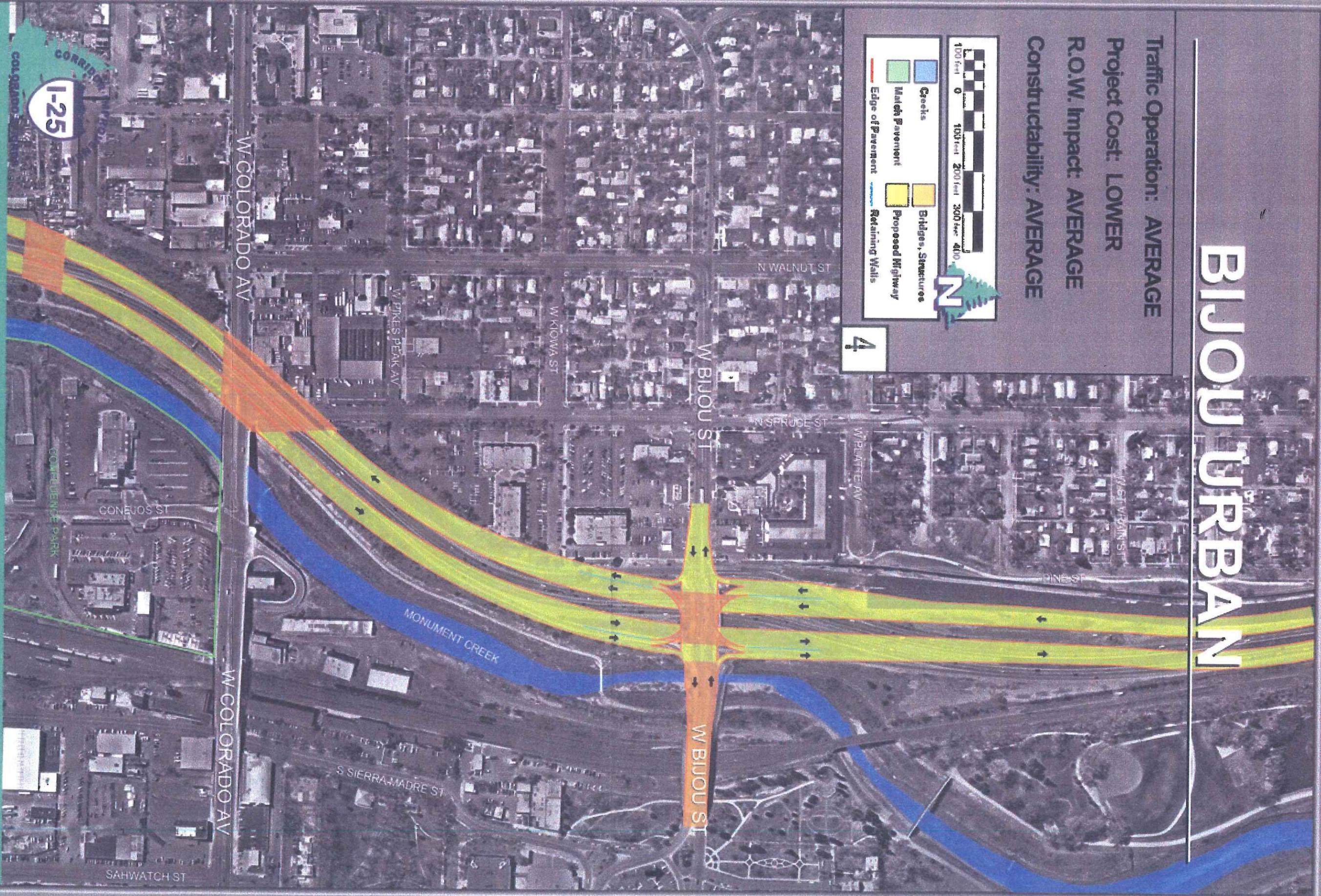
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BIJOU URBAN

Traffic Operation: **AVERAGE**
Project Cost: **LOWER**
R.O.W. Impact: **AVERAGE**
Constructability: **AVERAGE**



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Colorado Alternatives

- **Colorado Diamond** – This alternative eliminates access to, and from I-25 at Bijou Street, but preserves the Bijou overpass as an east-west movement. Diamond configuration ramps provide access to, and from I-25 at Colorado Avenue. Movements between I-25 and US 24 are provided via directional ramps to the west side of the interchange. Access to Cimarron Street is eliminated, east of I-25, and the Cimarron Street/US 24 roadway would be severed west of I-25.
- **Colorado Partial Clover** - This alternative eliminates access to, and from I-25 at Bijou Street, but preserves the Bijou overpass as an east-west movement. Cloverleaf ramps in the northeast and southwest quadrants of the Colorado Avenue Interchange provide access to, and from I-25. Movements between I-25 and US 24 are provided via directional ramps to the west side of the interchange. Access to Cimarron Street is eliminated, east of I-25, and the Cimarron Street/US 24 roadway would be severed west of I-25.
- **Colorado Urban** – This alternative is similar to the Colorado Diamond alternative, except that the two signalized ramp intersections along Colorado Avenue are combined into a single, signalized intersection directly under I-25.

COLORADO DIAMOND

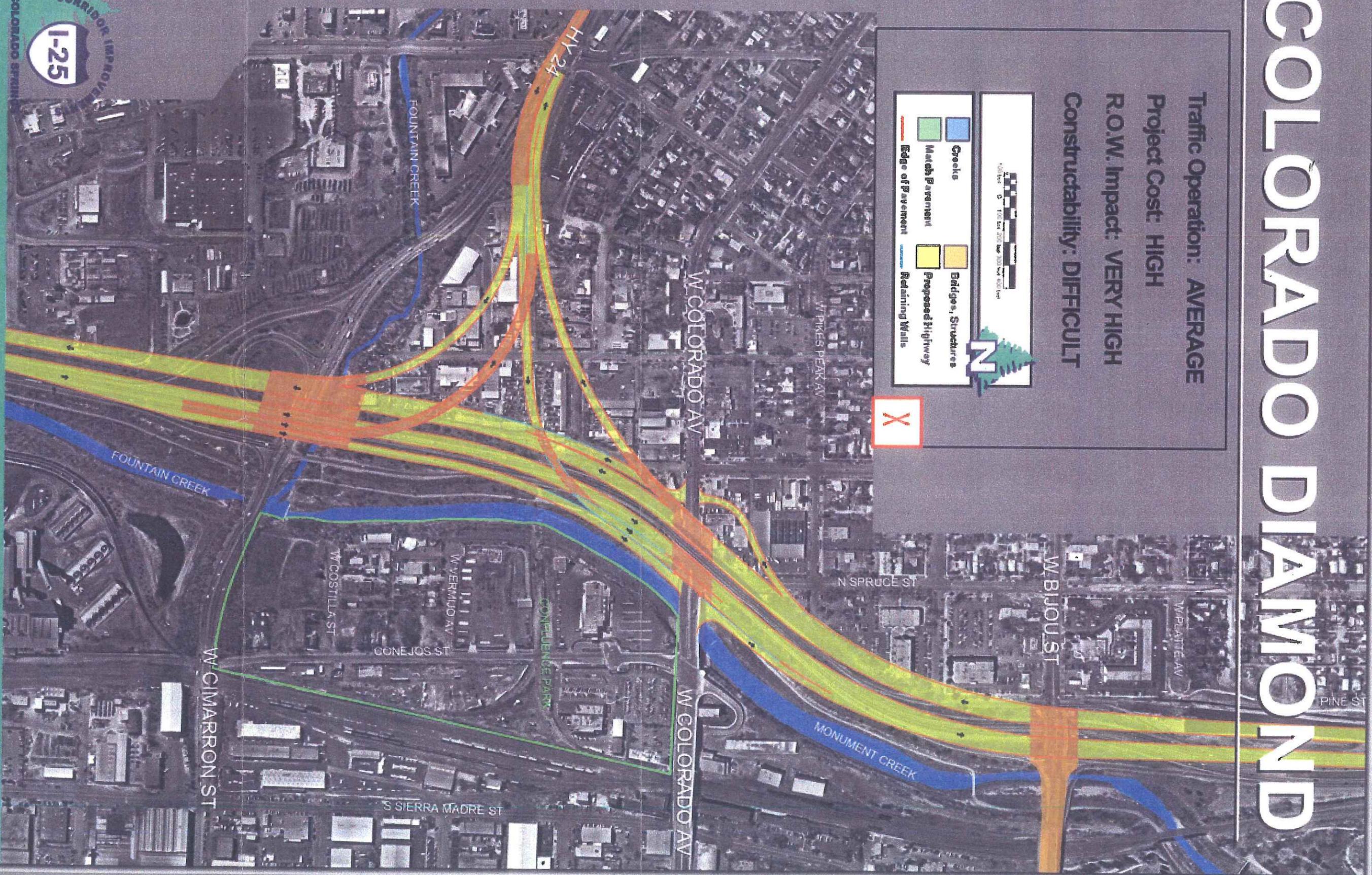
Traffic Operation: **AVERAGE**
Project Cost: **HIGH**
R.O.W. Impact: **VERY HIGH**
Constructability: **DIFFICULT**



Scale: 1" = 100' (Horizontal) / 1" = 200' (Vertical)



 Creeks	 Bridges, Structures
 Match Payment	 Proposed Highway
 Edge of Pavement	 Retaining Walls



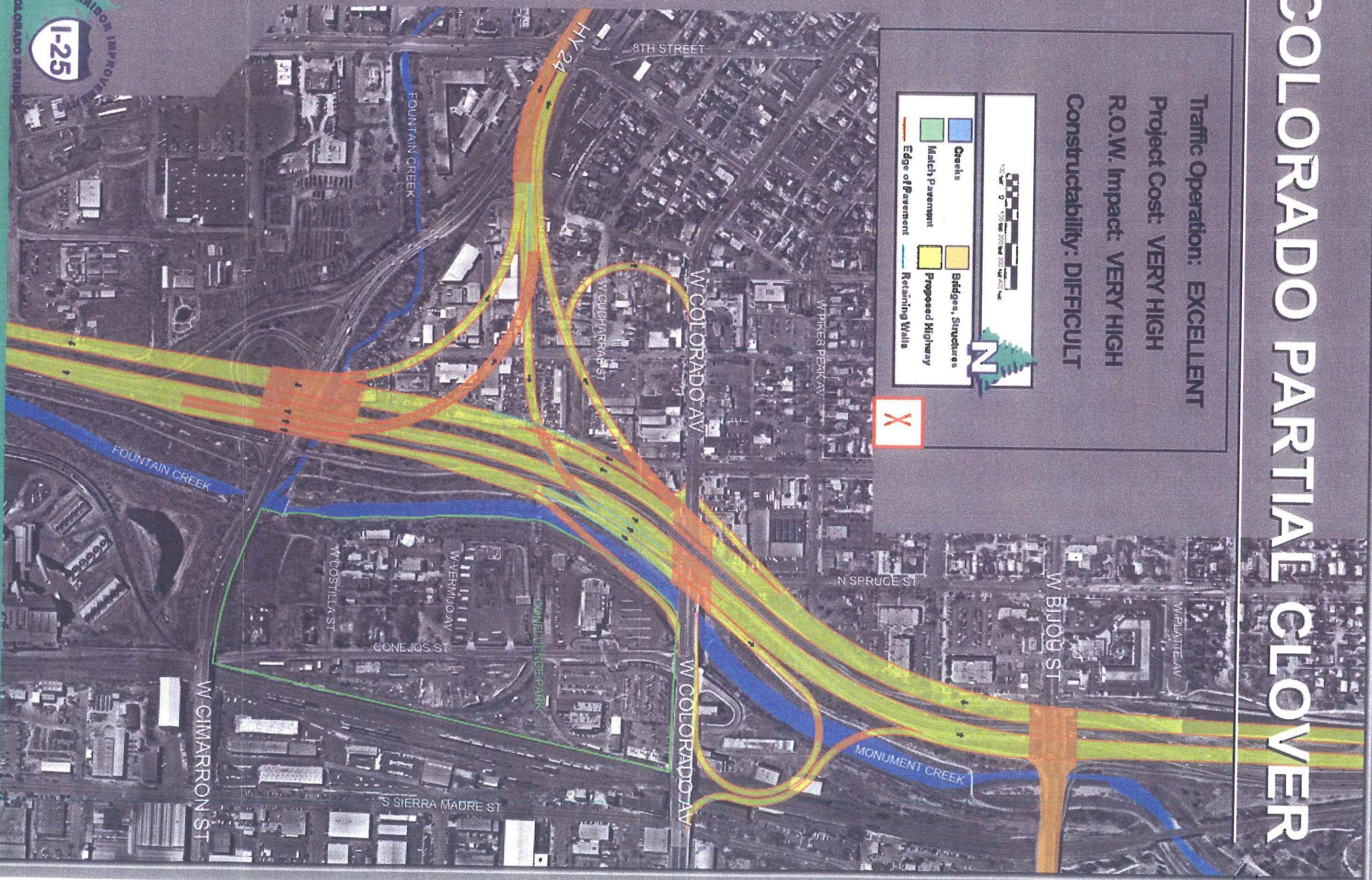
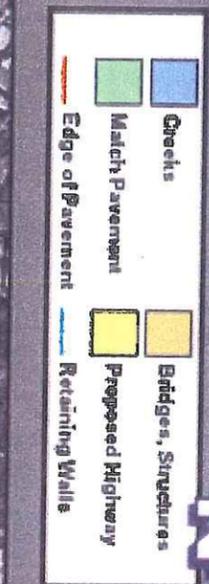
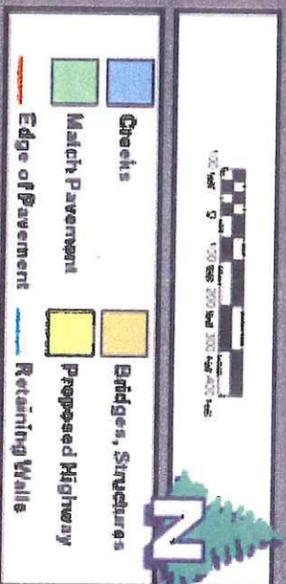
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COLORADO PARTIAL CLOVER

Traffic Operation: **EXCELLENT**
 Project Cost: **VERY HIGH**
 R.O.W. Impact: **VERY HIGH**
 Constructability: **DIFFICULT**



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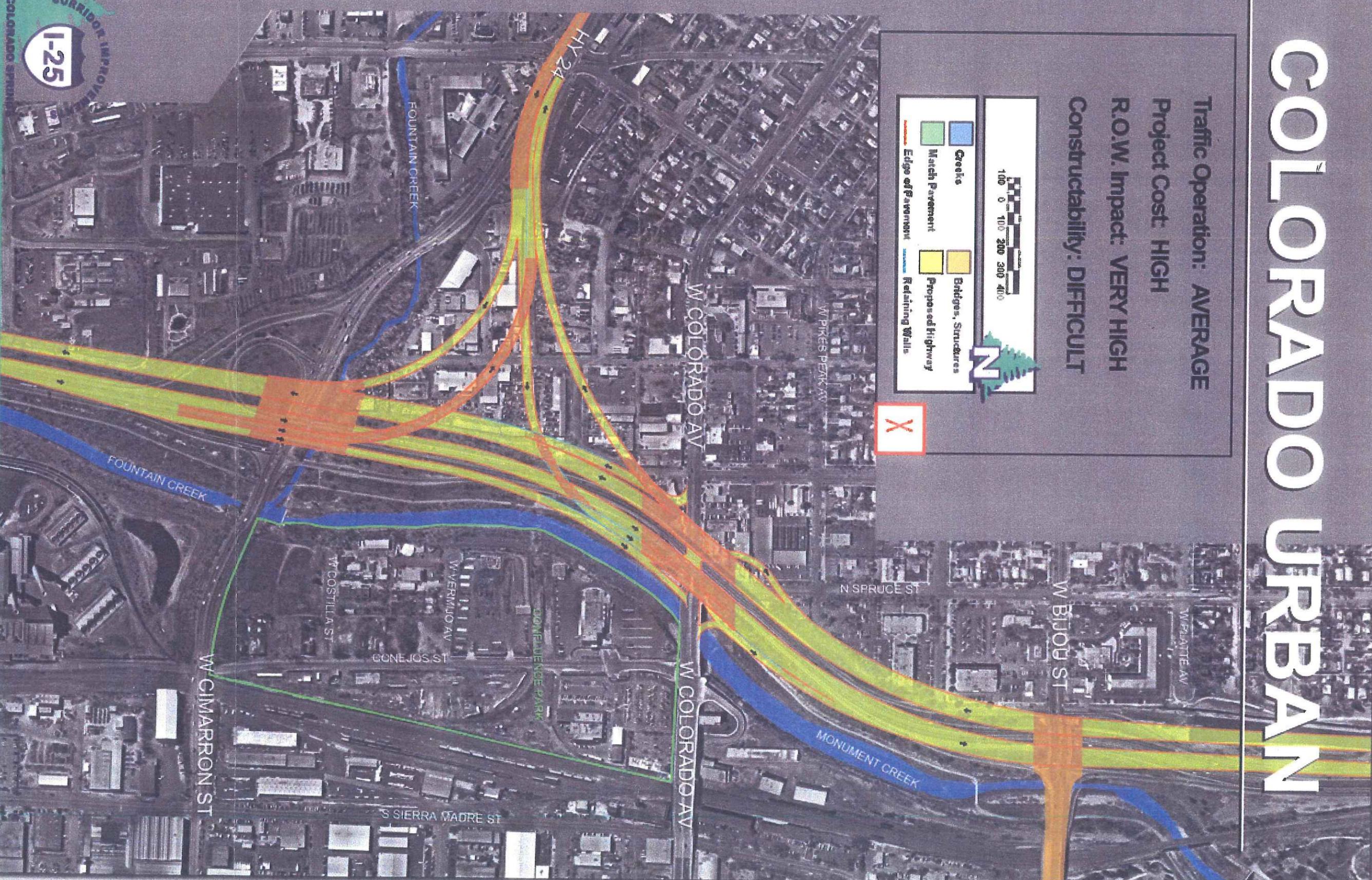
COLORADO URBAN

Traffic Operation: **AVERAGE**
Project Cost: **HIGH**
R.O.W. Impact: **VERY HIGH**
Constructability: **DIFFICULT**

100 0 100 200 300 400



- Creeks
- Bridges, Structures
- Match Pavement
- Proposed Highway
- Edge of Pavement
- Retaining Walls



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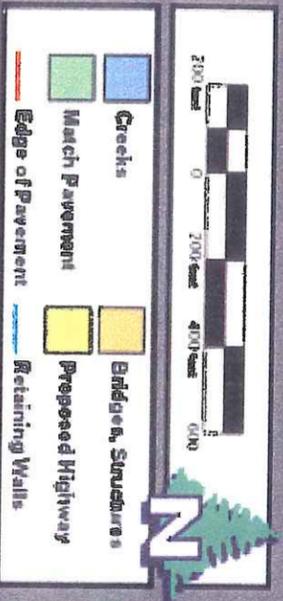


Combined Alternatives

- **Combined C-D Ramps** – Continuous, one-way collector-distributor (C-D) roadways parallel the interstate mainline between Cimarron Street and Bijou Street. Access to, and from I-25 is provided via access ramps north of Bijou Street and south of Cimarron Street as extensions of the C-D roadways. One additional on-ramp, from the northbound C-D to I-25, is provided between Cimarron Street and Colorado Avenue. One additional off-ramp, from southbound I-25 to the southbound C-D, is provided between Colorado Avenue and Cimarron Street.
- **Combined Expanded Diamond** – Northbound and southbound I-25 are reconfigured with split alignments from south of Cimarron Street to north of Bijou Street. Southbound I-25 would follow the existing I-25 alignment. Northbound I-25 would be realigned east of Monument Creek, to the west edge of the existing UPRR rail corridor. Cimarron Street / US 24 is converted to a one-way arterial east of the 8th Street intersection, providing easterly movements into downtown Colorado Springs. Colorado Avenue is converted to a one-way arterial from downtown Colorado Springs, to west of I-25, providing westerly movements. Access ramps to I-25 are provided north of Bijou Street. Directional ramps are provided from northbound I-25 to eastbound Cimarron Street, eastbound Cimarron Street to northbound I-25, eastbound US 24 to southbound I-25, northbound I-25 to westbound Colorado Avenue, westbound Colorado Avenue to northbound I-25, westbound Colorado Avenue to southbound I-25, southbound I-25 to westbound US 24 (at 8th Street intersection), westbound Bijou Street to northbound I-25, and southbound I-25 to Bijou Street.
- **Downtown Arterial 1** – Free-flow flyover ramps, north of Bijou Street and south of Cimarron Street convey traffic onto a downtown arterial just east of the interstate. The arterial provides access to several east-west streets including Colorado Avenue and Cimarron Street. Half-diamond ramps provide access to the interstate on the north side of Bijou Street.
- **Downtown Arterial 2** - Free-flow flyover ramps, north of Bijou Street and south of Cimarron Street convey traffic onto a downtown arterial just east of the interstate. The arterial provides access to several east-west streets including Colorado Avenue and Cimarron Street, via grade separations. Half-diamond ramps provide access to the interstate on the north side of Bijou Street.

COMBINED C-D RAMPS

Traffic Operation: **MARGINAL**
Project Cost: **LOWER**
R.O.W. Impact: **HIGH**
Constructability: **DIFFICULT**



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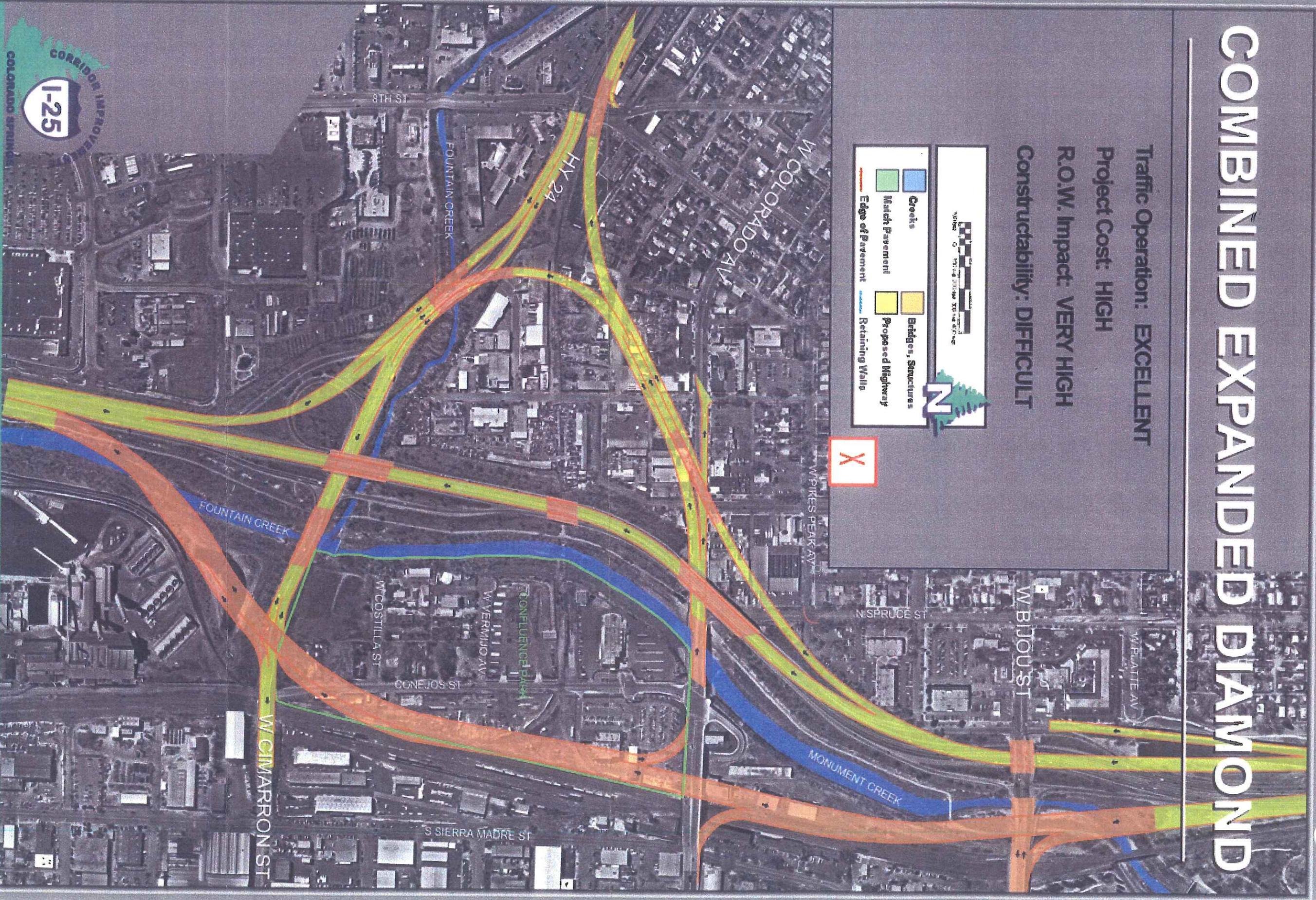
COMBINED EXPANDED DIAMOND

Traffic Operation: **EXCELLENT**

Project Cost: **HIGH**

R.O.W. Impact: **VERY HIGH**

Constructability: **DIFFICULT**



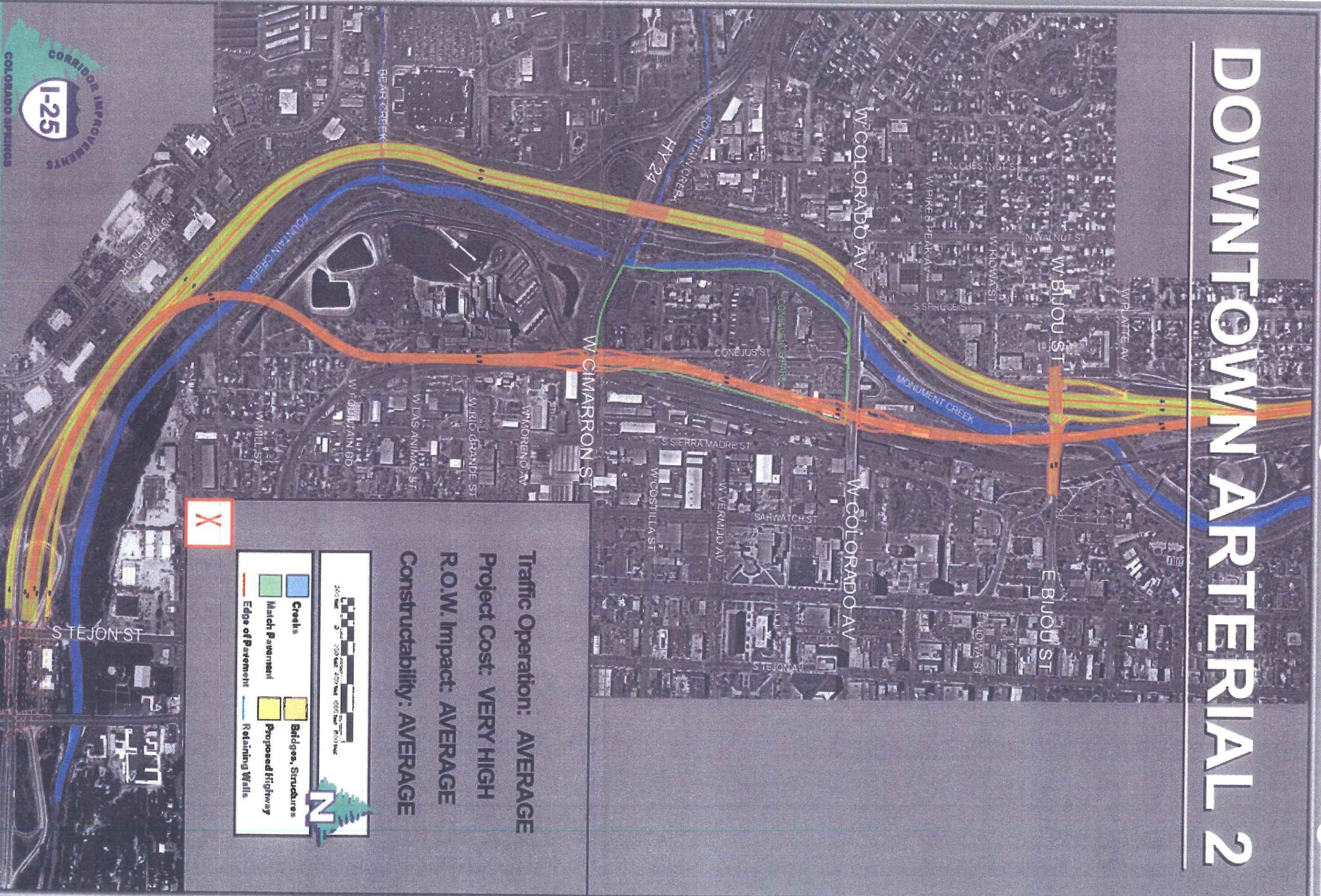
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HOLT &
BILMING

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DOWNTOWN ARTERIAL 2



X

Traffic Operation: **AVERAGE**
 Project Cost: **VERY HIGH**
 R.O.W. Impact: **AVERAGE**
 Constructability: **AVERAGE**

2000 Feet 0 100 200 Feet 400 Feet 600 Feet 800 Feet

	Creeks		Bridges, Structures
	Match @ Pavement		Proposed Highway
	Edge of Pavement		Retaining Walls



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Initial Alternative Evaluation and Elimination

The initial alternatives were evaluated and compared based on traffic operations, project cost, right-of-way impact, and constructability. Table 1-1 below provides a summary of the initial evaluation.

**Table 1-1
Cimarron and Bijou Interchanges
Initial Alternative Evaluation Matrix**

Pro / Con Criteria		Traffic Operation	Project Cost	R.O.W. Impact	Constructability
Best		Excellent	Lowest	Lowest	Best
Good		Good	Lower	Lower	Good
Average		Average	Average	Average	Average
Poor		Marginal	High	High	Difficult
Worst		Poor	Very High	Very High	Very Difficult
Interchange	Alternative				
Cimarron	Partial Clover 1	Good	Average	Lower	Difficult
	Partial Clover 2	Excellent	High	Average	Average
	Partial Clover 3	Good	Average	Average	Good
	Diamond	Average	Lower	Lower	Average
	Urban	Average	Lower	Lower	Average
Bijou	Diamond 1	Average	Average	Average	Average
	Diamond 2	Average	Average	Average	Difficult
	Partial Clover	Average	High	High	Average
	Expanded Diamond	Good	High	Average	Difficult
	Urban	Average	Lower	Average	Average
Colorado	Diamond	Average	High	Very High	Difficult
	Partial Clover	Excellent	Very High	Very High	Difficult
	Urban	Average	High	Very High	Difficult
Combined	C-D Ramps	Marginal	Lower	High	Difficult
	Expanded Diamond	Excellent	High	Very High	Difficult
	Downtown Arterial 1	Poor	High	Average	Average
	Downtown Arterial 2	Average	Very High	Average	Average

Several project constraints were instrumental in eliminating various options:

- Monument Valley Park – The Palmer Deed, the conditions under which General Palmer left Monument Valley Park to the City of Colorado Springs, limits construction across Monument Valley Park land.
- Monument / Fountain Creeks – The proximity of I-25 to Monument and Fountain Creeks prohibits any substantial roadway construction east of the existing right-of-way. Alternatives that shift the interstate to the east were quickly eliminated.
- Confluence Park – One of the project goals was to work with the City to preserve the future Confluence Park site. Alternatives that encroach upon the site were eliminated.



- Environmental Constraints – Noise, historic properties, hazardous materials sites, floodplains, and other criteria were identified and incorporated into the design process. Further investigation of environmental issues has taken place under the I-25 Corridor Environmental Assessment.
- Right of Way – A number of properties are very near the existing CDOT right-of-way. The successful design minimized impacts on adjacent properties.
- Project Cost – Includes improvements to the interstate and interchanges, right-of-way acquisition and relocation and all project construction. Meeting the safety improvement goals of the project had to be accomplished within budget.
- Constructability – While constructing new interchanges and making improvements, the existing interstate must accommodate traffic flow and the adjacent street network must maintain property access.

Based on the evaluation criteria and project constraints, several alternatives were completely eliminated from further evaluation. The eliminated alternatives and their corresponding reason for elimination are as follows:

All Cimarron Clover Leaf Alt's-	Right-of-way impacts
Cimarron Urban -	Poor traffic operations
Bijou Partial Clover Leaf -	Right-of-way impact; Project cost
Colorado Diamond -	Constructability; Right-of-way impact; Project cost
Colorado Partial Clover Leaf -	Constructability; Right-of-way impact; Project cost
Colorado Urban -	Constructability; Right-of-way impact; Project cost
Combined C-D Ramps -	Right-of-way impact; Project Cost
Combined Expanded Diamond -	Constructability; Right-of-way impact; Project cost
Combined Downtown Arterial 1 -	Poor traffic operations; Project cost
Combined Downtown Arterial 2 -	Project cost

Shortlist Alternatives

Five alternatives were shortlisted and presented at public meetings on May 16, 2000 and November 9, 2000. The shortlisted alternatives were combinations/modifications of those alternatives not eliminated in the initial evaluation process. The remaining alternatives were developed in more detail to obtain a higher level of evaluation and comparison.

- **Bijou Expanded Diamond with Cimarron Diamond** – The expanded diamond alternative for Bijou Street was modified to eliminate encroachment into Monument Valley Park. Encroachment into the park was identified as a fatal flaw per the Palmer Deeds. The revised expanded diamond at Bijou was combined with a diamond interchange at Cimarron.
- **Bijou Diamond with Cimarron Diamond** – This option bridges I-25 over Bijou Street in a tight diamond configuration, combined with a diamond configuration at Cimarron Street.



FHWA Interstate Access Request Section 1 – Cimarron Interchange

- **Bijou Diamond (under) with Cimarron Diamond** – This alternative is similar to the preceding alternative, except that Bijou Street bridges over I-25, similar to the existing configuration.
- **Bijou Urban with Cimarron Diamond** – This alternative combines the Bijou Urban Interchange with the diamond configuration at Cimarron Street.
- **No Bijou Interchange, Cimarron Split Diamond** – This alternative eliminates access to the interstate from Bijou Street. Half-diamond interchanges are provided at Cimarron Street and Colorado Avenue. Collector-distributor roads parallel mainline I-25, connecting the half-diamonds.

BIJOU EXPANDED DIAMOND CIMARRON DIAMOND

Bijou Expanded Diamond with Cimarron Diamond

Evaluation Information

Traffic Operations - Year 2020 Level of Service B/B at Bijou Street and C-B/D-C at Cimarron (eastside:westside AM/leasid:westside PM peak hour traffic)

Project Cost - Approximately	\$75M
Additional	\$8-20M cost-sharing by others for Bijou EB Viaduct
Additional	\$3-7M cost-sharing by others for Bijou WB Viaduct
Approximate total	\$86-102M

Right-of-Way Impact - Properties in the western portion of I-25 between Bijou Street and Bear Creek

Constructability - Difficult

Initial Public Response - Strong public support for improving access into downtown and reducing traffic delays

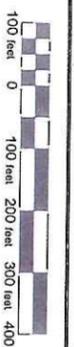
Key Issues

High Right-of-Way cost for Bijou EB Viaduct In order to avoid parkland

Potential noise and visual impacts for I-25 over Bijou Street

Participation by others in cost sharing for construction of Bijou Street EB and upgrade of Bijou WB Viaducts over Monument Creek/railroad

One-way traffic loop circulation on Bijou Street EB and WB bridges

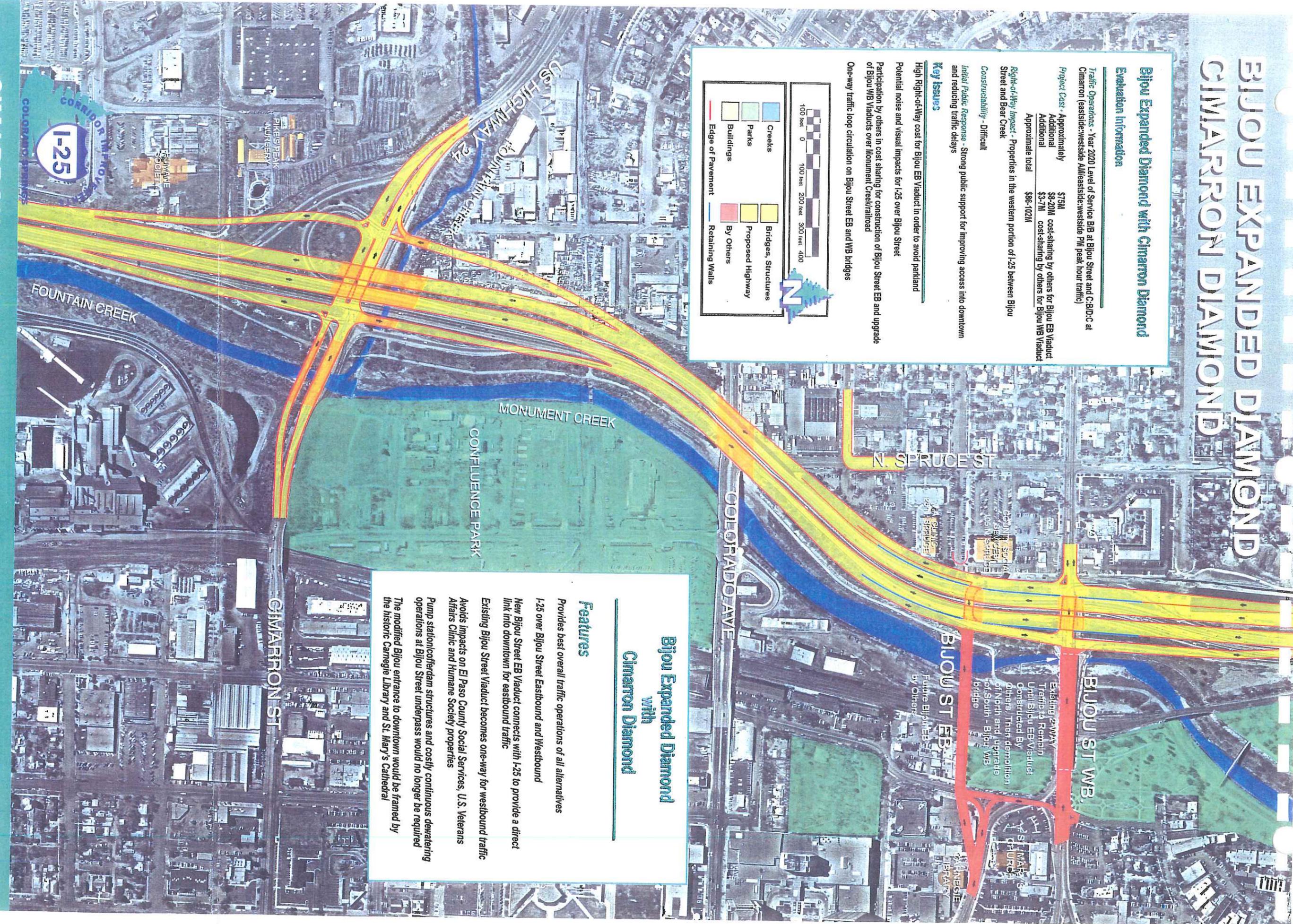


	Creeks		Bridges, Structures
	Parks		Proposed Highway
	Buildings		By Others
	Edge of Pavement		Retaining Walls

Bijou Expanded Diamond with Cimarron Diamond

Features

- Provides best overall traffic operations of all alternatives
- I-25 over Bijou Street Eastbound and Westbound
- New Bijou Street EB Viaduct connects with I-25 to provide a direct link into downtown for eastbound traffic
- Existing Bijou Street Viaduct becomes one-way for westbound traffic
- Avoids impacts on El Paso County Social Services, U.S. Veterans Affairs Clinic and Humane Society properties
- Pump station/cofferdam structures and costly continuous dewatering operations at Bijou Street underpass would no longer be required
- The modified Bijou entrance to downtown would be framed by the historic Carnegie Library and St. Mary's Cathedral



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BIJOU DIAMOND CIMARRON DIAMOND WITH FLYOVER

Bijou Diamond with Cimarron Diamond Flyover

Evaluation Information

Traffic Operations - Year 2020 Level of Service A,B/A,B at Cimarron (with flyover), C,C/C,B at Bijou with Monument Creek/road bridges upgrade, D,E/F,B without Monument Creek/road bridges upgrade.

Project Cost - Approximately \$74M, not including Cimarron Flyover (\$16 M)
Additional \$3.7M cost-sharing by others for improvements to existing Bijou Viaduct
Approximate Total \$77.91M

Right-of-Way Impact - Properties in the western portion of I-25 between Bijou Street and Bear Creek. Potential impacts on the Fountain Creek waterway in the northwest quadrant of U.S. 24 and I-25

Constructability - Difficult

Initial Public Response - Support for increased access to downtown and U.S. 24. Some concern of visual impacts of a flyover near the future Confluence Park site

Key Issues

Provides satisfactory traffic operations at Bijou Street/I-25 interchange

Potential for noise and visual impacts at I-25 over Bijou Street

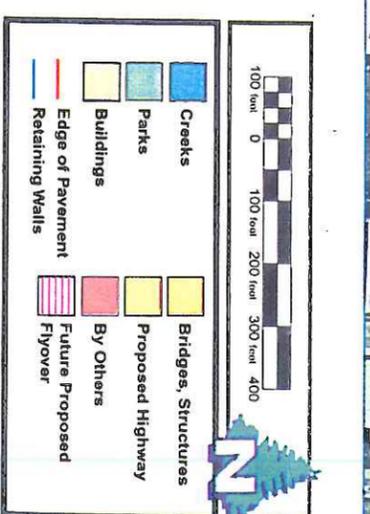
Potential noise and visual impacts at flyover in the vicinity of Confluence Park

Assimilation of improved I-25 traffic into the U.S. 24/8th Street intersection

Bijou Diamond with Cimarron Diamond Flyover

Features

- I-25 over Bijou Street
- Improved Diamond design at Bijou Street provides longer on- and off-ramps
- Provides improvement to traffic operations
- Avoids impacts on El Paso County Social Services, U.S. Veterans Affairs Clinic and new Humane Society properties
- Allows for future implementation of a flyover for north-to-west traffic movements at Cimarron
- Pump station and confederdam structures and costly continuous dewatering operations at the Bijou Street underpass would no longer be required

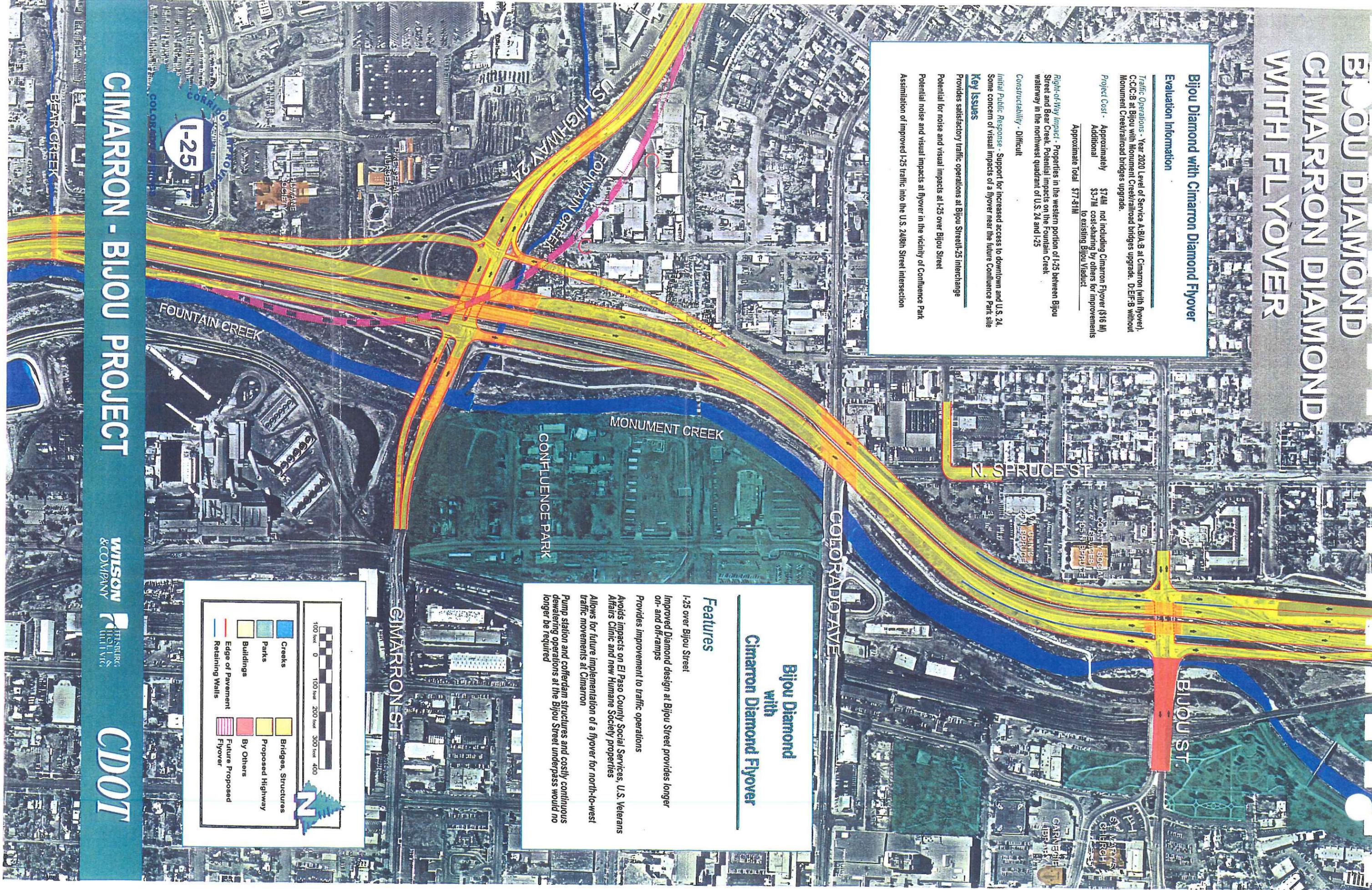


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BIOU DIAMOND (UNDER) CIMARRON DIAMOND

Bijou Diamond with Cimarron Diamond

Evaluation Information

Traffic Operations - Year 2020 Level of Service C-B/C:B at Cimarron, C-C/C:A at Bijou with Monument Creek/railroad bridges upgrade, D-E/F:B without Monument Creek/railroad bridges upgrade

Project Cost - Approximately \$81 M
 Additional \$3-7M cost-sharing by others for improvements to existing Bijou Viaduct
 Approximate total \$84-88 M

Right-of-Way Impact - Properties in the western portion of I-25 between Bijou Street and Bear Creek

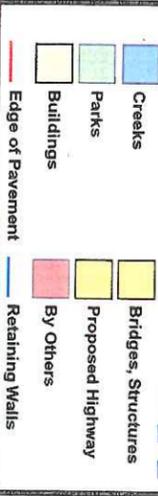
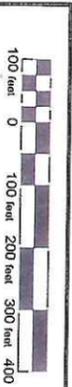
Constructability - Very Difficult

Initial Public Response - Support for improved access to downtown. Some concern about expansion of Bijou Street interchange

Key Issues

Provides satisfactory traffic operations at Bijou Street/I-25 interchange

Costly expansion of flood control/dewatering pump station/cofferdam structure at the Bijou Street underpass. Increased perpetual maintenance and operating costs for continuous operation of the pump station



Bijou Diamond with Cimarron Diamond

Features

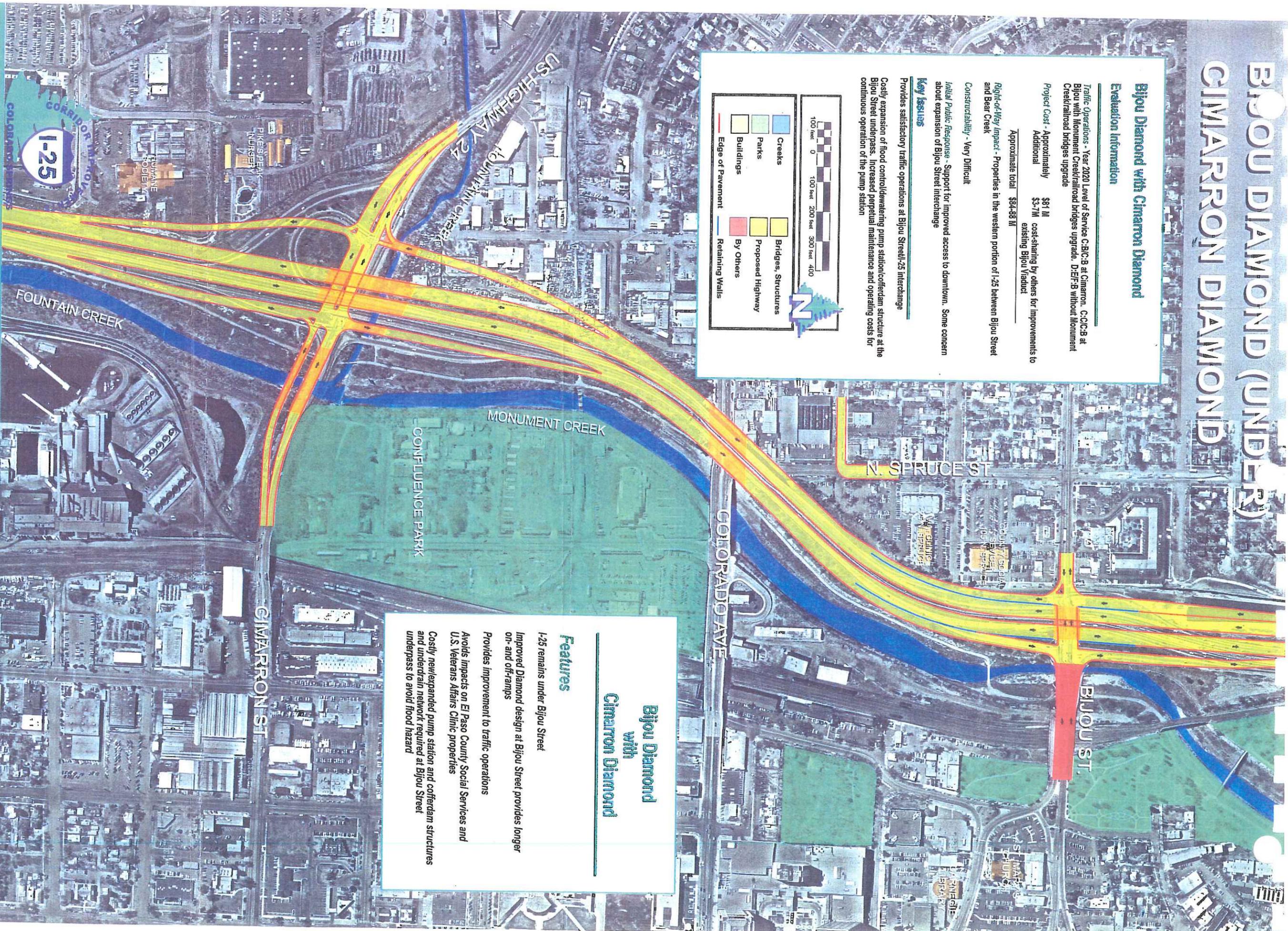
I-25 remains under Bijou Street

Improved Diamond design at Bijou Street provides longer on- and off-ramps

Provides improvement to traffic operations

Avoids impacts on El Paso County Social Services and U.S. Veterans Affairs Clinic properties

Costly new/expanded pump station and cofferdam structures and underdrain network required at Bijou Street underpass to avoid flood hazard



CIMARRON - BIJOU PROJECT



BIJOU URBAN CIMARRON DIAMOND

Bijou Urban with Cimarron Diamond

Evaluation Information

Traffic Operations - Year 2020 Level of Service C-B/C-B at US 24/Cimarron Street and DID at Bijou Street

Project Cost - Approximately \$73M
Additional \$10M cost-sharing by others for improvements to existing Bijou Viaduct

Approximate total \$83M

Right-of-Way Impact - Properties in the western portion of I-25 between Bijou Street and Bear Creek

Constructability - Difficult

Initial Public Response - Support for improved access to downtown, Public opposition to urban interchange related to perceived long signal delays

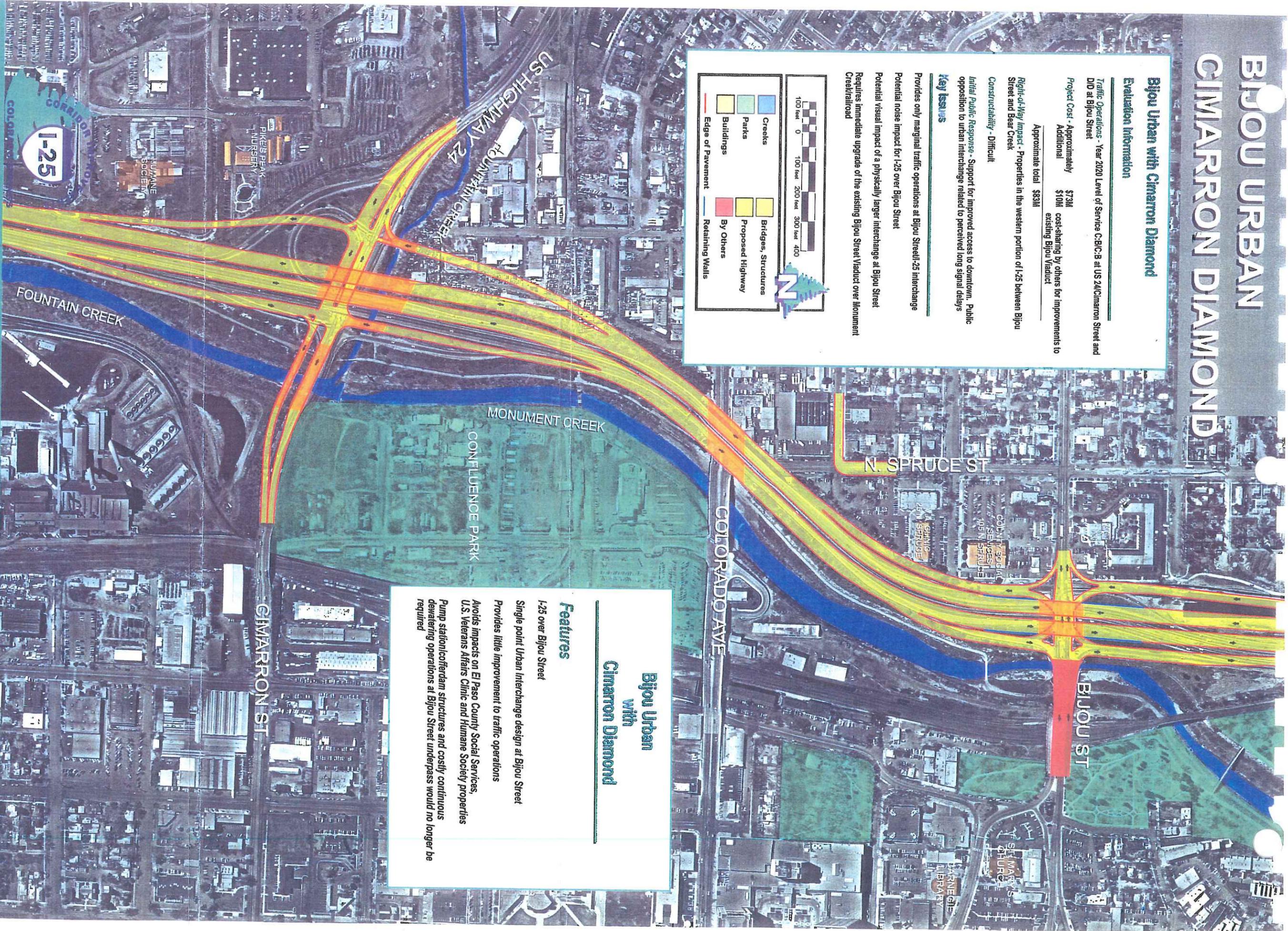
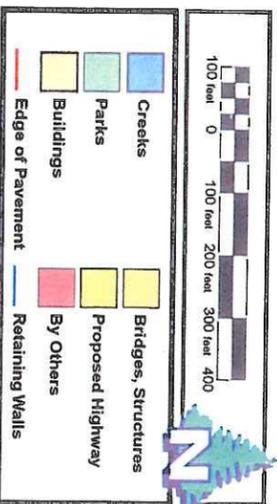
Key Issues

Provides only marginal traffic operations at Bijou Street/I-25 interchange

Potential noise impact for I-25 over Bijou Street

Potential visual impact of a physically larger interchange at Bijou Street

Requires immediate upgrade of the existing Bijou Street Viaduct over Monument Creek/trailroad



Bijou Urban with Cimarron Diamond

Features

I-25 over Bijou Street

Single point Urban Interchange design at Bijou Street

Provides little improvement to traffic operations

Avoids impacts on El Paso County Social Services, U.S. Veterans Affairs Clinic and Humane Society properties

Pump station/cofferdam structures and costly continuous dewatering operations at Bijou Street underpass would no longer be required

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DESIGN
CONSTRUCTION

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NO BIJOU INTERCHANGE CIMARRON SPLIT DIAMOND

No Bijou Interchange with Cimarron Split Diamond

Evaluation Information

Traffic Operations - Year 2020 Level of Service E/D/D at Colorado Avenue and D/E at U.S. 24/Cimarron

Project Cost - Approximate total \$90 M

Right-of-Way Impact - High impact on properties west of I-25 between Bijou Street and Bear Creek. Additional impacts on properties in the vicinity of Colorado Avenue

Constructability - Very Difficult

Initial Public Response - Public opposition to removal of Bijou Street interchange and the addition of ramp connections at Colorado Avenue

Key Issues

Degrades traffic operations at both U.S. 24/Cimarron and Colorado Avenue

Relocation of Bijou Street interchange to Colorado Avenue/Cimarron Street will redirect traditional access into downtown

Very high right-of-way impacts and associated costs

Costly expansion of flood control/levitating pump station/cofferdam structure at the Bijou Street underpass. Increased perpetual maintenance and operating costs for continuous operation of the pump station

No Bijou Interchange with Cimarron Split Diamond

Features

Interchange ramps at I-25/Bijou Street would be removed

I-25 remains under Bijou Street

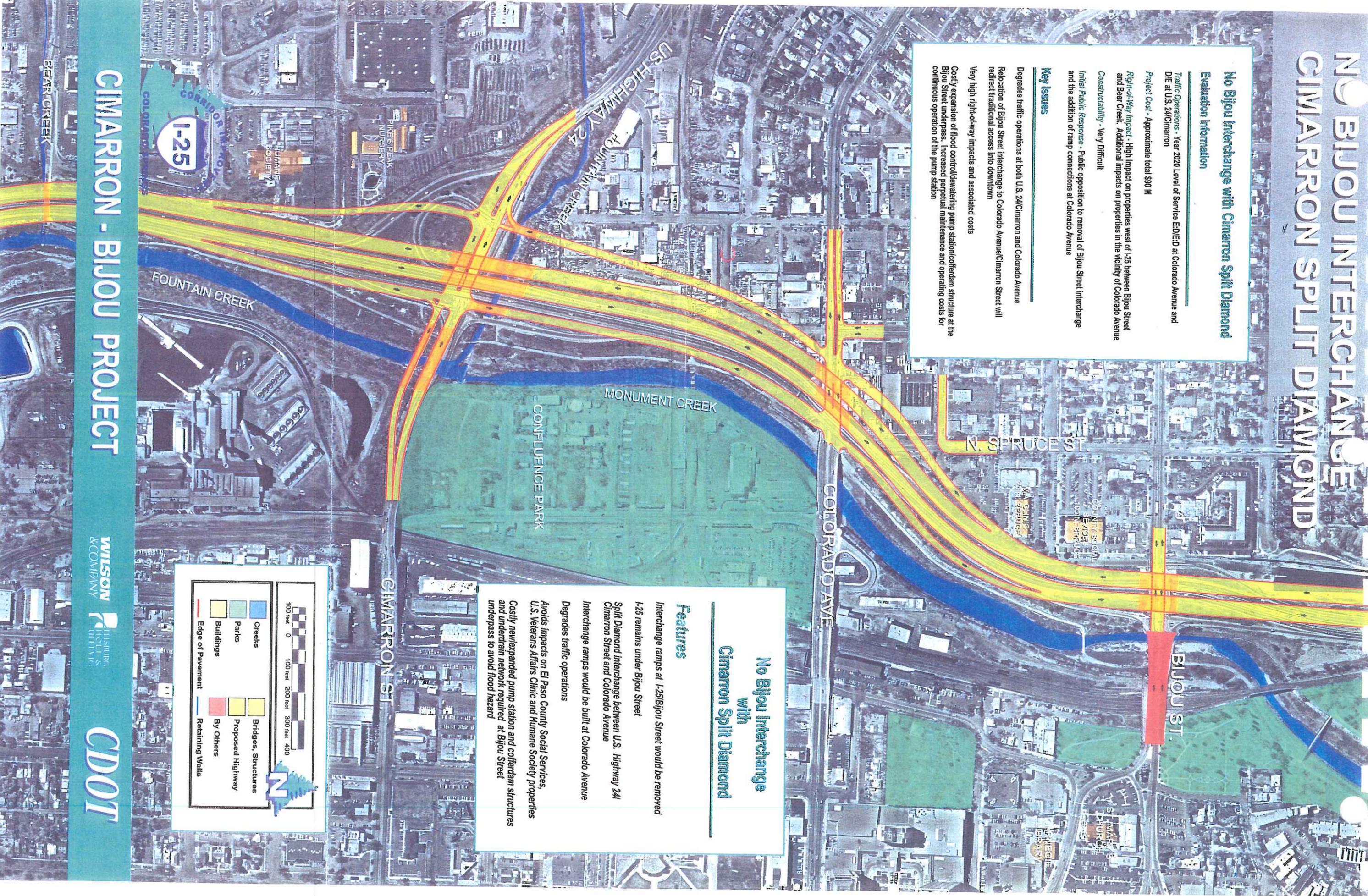
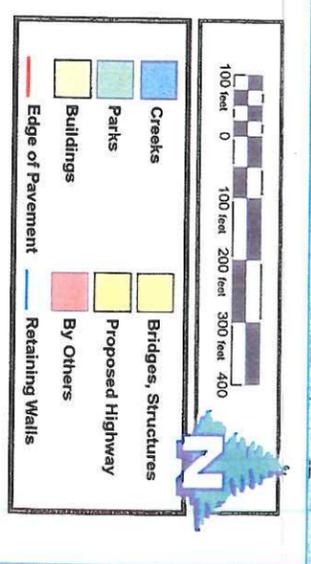
Split Diamond interchange between U.S. Highway 24/ Cimarron Street and Colorado Avenue

Interchange ramps would be built at Colorado Avenue

Degrades traffic operations

Avoids impacts on El Paso County Social Services, U.S. Veterans Affairs Clinic and Humane Society properties

Costly new/expanded pump station and cofferdam structures and underdrain network required at Bijou Street underpass to avoid flood hazard



CIMARRON - BIJOU PROJECT

WILSON CONSULTING & COMPANY

PLANNING & DESIGN

CDOT



Shortlist Alternative Evaluation

The short listed alternatives were evaluated to a higher level of detail. Specific traffic movements were evaluated to determine vehicle delay and levels of service. Cost estimates were updated and refined to provide dollar-figure estimates, rather than relative magnitude comparisons. The alternative geometry was refined to identify material quantities with more confidence and to better identify limits or right-of-way encroachments. Constructability concerns were investigated in more detail. The table below summarizes the comparison of the short listed alternatives.

**Table 1-2
Cimarron and Bijou Interchanges
Short Listed Alternatives Evaluation Matrix**

Alternative		Traffic Operations	Cost CDOT	Cost Others	Cost Total	Right-of-way Impact	Constructability	I-25 Over/Under
A	Bijou Expanded Diamond+ Cimarron Diamond	Best	\$75M	\$9M to \$27M	\$84M to \$102M	Moderate	Difficult	I-25 Over Bijou
B	Bijou Diamond+ Cimarron Diamond	Some Improvement	\$74M	\$3M to \$7M	\$77M to \$81M	Moderate	Difficult	I-25 Over Bijou
C	Bijou Diamond (Under)+ Cimarron Diamond	Some Improvement	\$81M	\$3M to \$7M	\$84M to \$88M	Moderate	Very Difficult	I-25 Under Bijou
D	Bijou Urban+ Cimarron Diamond	Little Improvement	\$73M	\$10M	\$83M	Moderate	Difficult	I-25 Over Bijou
E	No Bijou Cimarron Split Diamond	Degradation of Operations	\$91M	None	\$91M	Highest	Very Difficult	I-25 Under Bijou

One area of focus in the shortlist evaluation was the grade separation at Bijou Street and I-25. The project team investigated concept profiles for two scenarios: I-25 over Bijou Street, and I-25 under Bijou Street. Conceptual renderings depicting the two scenarios were presented to the public at the May 16, 2000 public meeting. Following this meeting the project team determined that I-25 should remain under Bijou Street for the following reasons:

- Lesser Noise Impact
- Lesser Visual Impact
- Shorter Retaining Walls and Bridges
- Easier to Construct
- Opportunity for gravity drainage under the Bijou Street Bridge, eliminates continuous pumping
- More Economical
- Preferred by the Public



Proposed Action

Following the May 2000 and November 2000 public meetings, the project team selected the proposed action for Bijou and Cimarron and presented those at a public meeting on March 1, 2001. The Bijou Tight Diamond Interchange with I-25 remaining under Bijou Street was selected as the Proposed Action for the following reasons:

- Least affect on Monument Valley Park and nearby historic resources
- Maintains access to local streets and businesses
- Adequate traffic operations
- Cost effective
- Preferred by the public

The Cimarron Diamond Interchange was selected as the Proposed Action for the following reasons:

- Minimizes property impacts
- Longer on-ramps and off-ramps
- Adequate traffic operations
- Cost effective
- Preferred by the public

BIJOU TIGHT DIAMOND

	Creeks		Bridges, Structures
	Parks		Proposed Highway
	Buildings		By Others
	Edge of Pavement		Retaining Walls



N. SPRUCE ST.

BIJOU ST.

CIMARRON - BIJOU PROJECT



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- Least affect on Monument Valley Park and nearby historic properties
- Preferred by public
- Maintains access to local streets
- Cost effective
- Adequate traffic operations

PROPOSED ACTION



CIMARRON DIAMOND

COLORADO AVE

PROPOSED ACTION



- Preferred by public
- Minimizes property impacts
- Longer on-ramp off-ramps
- Cost effective
- Adequate traffic operations

	Creeks		Bridges, Structures
	Parks		Proposed Highway
	Buildings		By Others
	Edge of Pavement		Retaining Walls

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CDOT

I-25

N

Policy Point 3

The proposed access point does not have a significant adverse impact on the safety and operation of the Interstate facility based on an analysis of current and future traffic. The operational analysis for existing conditions shall, particularly in urbanized areas, include analysis of sections of Interstate to and including at least the first adjacent existing or proposed interchange on either side. Crossroads and other roads and streets shall be included in the analysis to the extent necessary to assure their ability to collect and distribute traffic to and from the interchange with new or revised access points.

Proposed Action

The proposed action for the Cimarron Street Interchange includes an improved Diamond interchange that would replace the existing interchange. The ramp spacing for this Diamond interchange is approximately 400 feet. An additional two lanes (including an auxiliary lane between Cimarron St and Bijou St) in each direction along I-25 in the vicinity of Cimarron Street is also part of the proposed action. Projected traffic will also require that the interchange allow for a six-lane section of US 24 west of I-25. Since much of the downtown traffic from the south utilizes the Nevada / Tejon interchange, traffic projections show less need for expanding Cimarron Street east of I-25. Since both the existing and projected traffic is oriented toward I-25 to and from the west, the interchange itself provides a good interface to drop laneage from US 24.

Because of the orientation of projected traffic, the east side ramp terminal will require laneage improvements that will maintain an acceptable LOS. Triple left turn lanes at the northbound off ramp should be constructed by the year 2025. Storage for the heavier eastbound to northbound double left turns is provided between the ramps, as well as at the west approach to the west ramps.

Provisions are included so that a flyover structure for the northbound to westbound movement could be constructed at a future time if traffic demand increases beyond projections.

Year 2025 Traffic Analysis

Figure 1-3 (A) summarizes the LOS analysis for both the freeway and ramps of the Cimarron Interchange. Key operational aspects are as follows:

- Good levels of service (LOS D or better) can be expected for both the freeway operations and ramp terminal operations with the proposed action. The east side ramp terminal intersection must accommodate the largest traffic demand but the capacity of the triple left turn lanes and three thru lanes westbound, the intersection LOS is expected to be LOS D. Over 1400 vehicles per hour must merge onto southbound I-25 from the southbound on ramp in the PM peak hour. This relatively heavy ramp traffic can be accommodated with a single lane on ramp and maintain a LOS of D at the merge.
- Levels of service calculated are based upon the traffic demand with good freeway operations. This results in an increased traffic demand over the no-build case at the ramp terminals since less traffic would be diverted due to congestion on the freeway. This analysis assumes that US 24 would be widened to 6 lanes west of I-25. Even with a six-lane

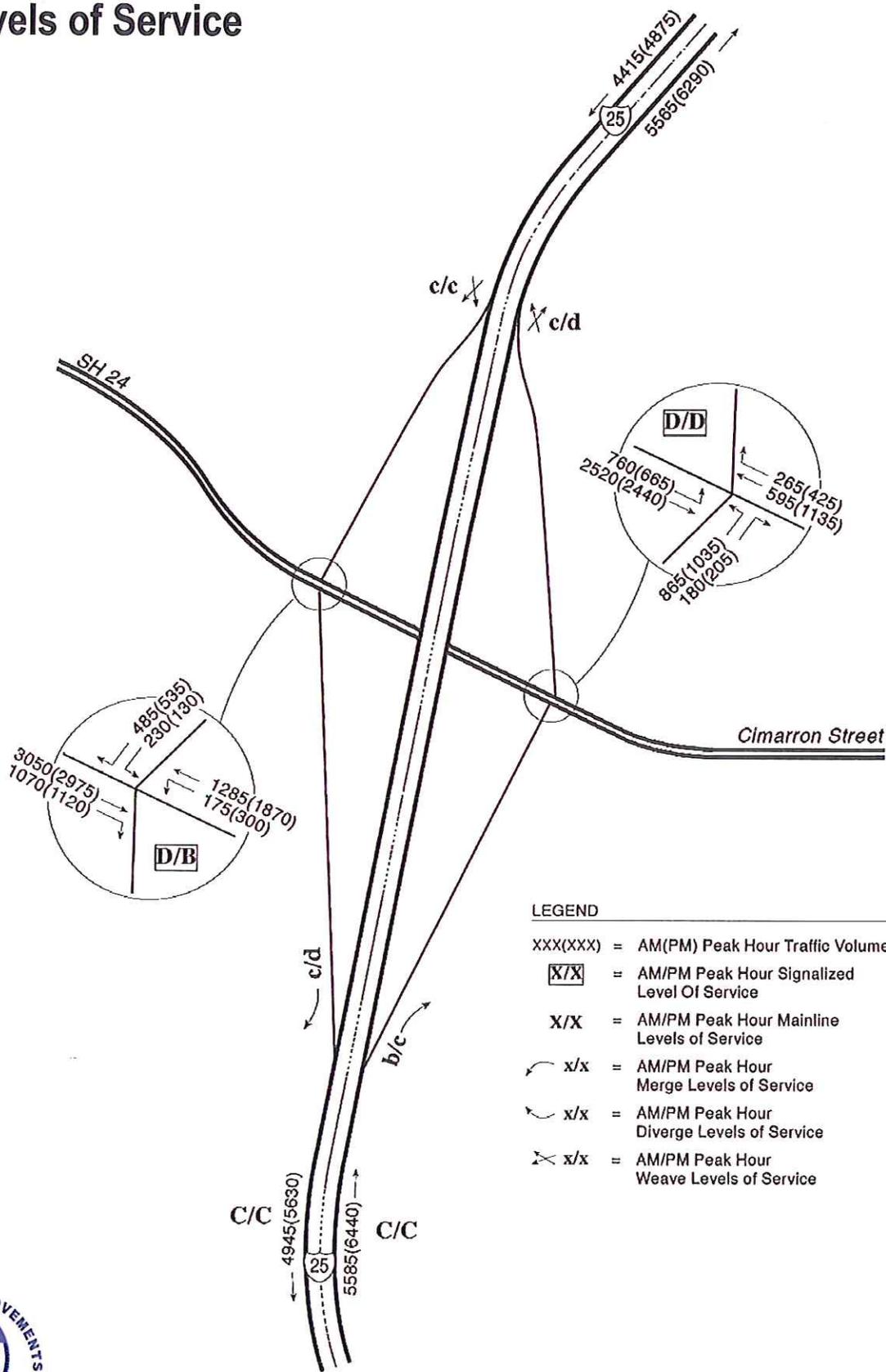


FHWA Interstate Access Request Section 1 – Cimarron Interchange

section, a significant amount of peak hour traffic demand is projected along US 24 west of the interchange. The magnitude of this demand is such that unless intersection improvements are made to key intersections along US 24, west of I-25, US 24 will act as a bottleneck and the projected peak hour traffic reaching the Cimarron interchange would be lower than what is shown. Thus the analysis is based upon a worst-case traffic demand for 2025, which also assumes other adjacent network improvements are in place.

Figure 1-3 (A)
2025 Build Traffic Volumes
and Levels of Service

I-25 Interstate Access Request



LEGEND

- XXX(XXX) = AM(PM) Peak Hour Traffic Volumes
- X/X** = AM/PM Peak Hour Signalized Level Of Service
- X/X = AM/PM Peak Hour Mainline Levels of Service
- ↘ x/x = AM/PM Peak Hour Merge Levels of Service
- ↗ x/x = AM/PM Peak Hour Diverge Levels of Service
- ⌘ x/x = AM/PM Peak Hour Weave Levels of Service



PIKES PEAK REGION

Cimarron Interchange





Policy Point 4

The proposed access connects to a public road only and will provide for all traffic movements. Less than “full interchanges ” for special purposes access for transit vehicles, for HOV’s, or into park and ride lots may be considered on a case-by-case basis. The proposed access will be designed to meet or exceed current standards for Federal-aid projects on the Interstate System.

Connection to Local Street System

The proposed diamond interchange at Cimarron Street will provide for all vehicular movements to, and from the interstate facility and Cimarron Street. Cimarron Street is a public roadway that serves the Colorado Springs metropolitan area.

Design Standards

The proposed interchange at Cimarron Street is designed per these agency standards:

- AASHTO Policy on Geometric Design of Highways and Streets, 2001
- I-25 Corridor Management Guidelines, Wilson & Company
- Colorado Department of Transportation Design Guide, Volume I

Design Variances

There are no design variances anticipated for the Cimarron Interchange with I-25.



Policy Point 5

The proposal considers and is consistent with local and regional land use and transportation plans. Prior to final approval, all requests for new or revised access must be consistent with the metropolitan and/or statewide transportation plan, as appropriate, the applicable provisions of 23 CF, part 450 and the transportation conformity requirements of 40 CFR parts 51 and 93.

The I-25 capacity improvements have been adopted as part of the Statewide Transportation Improvement Program (STIP), the Metropolitan Area Transportation Improvement Program (TIP), and regional long-range plan, as required by federal law (Transportation Efficiency Act for the 21st Century and the Clean Air Act).

In addition, the corridor improvements have been prioritized as part of the Strategic Transportation Project Investment Program. In 1997, Senate Bill 1 (created the 7th Pot) directed that “revenues ... shall be expended by the Department of Transportation for the implementation of the Strategic Transportation Project Invest Program.” I-25 is one of those corridors funded by Senate Bill 970001.

Capacity improvements to I-25 have been included as a high priority in the long-range transportation plans for the Pikes Peak Region for several decades. These plans, adopted by the Pikes Peak Area Council of Governments (PPACG), have been prepared in accordance with federal regulations governing metropolitan planning processes, and have been incorporated into the applicable Statewide Transportation Plan. Currently, I-25 improvements are included in PPACG’s *Destination 2025* Plan, as well as the Transportation Improvement Program for fiscal years 2002-2007. The Plan’s build scenario, which includes I-25 capacity improvements, meets applicable air quality conformity requirements.



Policy Point 6

In areas where the potential exists for future multiple interchange additions, all requests for new or revised access are supported by a comprehensive Interstate network study with recommendations that address all proposed and desired access within the context of a long-term plan.

The I-25 capacity improvements identified in this document include all *known and planned* improvements to mainline I-25 and associated interchanges for design year 2025, consistent with PPACG's *Destination 2025* Plan. These improvements extend from the South Academy Interchange, on the south, to the State Highway 105 Interchange, on the north. The improvements will include additional general use lanes on mainline I-25 and planned peak-hour HOV lanes on mainline I-25. Several interchanges will be modified only to be geometrically and operationally consistent with the mainline capacity improvements. Those interchanges include:

- S. Academy Interchange
- Circle Drive/Lake Avenue Interchange
- Martin Luther King Bypass Interchange
- Nevada Avenue/Tejon Street Interchange
- Uintah Street Interchange
- Fontanero Street Interchange
- Garden of the Gods Interchange
- Woodmen Road Interchange
- N. Academy Interchange
- Briargate Pkwy. Interchange
- Ackerman Overlook
- Interquest Pkwy. Interchange
- Monument/State Highway 105 Interchange

Seven interchange will be fully reconstructed and are referred to as “capacity interchanges.” A detailed operational analysis and documentation for these interchanges is included as Volume II of this request. The capacity interchanges include:

- Cimarron Street/State Highway 24 Interchange
- Bijou Street Interchange
- Fillmore Street Interchange
- Rockrimmon Boulevard Interchange
- North Nevada Avenue Interchange
- Northgate Road Interchange
- Baptist Road Interchange



Policy Point 7

The request for a new or revised access generated by new or expanded development demonstrates appropriate coordination between the developments and related or otherwise required transportation system improvements.

The I-25 capacity improvements included in this request are currently included in the PPACG's *Destination 2025* Plan, including the Transportation Improvement Program for fiscal years 2002-2007. In addition representatives of local government (City of Colorado Springs, El Paso County, etc.), federal government (FHWA and AFA), and PPACG have been coordinated with during conceptual design and alternative analysis of proposed mainline improvements and the reconfiguration of the capacity interchanges.



Policy Point 8

The request for new or revised access contains information relative to the planning requirements and the status of the environmental processing of the proposal.

The I-25 capacity improvements, both mainline and interchange, included in this request are currently being investigated to determine the associated environmental impacts. The Colorado Department of Transportation has included these improvements in the I-25 Environmental Assessment, currently being prepared.