I-25 Improvements Through the Colorado Springs Urbanized Area

Environmental Assessment

Appendix 6, Historic Resources Survey Report
Volume II

FEBRUARY 2004 UPDATE ON RESOURCE ELIGIBILITY AND EFFECTS

The February 2004 information below supercedes the December 2003 information that is found in this *Interstate 25 Environmental Assessment Historic Resources Survey Report, History and Survey Results, Volume II* regarding the following four resources*:*

Colorado College (5EP611) -- Eligibility
The December 2003 information in this report indicates that that Colorado College was evaluated as being not eligible for listing to the National Register of Historic Places. In February 2004, the State Historic Preservation Officer (SHPO) commented that the College may be eligible. Additional investigation would be needed to determine eligibility. However, since the SHPO found that the I-25 Proposed Action would result in a finding of "no historic properties affected" for this resource, a determination of eligibility is not required for the I-25 Environmental Assessment.

Stratton Meadows (5EP4224) -- Eligibility
The December 2003 information in this report indicates that the Stratton Meadows neighborhood was evaluated as being not eligible for listing to the National Register of Historic Places. In February 2004, the State Historic Preservation Officer (SHPO) commented that this neighborhood may be eligible, and additional investigation would be needed to determine eligibility. However, since the SHPO found that the I-25 Proposed Action would result in a finding of "no historic properties affected" for this resource, a determination of eligibility is not required for the I-25 Environmental Assessment.

Monument Valley Park (5EP613) and Monument Valley Park, Bijou Street Entrance (5EP613.13) -- Effects
The December 2003 information in this report indicates that the Proposed Action would have "no adverse effect" on Monument Valley Park and its contributing feature, the Rock Entrance Gate at Bijou Street. In February 2004, the State Historic Preservation Officer (SHPO) indicated that the Proposed Action would instead yield an "adverse effect." The SHPO stated the "the raising of Bijou Street, the introduction of a retaining wall, and the addition of a safety railing atop said wall changes the feeling, function, and design of this portion of the park. The wall and railing creates a visual and physical barrier where none existed before (and where none was planned to exist)." The SHPO added that "we believe the adverse effect can be mitigated with Level I documentation of the park and the entrance gate prior to construction."

St. Mary's School (5EP3854) -- Effects
The December 2003 information in this report indicates that with regard to St. Mary's School on Kiowa Street, the Proposed Action would result in "no historic properties affected". In February 2004, the State Historic Preservation Officer (SHPO) indicated that the Proposed Action would warrant a finding of "no adverse effect." The SHPO stated, "The project ends less than 50 feet from this property. There will be no adverse effect to the school, but we feel the closeness of the project warrants a finding of "no adverse effect" instead of 'no historic properties affected'."

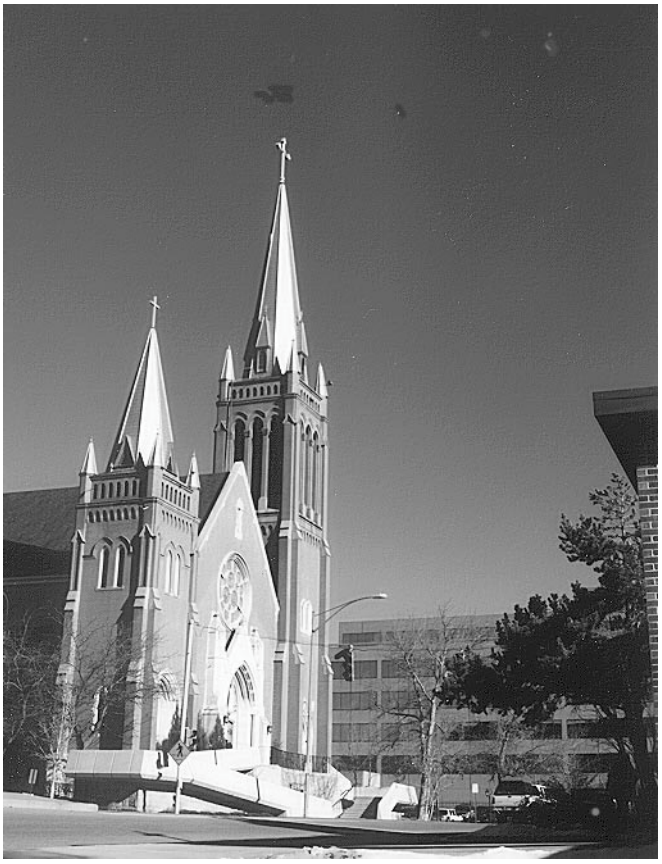
INTERSTATE 25 ENVIRONMENTAL ASSESSMENT

Project Number 151077.13

HISTORIC RESOURCES SURVEY

EFFECTS AND MITIGATION

VOLUME II



Prepared for CH2M HILL, Wilson & Company, and

Colorado Department of Transportation, Region 2

By

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December 2003

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TABLE 1 EFFECTS ANALYSIS SUMMARY

BAPTIST– NORTH GATE

Site Number	Site Name	Location	NRHP eligibility	Direct, Indirect, or No Impact	Determination of Effect
5EP1003.9	Santa Fe Railroad Grade	Baptist - N. Academy	Contributing, Eligible	No Impact	No historic properties affected
5EP595	United States Air Force Academy	Baptist to S. Academy	Officially eligible	Direct	Adverse Effect

NORTH GATE – NORTH ACADEMY

Site Number	Site Name	Location	NRHP eligibility	Direct, Indirect, or No Impact	Determination of Effect
5EP2223	Reynolds Ranch	1025 North Gate Rd.	Listed State Register	Indirect	No Adverse Effect
5EP1003.1	Santa Fe Railroad	Baptist - N. Academy	Contributing, Officially Eligible	No Impact	No Historic Properties Affected
5EP595	United States Air Force Academy	Baptist – S. Academy	Officially Eligible	Direct	Adverse Effect

WOODMEN ROAD—GARDEN OF THE GODS

Site Number	Site Name	Location	NRHP eligibility	Direct, Indirect, or No Impact	Determination of Effect
5EP972	Cottonwood Creek Bridge	Vincent Drive	Officially Eligible (Det. in 2000) Listed NR	No impact (Out of APE)	No historic properties affected

FILLMORE – FONTANERO

Site Number	Site Name	Location	NRHP eligibility	Direct, Indirect, or No Impact	Determination of Effect
5EP2179.1	Colorado Springs. & Interurban Car 59	2333 Steel Dr.	Listed State Register	No Impact	No historic properties affected
5EP2181.11	Denver & Rio Grande Railroad	Fillmore to Colorado	Contributing, Eligible	No impact	No historic properties affected

Site Number	Site Name	Location	NRHP eligibility	Direct, Indirect, or No Impact	Determination of Effect
5EP613	Monument Valley Park	Monroe to Fontanero	Eligible	No impact	No effect to historic properties

FONTANERO – UINTAH

Site Number	Site Name	Location	NRHP eligibility	Direct, Indirect, or No Impact	Determination of Effect
5EP2181.11	Denver & Rio Grande Railroad	Fillmore to Colorado	Contributing, Eligible	No Impact	No historic properties affected
5EP333	Old North End Historic District	Uintah to Monroe, west side of Wood	Listed, National Register	No Impact	No historic properties affected
5EP613	Monument Valley Park	Fontanero to Uintah	Eligible	No Impact	No historic properties affected
5EP4138	International Style House	205 W. Fontanero	Eligible	No Impact	No historic properties affected
5EP4139	Phillip Loomis House	1414 Culebra Ave.	Eligible	No Impact	No historic properties affected
5EP4140	Willis Armstrong House	1432 Culebra Ave.	Eligible	No Impact	No historic properties affected
5EP4146	Jess Lewis House	1722 Culebra Pl.	Eligible	No Impact	No historic properties affected
5EP4200	San Miguel Historic District	W. San Miguel & Glen	Eligible	Indirect	No Adverse Effect

UINTAH – BIJOU

Site Number	Site Name	Location	NRHP eligibility	Direct, Indirect, or No Impact	Determination of Effect
5EP2181.11	Denver & Rio Grande Railroad	Fillmore to Colorado Ave.	Contributing, Eligible	No Impact	No historic properties affected
5EP613	Monument Valley Park	Uintah to Bijou	Eligible	Indirect	No Adverse Effect
5EP614	Van Briggle Tile & Pottery Co.	1125 Glen Ave.	Officially Eligible	No impact	No historic properties affected

Site Number	Site Name	Location	NRHP eligibility	Direct, Indirect, or No Impact	Determination of Effect
5EP612. 9 5EP4201 5EP4202	Zuyder Zee Historic District House House House	Mesa Rd & MVP 615 Zuyder Zee 611 Zuyder Zee 609 Zuyder Zee	Eligible	No Impact	No historic properties affected
5EP622	Colorado Springs Fine Arts Center	30 W. Dale	Listed National Register	No Impact	No historic properties affected
5EP974	Cache La Poudre Bridge	Mesa Dr. & Cache la Poudre	Officially Eligible	No Impact	No historic properties affected
5EP321	Emmanuel Presbyterian Church	845 N Spruce	Listed National Register	No Impact	No historic properties affected
5EP1063	Boulder Crescent Place Historic District	N. Cascade & Boulder	Listed National Register	No Impact	No historic properties affected
5EP616	West View Place Historic District	West View Place	Officially Eligible	No Impact	No historic properties affected

BIJOU - CIMARRON

Site Number	Site Name	Location	NRHP eligibility	Direct, Indirect, or No Impact	Determination of Effect
5EP613.13	MVP Gateway	Bijou-West View Pl.	Contributing, Eligible	Indirect	No Adverse Effect
5EP613	Monument Valley Park	Uintah to Bijou	Eligible	Indirect	No Adverse Effect
5EP2181.11	Denver & Rio Grande Railroad	Fillmore to Colorado	Contributing, Eligible	No Impact	No historic properties affected
5EP4208	Queen Anne House	422 W. Bijou	Eligible	No Impact	No historic properties affected
5EP3856	WPA Flood Wall at Monument Creek	South of Bijou to Midland Railroad	Eligible	Direct	Adverse Effect
5EP613	Monument Valley Park	Bijou- Kiowa	Eligible	No Impact	No historic properties affected
5EP208	St. Mary's Church	26 W. Kiowa	Listed National Register	Direct	No Adverse effect
5EP3854	St. Mary's	29 W. Kiowa	Eligible	No Impact	No historic

Site Number	Site Name	Location	NRHP eligibility	Direct, Indirect, or No Impact	Determination of Effect
	School				properties affected
5EP634	Knights of Columbus	25 W. Kiowa	Eligible	No Impact	No historic properties affected
5EP646	Colorado Springs Public Library/Carnegie Building	21 W. Kiowa	Listed National Register	No Impact	No historic properties affected
5EP618	Denver & Rio Grande Railroad Depot	10 S. Sierra Madre	Eligible	No impact	No historic properties affected
5EP643	Chadbourn Spanish Gospel Mission	302 S. Conejos St.	Eligible	No Impact	No historic properties affected

SOUTH TEJON – LAKE AVE.

Site Number	Site Name	Location	NRHP eligibility	Direct, Indirect, or No Impact	Determination of Effect
5EP4199	Cast Stone House	533 E. Brookside	Eligible	Indirect	No adverse effect

LAKE – SOUTH ACADEMY

Site Number	Site Name	Location	NRHP eligibility	Direct, Indirect, or No Impact	Determination of Effect
5EP4209	Al Kaly Shrine Mule Team Barn	3415 Janitell Rd.	Eligible	Indirect	No adverse effect

DETERMINATION OF EFFECTS

This analysis includes discussion on the following elements:

- Applicable portions of the Section 106 regulations of the National Historic Preservation Act, with guidelines on determining adverse effects to historic properties eligible for or listed on the National Register of Historic Places (NRHP)
- The impact of the No Build Alternative to historic properties
- Direct and Indirect Impacts of the Proposed Action to historic properties
- Recommended Mitigation or Measures to Minimize Adverse Effects to historic properties
- Assessment of overall Cumulative Impacts to historic properties adjacent to I-25 corridor from past transportation and other projects .

In this effects analysis, the term “historic properties” has been used for those structures, sites, or linear features (i.e., railroads, ditches, or roads) that have been either determined to be field eligible to the National Register of Historic Places (NRHP) as part of this survey, or previously determined by the State Historic Preservation Office (SHPO) to be eligible for or listed on the NRHP or the State Register of Historic Properties (SRHP). The Colorado State Register of Historic Properties is a list of the state’s significant cultural resources. Resources listed on the state register can include buildings, structures, objects, districts, and historic and archaeological sites. Resources listed in the National Register of Historic Places are automatically placed on the State Register; however, resources can also be nominated to the State Register without being included in the National Register. [1]

1.0 NATIONAL HISTORIC PRESERVATION ACT SECTION 106 REGULATIONS

The Section 106 regulations, 36 CFR Part 800 ("Protection of Historic Properties"), of the National Historic Preservation Act include specific criteria of adverse effect that must be applied to federal undertakings with the potential to impact historic properties. When considering the potential for adverse effects, all reasonably foreseeable impacts must be taken into account, including direct, indirect, and cumulative impacts. In addition, it is essential to understand the criteria of significance for an historic property, or why a property has been determined to be eligible for or listed on the NRHP. Determinations of adverse effect are made based on the potential of the undertaking to alter or diminish the qualities of significance of an historic property.

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[1] Colorado Historical Society, Office of Archaeology and Historic Preservation, *Directory of State Register Properties*, (Colorado Historical Society, Office of Archaeology and Historic Preservation, Updated 1997, pp. 4-5.

1.1 Criteria of Adverse Effect

An adverse effect is found when an undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the National Register in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association. Consideration shall be given to all qualifying characteristics of a historic property, including those that may have been identified subsequent to the original evaluation of the property's eligibility for the National Register. Adverse effects may include reasonably foreseeable effects caused by the undertaking that may occur later in time, be farther removed in distance or be cumulative.

Examples of adverse effects: Adverse effects on historic properties include, but are not limited to:

(i) Physical destruction of or damage to all or part of the property;

(ii) Alteration of a property, including restoration, rehabilitation, repair, maintenance, stabilization, hazardous material remediation, and provision of handicapped access, that is not consistent with the Secretary of the Interior's standards for the treatment of historic properties (36 CFR part 68) and applicable guidelines;

(iii) Removal of the property from its historic location;

(iv) Change of the character of the property's use or of physical features within the property's setting that contribute to its historic significance;

(v) Introduction of visual, atmospheric or audible elements that diminish the integrity of the property's significant historic features;

(vi) Neglect of a property which causes its deterioration, except where such neglect and deterioration are recognized qualities of a property of religious and cultural significance to an Indian tribe or Native Hawaiian organization; and

*(vii) Transfer, lease, or sale of property out of Federal ownership or control without adequate and legally enforceable restrictions or conditions to ensure long-term preservation of the property's historic significance. (**36 CFR 800.5**).*

The revised Section 106 regulations, effective January 11, 2001, contain additional guidance for determining and assessing adverse effects during the preparation of an EA or EIS, as follows:

1.2 Approval of the Undertaking

If the agency official has found, during the preparation of an EA or EIS that the effects of an undertaking on historic properties are adverse, the agency official shall develop measures in the EA, DEIS, or EIS to avoid, minimize, or mitigate such effects in accordance with paragraph

(c)(1)(v) of this section. The agency official's responsibilities under section 106 and the procedures in this subpart shall then be satisfied when either:

(i) A binding commitment to such proposed measures is incorporated in:

(A) The ROD, if such measures were proposed in a DEIS or EIS; or

(B) An MOA drafted in compliance with Sec. 800.6(c); or

(ii) The Council has commented under Sec. 800.7 and received the agency's response to such comments.

1.3 Modification of the Undertaking

If the undertaking is modified after approval of the FONSI or the ROD in a manner that changes the undertaking or alters its effects on historic properties, or if the agency official fails to ensure that the measures to avoid, minimize or mitigate adverse effects (as specified in either the FONSI or the ROD, or in the binding commitment adopted pursuant to paragraph (c)(4) of this section) are carried out, the agency official shall notify the Council and all consulting parties that supplemental environmental documents will be prepared in compliance with NEPA or that the procedures in Sects. 800.3 through 800.6 will be followed as necessary. **36 CFR 800.8 (c)(4-5).**

2.0 IMPACTS OF THE NO-BUILD ALTERNATIVE TO HISTORIC PROPERTIES

The No-Build Alternative includes the following safety projects in the I-25 corridor, cleared under several Categorical Exclusions:

1) CDOT Region 2 has completed or is in the process of completing the following safety projects in El Paso County. CDOT consulted with the SHPO on the effects of these projects to historic properties in areas where eligible or listed historic properties were present. For more information on these consultations, please refer to the Cumulative Impacts section of this analysis.

    a) Realign/reconstruct northbound and southbound I-25 between Bijou and Fillmore. This project involved several different actions:

        i) Straighten alignment of I-25 between Bijou and Fillmore.

        ii) Lengthen acceleration and deceleration lanes at interchanges and improve shoulders.

        iii) Reconstruct interchanges at Uintah and Fontanero.

        iv) Improve signals and lighting at Bijou, Uintah, Fontanero, and Fillmore interchanges.

v) Allow for future capacity increases of I-25 between Fillmore and Bijou.

b) Reconstruct or reconfigure interchanges at South Nevada/South Tejon, Woodmen Road, SH 105 in Monument, North Academy Blvd, and Circle Drive/Lake Avenue.

c) Build new interchange at InterQuest (formerly known as Fairlane) Parkway.

2) In addition to the CDOT projects described above, the Pikes Peak Area Council of Governments (PPACG) included the following transportation improvements to the I-25 corridor as part of its Long Range Transportation Plan for 2020.

a) Implement Intelligent Traveler System options.

b) Construct four lanes on I-25 from South Academy Blvd. to Briargate Pkwy, including 2 HOV lanes.

c) Reconstruct Fountain Interchange.

d) Plan for pedestrian crossing of I-25, Monument Creek and Denver & Rio Grande Railroad between Fillmore and Uintah.

e) Build pedestrian bridge for trail crossing of I-25 in Monument.

f) Build Park and Ride lots at North Gate, South Academy, and Baptist. Park and Rides have also been proposed for Woodmen Road, South Circle, and Monument. The construction of these facilities will be done by the City of Colorado Springs.

Of the above projects, Project 2(b) takes place within the area where the majority of historic resources were found in this project survey, between the Fontanero and Bijou interchanges. The construction of additional lanes will not require right-of-way because widening will take place in the median of I-25 for this project. Indirect impacts may be similar to those described for historic properties in the Uintah to Bijou interchanges segment. Please refer to that section for more information on the potential indirect impacts that project 2(b) may have to historic properties.

The Mode Feasibility Alternatives Analysis (MFA) prepared by Wilson & Company in December 2000 identified several issues associated with the No Build Scenario that have the potential to impact historic properties. El Paso County's population is projected to increase by more than 30 percent between 2000 and 2020, with 60 percent more vehicles using the interstate. Personal automobiles are predominant on the corridor, although trucks comprise from 5 to 20 percent of the total vehicles on the interstate through Colorado Springs.

The interstate is currently designed to hold 2,000 vehicles per lane per hour. According to standard methods in the *Highway Capacity Manual*, the freeway is considered congested when vehicles exceed 85 percent of capacity, or 1,700 vehicles per lane per hour. During 1999 the weekday traffic volumes on I-25 were usually congested (at 85 percent of capacity) for one hour in the morning and three hours each afternoon. The average peak period trip time in 1999 was 35 minutes. Extreme congestion (over 2,000 vehicles per lane per hour) occurred on one in every four weekdays. The interstate held 108,000 vehicles per weekday, which exceeds the roadway's capacity.

Without increased capacity on the interstate, planners expect congested periods during the morning and evening rush hour periods to lengthen. In 2020, future use of I-25 through Colorado Springs is projected at 121,000 vehicles per day. Under the No Action Scenario, the projected amount of time for a peak-period trip in 2020 is 56 minutes, traveling at a speed of 25 miles per hour. The Mode Feasibility Alternatives Analysis concludes on page 33: "In the absence of I-25 corridor capacity improvements, projected growth in the region will further increase congestion on I-25, as well as on other parallel routes. I-25, if not improved, cannot carry much more traffic through central Colorado Springs during the four current peak hours, but can and will carry additional traffic during more hours of the day."

The No Action Scenario will result in increased travel times, longer periods of congestion on the interstate and connecting roads, air pollution, and continued deterioration of the interstate, which wasn't designed to handle increased loads. Historic properties and districts adjacent to the travel corridor could experience cumulative impacts resulting from lower desirability of these neighborhoods for residences, changes in zoning, renovation of homes into businesses or demolition to make way for commercial properties. The six miles of I-25 through the United States Air Force Academy (USAFA), an officially eligible Historic Cultural Landscape, would also experience congestion and decreased travel speeds. Determining indirect impacts to historic properties under the No Action Scenario is especially complex, and relies on numerous outside factors outside of the scope of this document. The resulting determination of effect to historic properties under the No Action Scenario is no adverse effect, pending additional information on specific impacts.

3.0 IMPACTS OF PROPOSED ACTION TO HISTORIC PROPERTIES

This section of direct and indirect impacts to listed or eligible historic properties within the APE has been organized according to interchange segments from north to south.

If a historic property is located within an interchange segment area, this analysis discusses the potential for the proposed action to impact that property. Potential impacts include direct, indirect,

and cumulative. If no impact will result from the proposed project, that is also discussed. The appropriate Section 106 terms to describe impacts (no historic properties affected, no adverse effect, or adverse effect) are included with each discussion. Cumulative effects for historic properties adjacent to the I-25 corridor are discussed in Section 6.0 of this analysis.

3.1 SH 105 at Monument to Baptist Road

No field eligible, officially eligible, or listed historic properties were identified between these two interchanges.

3.2 Baptist Road to North Gate

Baptist Road/I-25 Interchange: The existing Baptist Road/I-25 interchange currently has a sub-standard diamond interchange with one-lane ramps and one through-lane in each direction on Baptist Road over I-25. The project limits extend along Baptist Road from the Total Gas Station access east to Jackson Creek Parkway. Improvements include upgrading the Baptist Interchange to a diamond concept. Baptist Road will be widened to two through-lanes in each direction between the interchange ramps. With the widening of Baptist Road, the bridge structure will be widened to four lanes. Minimal right-of-way impacts are anticipated.

From Baptist to North Gate, the interstate will be widened to three through lanes in each direction. The Proposed Action will have the following effects on eligible properties:

a) **Santa Fe RR Grade (5EP1003.9).** At Baptist Road, the abandoned Santa Fe Railroad Grade is approximately 2000 feet west of the center of the existing interchange. Improvements to Baptist Road will not extend as far as the former railroad bed. Between Baptist and North Gate, the grade approaches the existing interstate, and at its closest point is approximately 100 feet from the highway right-of-way, halfway between Baptist and North Gate. The addition of one lane in each direction will not cause the highway to encroach on the railroad grade. The determination of effect is **no historic properties affected**.

b) **United States Air Force Academy (5EP595).** The USAFA property begins about one mile south of Baptist Road. There are no impacts to the USAFA from the Baptist Road Interchange project. The addition of one lane in each direction within USAFA property will not require an additional easement from the USAFA. Impacts to the USAFA at the Northgate Interchange are discussed under interchange segment North Gate to North Academy.

   The USAFA is approximately seven miles in length north to south and is about four miles wide. Monument Creek runs through the site from north to south fed by

tributaries flowing from the east and west. These create mesas, valleys, and ridges that dramatically increase in elevation as they rise to the west. The location of the various Academy function areas and the buildings were planned to blend in with the topography and are separated by valleys or mesas and ridges covered with large evergreens, scrub oak, and natural grasses. One primary reason for such a large site was to provide a buffer to protect the campus from encroachment and undesirable development to the east and south.

Of the qualities of significance for this property, the most important for the purposes of this effects analysis is the site planning and landscape design elements of the original USAFA Master Plan prepared by Skidmore, Owings, and Merrill (SOM). The plan specified that the landscape of the USAFA (outside of the built environment and other built features) be preserved in its natural state. The interstate was purposely designed with a buffer between the north-bound lanes and the eastern edge of the USAFA to prohibit development immediately adjacent to the interstate in the vicinity of USAFA to preserve the high visual quality of this natural landscape.

The widening of I-25 will not affect the built environment of the USAFA, including the contributing buildings in the Cadet Area, such as the Cadet Chapel, due to the great distance between I-25 and these buildings. However, the proposed design will alter the original appearance of the eastern boundary of the USAFA. While there are no contributing buildings in this part of the property, this area contributes to the significance of the historic cultural landscape by demonstrating the efforts of USAFA to preserve the natural beauty of its property with specific landscape design strategies and to prohibit development along the eastern edge of the interstate. The rural feel and natural appearance associated with the historic cultural landscape will also be visually impacted by the proposed design.

The proposed widening involves adding one through lane in each direction, for a total of six lanes. There are no plans for retaining walls or other slope stabilization that would further urbanize the appearance of the highway and obscure motorist views of the USAFA. When considered along with the proposed reconstruction of the existing North Gate Interchange Complex (see North Gate to North Academy segment), the proposed design will alter or change some of the qualities of the historic cultural landscape, resulting in a determination of **adverse effect**. Proposed measures to minimize impacts to the historical cultural landscape are described in the proposed mitigation and measures to minimize adverse effects section of this report.

3.3 North Gate to North Academy

There are three elements to the work proposed between North Gate and North Academy. These are (a) the North Gate/Powers Boulevard Interchange, (b) widening the interstate from two to three through lanes in each direction between North Gate and Briargate and widening the interstate from 2 to 4 lanes in each direction south of Briargate, and (c) relocating the Ackerman Overlook.

North Gate/Powers Boulevard/I-25 Interchange. Residential growth in northeast Colorado Springs has resulted in a need for transportation improvements. Transportation planners have developed a concept for connecting Powers Blvd., a new state highway, to I-25. This highway will extend from Woodmen Road to I-25 at North Gate and provide a highway connection to I-25 serving the northeast section of Colorado Springs. Planners considered alternative locations for the connection of this freeway to avoid impacting the USAFA. Due to the location of growth, the presence of the USAFA, and the change in development north of the USAFA, North Gate was selected as the connection for the Powers Blvd. freeway. The existing North Gate Boulevard/I-25 interchange is a partial cloverleaf with one-lane ramps and two through-lanes in each direction on North Gate Boulevard over I-25. The project limits extend along North Gate Boulevard from the southbound ramp intersection to Gleneagle. Additional easements will be required from the USAFA for the North Gate Interchange Complex. Figures 2a and 2b show the needed changes to the easement

The North Gate Interchange is the main visitor entrance to the USAFA. The USAFA and FHWA are cooperating agencies for the proposed improvements to I-25. As part of the design process for the North Gate/Powers Blvd. Interchange complex, USAFA, CDOT, FHWA, and consultants from Wilson & Company; PBS&J; Skidmore, Owings, and Merrill; and Felsburg, Holt, Ullevig participated in a design charette to develop interchange designs that would minimize impacts to the USAFA as well as other nearby properties. Stakeholders sought to identify goals, issues, and objectives to develop an acceptable interchange design for this area. Issues and constraints identified during the design charette included:

- Managing traffic at the interchange to handle Powers-I-25 and North Gate I-25 traffic and special event traffic at USAFA;
- Maintaining safety and design standards;
- Maintaining access for USAFA and local residential areas on North Gate;
- Remaining sensitive to existing visual conditions;
- Avoiding environmental impacts;

- Providing adequate security for USAFA;
- Minimizing impacts to local development and USAFA.

Several existing and planned commercial and residential developments in the North Gate vicinity also played an important role in determining the best interchange concept for the site. Please see Figure 1 for a schematic of residential and commercial development in the North Gate vicinity.

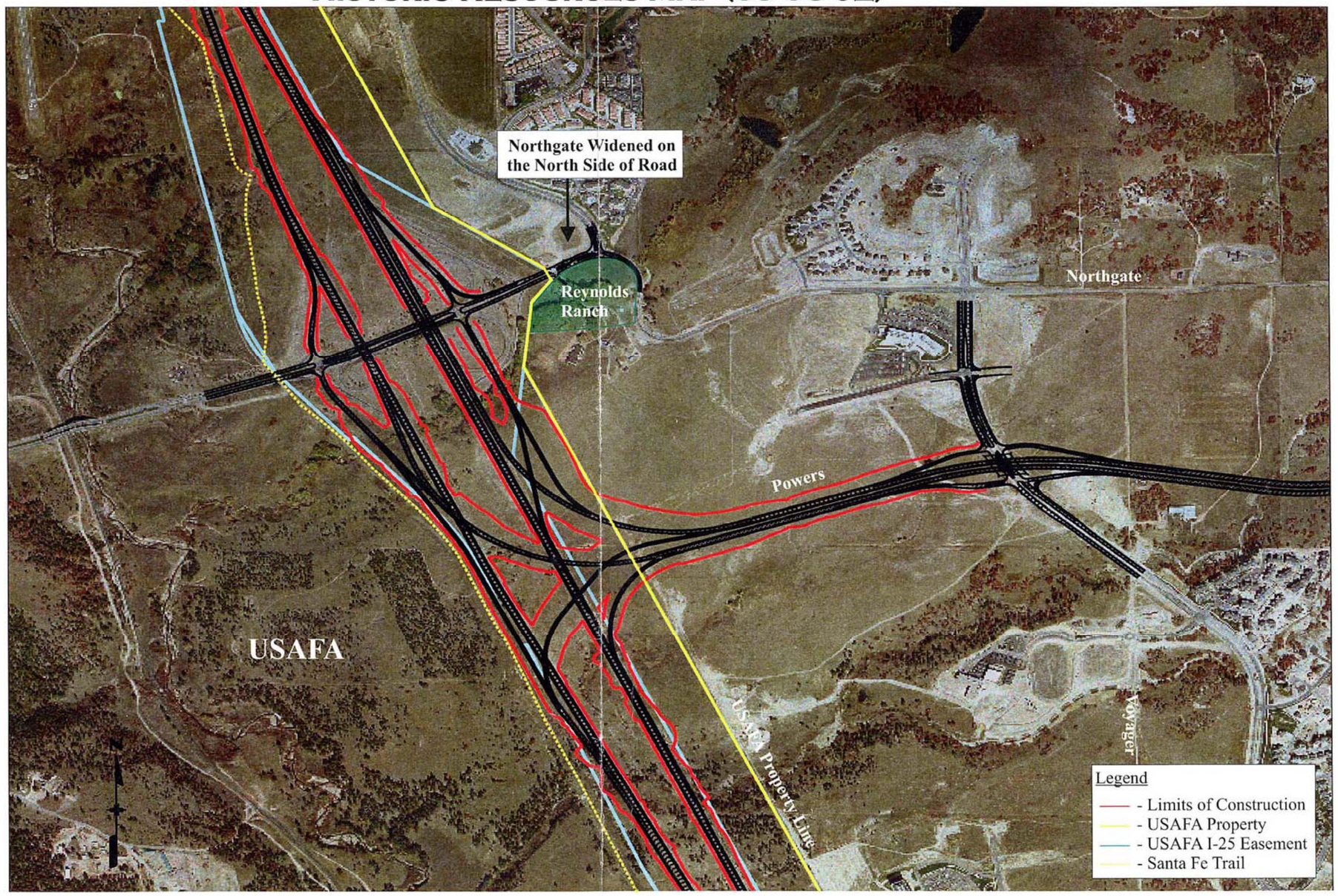
After developing several concepts for the interchange layout at North Gate, charette participants conducted a fatal flaw screening to determine the ability of each concept to address the list of issues and constraints. The charette screening and evaluation process resulted in the selection of a recommended alternative (Concept 4), a diamond interchange at North Gate with new fully directional ramps to Powers Boulevard. This alternative is shown in Figure 2. (See Attachment 1 for drawings showing the interchange alternatives that were eliminated during the charette).

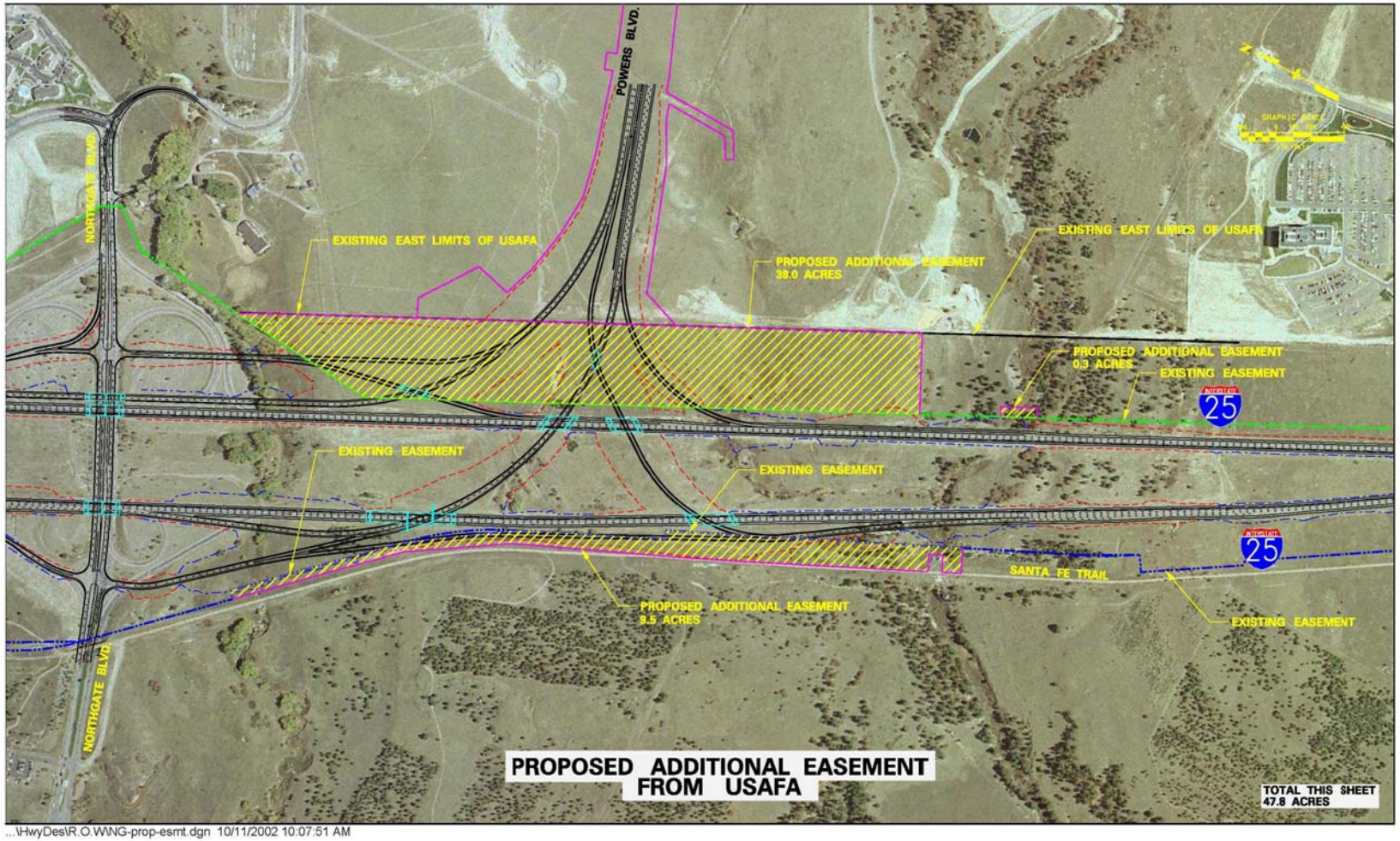
Northgate Road Interchange Improvements

Access and Development Issues

There are numerous existing and future developments present in the study area that require access to I-25. Many developments exist in the area today, but there are also plans for new types of development in the area. Access to these developments is an issue that will be considered as part of developing interchange concepts.

Northgate Boulevard Interchange (Concept 4)
Historic Resources Map (09-05-02)





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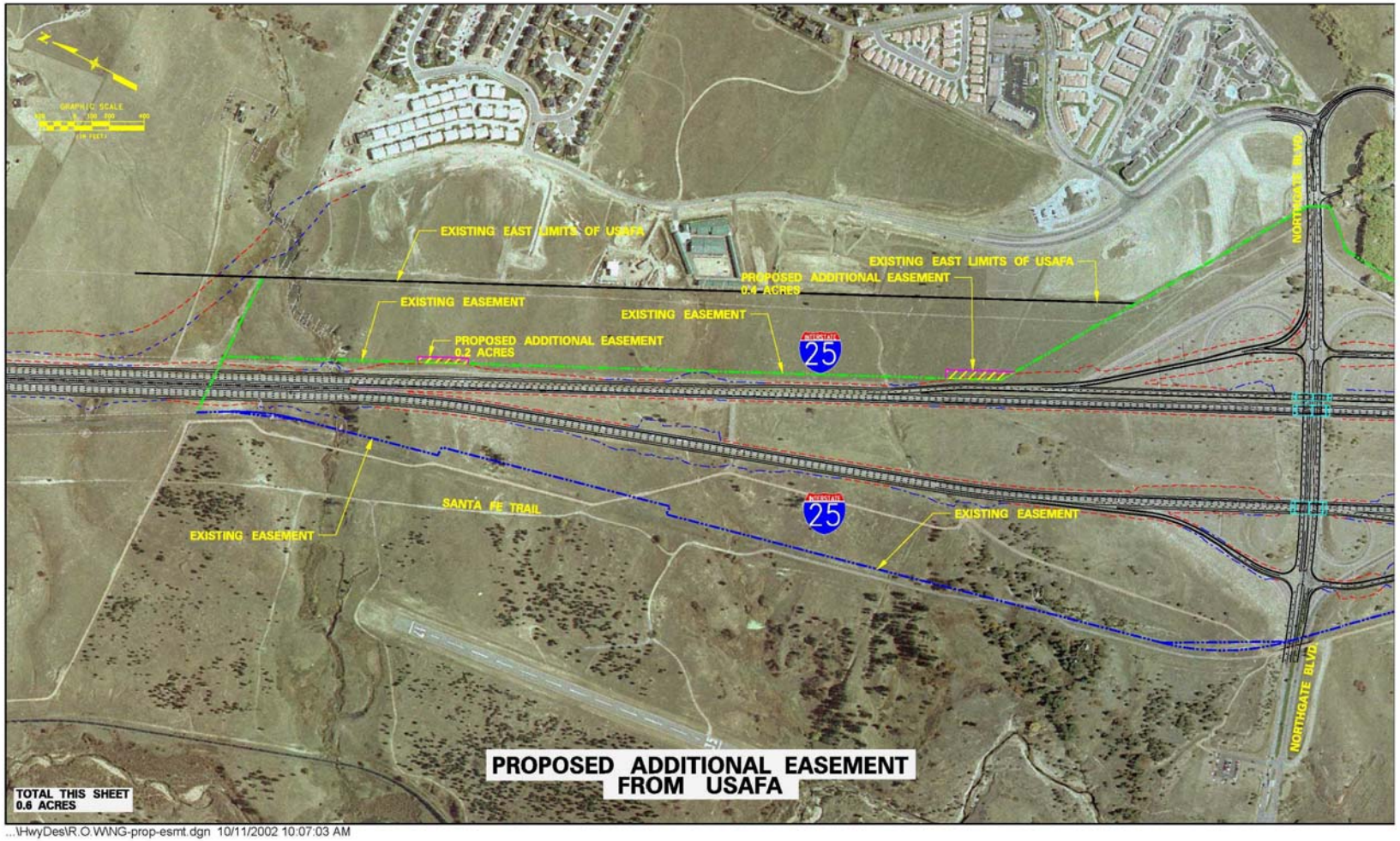

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The Proposed Action (widening I-25 to three through-lanes in each direction from the North Gate/Powers interchange to the Briargate interchange and to four through lanes from Briargate south beyond the boundary of the USAFA, as well as constructing the North Gate/Powers interchange and relocating the Ackerman Overlook) will have the following effects on eligible properties:

a) **Reynolds Ranch (5EP2223).** Current plans involve improving North Gate Road for access to subdivisions in the area. The road will be widened to the north and will not require property from Reynolds Ranch. Indirect noise impacts from additional vehicles are not expected on this road, as most of the increase in traffic will occur on Powers Blvd. to the south.

A direct connection between Powers and North Gate is part of the proposed design, bypassing Reynolds Ranch to the west. Smith Creek flows in an easterly direction from the USAFA through the Reynolds Ranch property. The construction of a connection between Powers to North Gate will result in the removal of cottonwood trees and riparian vegetation along Smith Creek. The vegetation that will be removed is not on the ranch property. The loss of trees for the frontage road will have a visual impact on the view from the ranch to the west. The ranch house is approximately 700 feet east of the frontage road, and the interstate is already visible from the house. The visual changes are not considered significant and do not alter the historical significance of the ranch. The new diamond interchange design will actually be further west of Reynolds Ranch than the current cloverleaf interchange. Development of subdivisions north and east of Reynolds Ranch has also compromised the historic setting of the ranch. The resulting determination of effect is **no adverse effect**.

b) **Santa Fe RR Grade (5EP1003.2).** Portions of the Santa Fe RR grade have been converted to a recreational trail on the west side of I-25 between North Gate and North Academy. The Proposed Action will not result in direct impacts to this segment of the historic railroad grade. At the existing North Gate interchange, the railroad grade is approximately 600 feet west of the existing southbound ramp. Construction of the proposed North Gate/Powers interchange will require modification of the slopes of the railroad grade where it crosses North Gate, but the railroad grade will not be substantially altered. The determination of effect is **no adverse effect**

c) **United States Air Force Academy (5EP595).** Seven miles of I-25 travel through the eastern edge of the USAFA property, with interchanges at North Gate (the main visitors entrance to the USAFA), InterQuest, and Briargate. InterQuest, and Briargate interchanges, constructed in 1999 and 1987, were built to accommodate increased

traffic from commercial and residential development in northeast Colorado Springs. Additional easements will be required from the USAFA for the North Gate Interchange Complex. Figures 2a and 2b show the needed changes to the easement.

Of the qualities of significance discussed in the section above, the most important for the purposes of this effects analysis is the site planning and landscape design elements of the original USAFA Master Plan prepared by SOM. The plan specified that the landscape of the USAFA (outside of the Cadet area and other built features) be preserved in its natural state. The interstate was purposely designed with a buffer between the northern lanes and the eastern edge of the USAFA to prohibit development immediately adjacent to the interstate in the vicinity of USAFA to preserve the high visual quality of this natural landscape.

The proposed project involves modernizing the North Gate Interchange and also providing direct freeway-to-freeway connection between I-25 and Powers Blvd. as part of the North Gate Interchange complex. In addition, the widening of the interstate between North Gate and North Academy Boulevard involves adding one and two through lanes in each direction, for a total of six and eight lanes, as well as acceleration and deceleration lanes for the interchanges. The existing Ackerman Overlook would also be relocated.

The Proposed Action will not affect the built environment of the USAFA, including the contributing buildings in the Cadet Area, such as the Cadet Chapel, due to the great distance between I-25 and these buildings. However, the proposed design will alter the original appearance of the eastern boundary of the USAFA. While there are no contributing buildings in this part of the property, this area contributes to the significance of the historic cultural landscape by demonstrating the efforts of USAFA to preserve the natural beauty of its property with specific landscape design strategies and to prohibit development on the eastern fringe. The rural feel and natural appearance associated with the historic cultural landscape will also be visually impacted by the proposed design. Since the proposed design will alter or change some of the qualities of significance to the historic cultural landscape, the result is a determination of **adverse effect**. For strategies to mitigate this adverse effect please refer to the proposed mitigation and measures to minimize adverse effects section of this report.

Ackerman Overlook Relocation

Due to safety concerns, the existing Ackerman Overlook, which is located within the USAFA boundaries, will be relocated. This overlook does not contribute to the qualities that make the USAFA eligible to the NRHP. The new location will continue to provide an area for motorists to stop and view the mountain scenery, air operations at the primary USAFA airport, and the USAFA grounds. CDOT and USAFA are coordinating efforts to move the overlook approximately 2300 feet north of its existing location north of the Briargate Interchange. Please see the conceptual drawings for the new overlook, Attachment 2, for more detail.

The proposed new overlook will be accessed on the west side of I-25 from the southbound lanes. The off ramp will follow a gentle drainage into a below grade parking lot. Below the parking lot will be a pedestrian plaza area with a 3-½ foot high retaining wall on the west edge and expansive views of Cheyenne Mountain, the USAFA airfield and flight operations, Pikes Peak, the Cadet Chapel, and the USAFA Football Stadium. Interpretive messages can be displayed on this wall. Proposed topics include the Academy, Mr. Ackerman, and the natural and cultural history of the area. Landscaping will reflect the surrounding natural prairie. A natural stand of deciduous trees will be enhanced with naturalized plants to better frame the view. A short segment of the original highway grade built just prior to the USAFA, will be removed to create a more natural setting. This highway remnant is not eligible to the NRHP because it has been destroyed to the southwest by a landing strip.

The relocated Ackerman Overlook will be less visually intrusive than it is today. Motorists on I-25 or at the Cadet Area, Falcon Stadium, or elsewhere on the USAFA will not be able to see the overlook because it will be below the existing grade of the highway and the surrounding terrain. The design uses existing topography to provide a safe pedestrian overlook in a shallow depression, which lessens the negative impact of the overlook to the landscape. The relocation of the overlook will result in **no adverse effect** to the setting of the USAFA.

3.4 North Academy to Woodmen Road

Woodmen Road Interchange Reconstruction: One of the prior safety projects on the interstate involves reconstruction of the Woodmen Road Interchange, which resulted in removal of two historic bridges over Pine Creek. The historical consultation between CDOT and SHPO for this project is discussed under Section 6.0, Cumulative Effects Analysis.

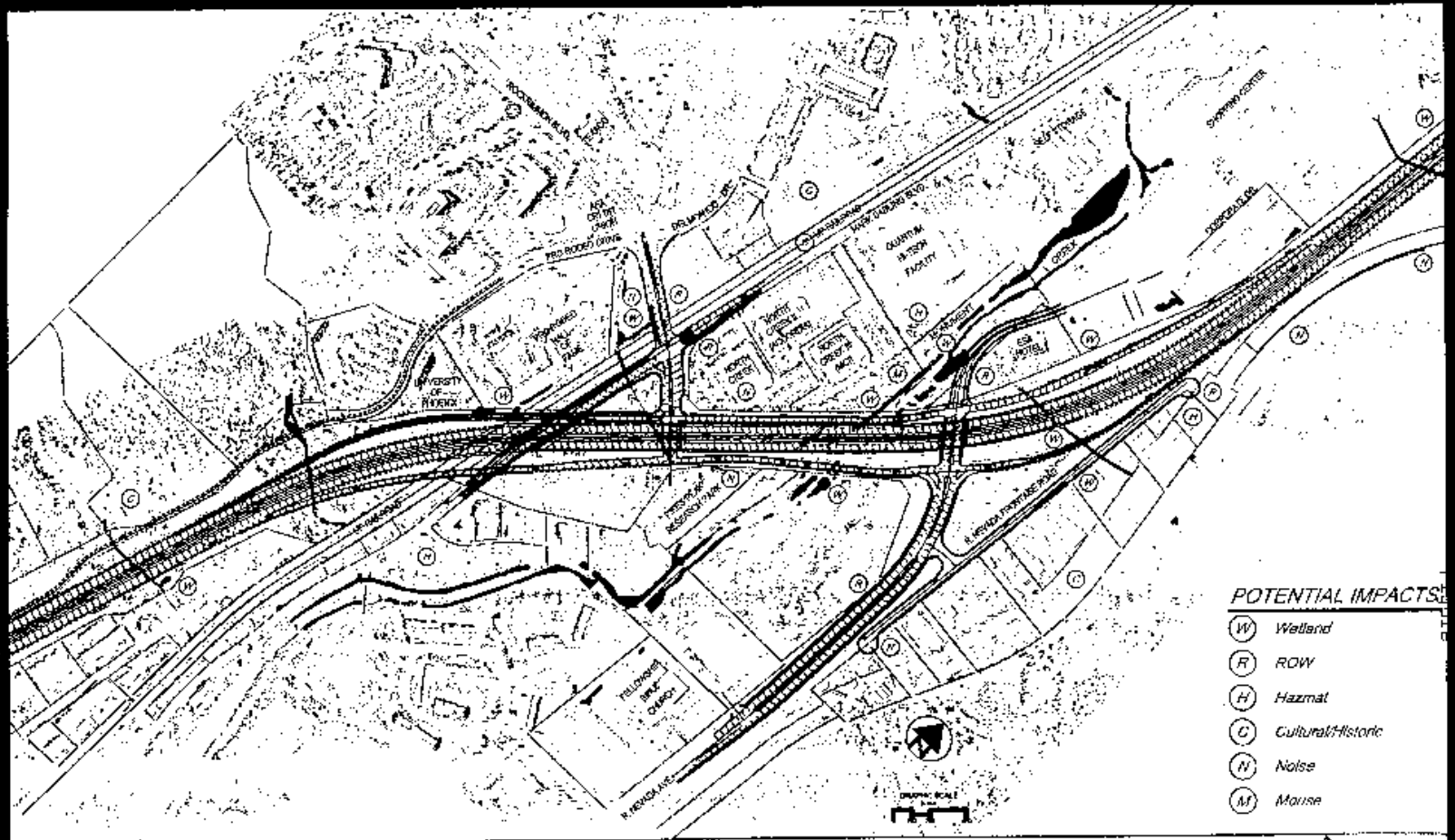
3.5 Woodmen Road to Garden of the Gods

N. Nevada/Rockrimmon Interchange: The project limits are from Cottonwood Creek south of Woodmen Road to Garden of the Gods Road. The primary goal of this project is to improve the outdated interchanges to meet current, higher safety standards. The access ramps at Rockrimmon Blvd., Mark Dabling Blvd. and North Nevada Ave. will be improved. The project will allow for future vehicle capacity and safety in these areas and the adjacent streets. I-25 will be widened to accommodate additional acceleration and deceleration lanes, new ramps, and three through lanes and one HOV lane in each direction. The reconstruction will require improvements to local streets, ramps, and structures. The lighting along I-25 and the local streets will be improved and retaining walls will be installed at various locations within the project limits. See Figure 3, North Nevada/Rockrimmon Interchange.

a) **Cottonwood Creek Bridge on Vincent Drive (5EP972)**: The bridge will not be impacted by the work, as it is approximately 500 feet from the limits of disturbance. In 2002, SHPO provided an official determination of no historic properties affected for the Nevada/Rockrimmon project in correspondence to CDOT.

3.6 Garden of the Gods to Fillmore Street

No eligible or listed historic properties were identified between these two interchanges.


POTENTIAL IMPACTS
W Wetland
R ROW
H Hazmat
C Cultural/Historic
N Noise
M Mouse
N. NEVADA / ROCKRIMMON INTERCHANGE
ENVIRONMENTAL COORDINATION
I-25
DMJM HARRIS
DOT
DEPARTMENT OF TRANSPORTATION

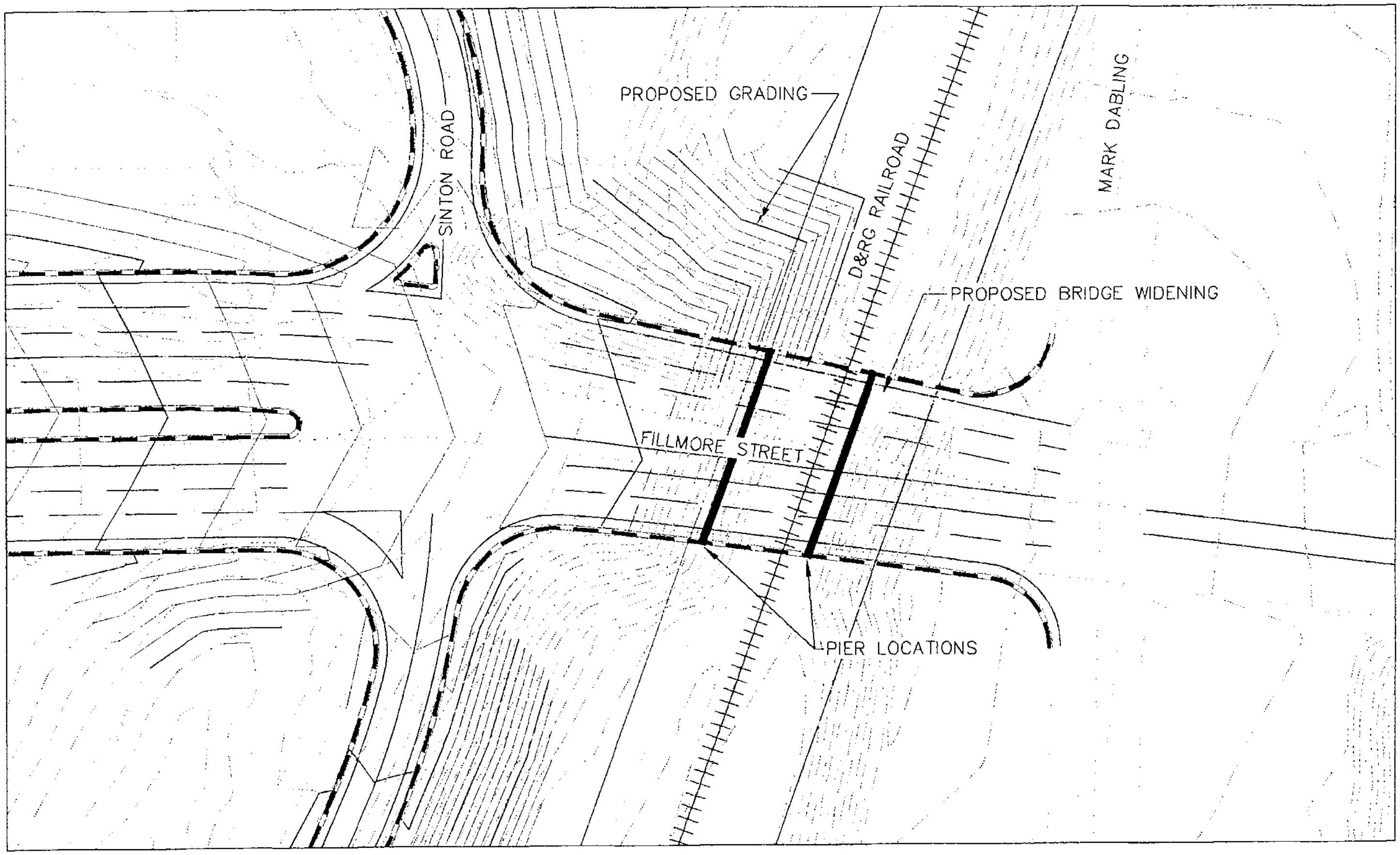
3.7 Fillmore to Fontanero

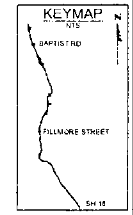
Fillmore Street Interchange

This interchange and the frontage road have become outdated and do not meet current safety standards. A reconfigured interchange, access ramps, and improvements to Chestnut Street will help improve traffic flow to meet current and future conditions. The Fillmore Street Overpass over I-25 will be widened to provide additional left turn lanes at the intersection and improve the connections at Chestnut Street and Sinton Road. In addition, east of the interchange, the Fillmore Street Bridge over the historic Denver & Rio Grande Railroad (now Burlington Northern Santa Fe Railroad) will be widened.

Between Fillmore and Fontanero, the interstate traffic capacity will increase to four through lanes in both directions (three unrestricted lanes and one HOV lane). This segment is part of the earlier safety project between Fillmore and Bijou that added acceleration/deceleration lanes and other improvements described in the Cumulative Effects section of this analysis. No additional right of way is needed to add through lanes, which will be constructed in the median of the existing highway.

The Fillmore Street I-25 Overpass will be replaced and frontage road connections at Chestnut Street (on the west side of the interstate) and Sinton Road (on the east side) will be improved to meet current safety standards. The new on ramps will remove approximately 5 homes and 5 businesses on Chestnut and Walnut streets and Sinton Road, which are field not eligible to the NRHP. The Fillmore Street Bridge over the historic Denver & Rio Grande Railroad, east of the interstate, will be widened, adding one through lane and one turn lane for vehicles traveling west on Fillmore and turning right on Sinton Road. The existing bridge, a steel girder with concrete deck, will remain in place but will be widened on the north side of the structure. This bridge does not meet the minimum 50-year age requirement for eligibility to the NRHP.





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SCALE
PLAN – 1"=50'

WILSON & COMPANY
Engineers & Architects

Computer File Information		
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Acad Ver.: 2000	Scale: As Shown	Units: English

Sheet Revisions

Colorado Department of Transportation
1480 Quail Lake Loop, Suite A
Colorado Springs, CO 80906
Phone (719)634-2323 Fax (719)227-3298
Region No. 2

As Constructed
No Revisions:
Revised:
Void:

D&RG Railroad/
Fillmore Bridge Exhibit

Designer: JWS	
Detailer: JWS	
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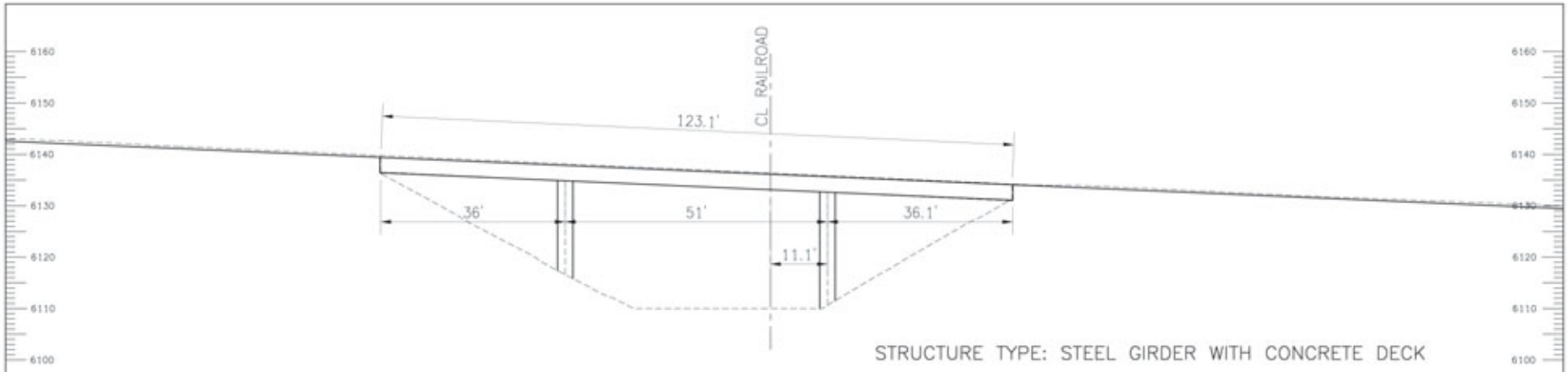
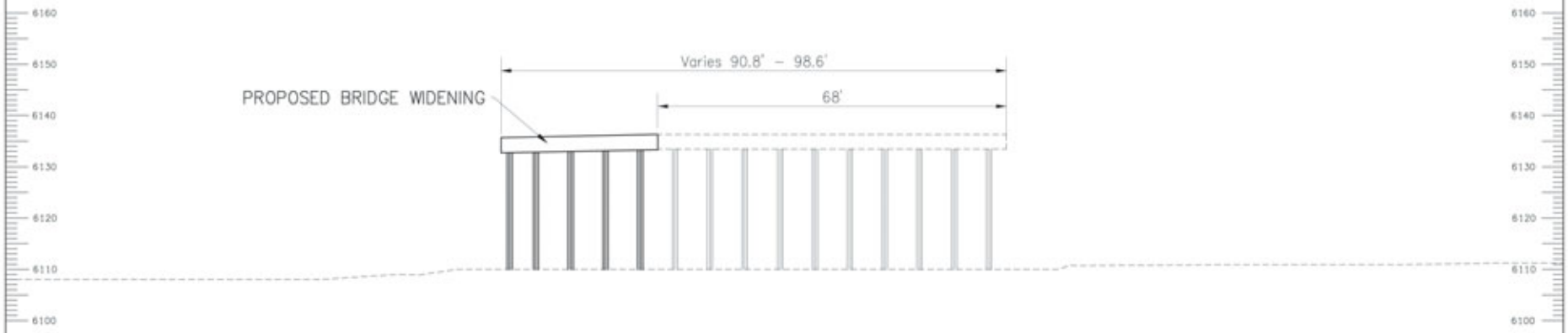


FILLMORE RR BRIDGE ELEVATON



FILLMORE RR BRIDGE SECTION

WILSON & COMPANY
Engineers & Architects

Computer File Information			Sheet Revisions			Colorado Department of Transportation	As Constructed	E.A. I-25 CORRIDOR BRIDGE SECTIONS		Project No./Code
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Last Modification Date: 4/24/02	Initials: BE					1480 Quail Lake Loop - Suite A Colorado Springs, Colorado 80906 Phone: (719)634-2323 Fax: (719)227-3298	Revised:	Designer: TDS Detailer: BE		12210
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The following historic properties are located between Fillmore to Fontanero

a) **Interurban RR Car (5EP2179.1)**: This car, located at the former Chicago, Rock Island & Pacific Roundhouse, 2333 Steel Drive (north of Fontanero), is approximately 250 feet from the limits of construction on the east side of I-25. The resulting determination of effect is **no historic properties affected**.

b) **Denver & Rio Grande RR line (5EP2181.11)**: The widening of the Fillmore Street Bridge over the Denver & Rio Grande RR will not impact this resource, as the new piers for the widened bridge will be built on either side of the railroad grade. The new piers will be placed 11.1 feet from the east side of the railroad tracks. The railroad cannot be disabled for operation during construction, and the project will not impact the existing grade. The resulting determination of effect is **no historic properties affected**.

c) **Monument Valley Park (5EP613)**: The park's northern boundary is Monroe Street, four streets north of Fontanero. The park is approximately 1200 feet east of I-25 at Monroe, and follows Monument Creek in a westerly curve, until it is approximately 650 feet east of I-25 at Fontanero. Between the park and the interstate are Monument Creek, the railroad tracks, and industrial buildings. The increase in through lanes on I-25 in this section will have no direct impact to the park because of the distance and barriers of the railroad, creek, and industrial buildings between I-25 and the park.

   The noise analysis indicates that noise projections for 2025 for this section of the park are below 66 decibels, the threshold for noise impacts for parks as identified in CDOT Noise Analysis and Abatement Guidelines. There will be no indirect or direct impacts of the Proposed Action to the park between Fillmore and Fontanero. The resulting determination of effect for this portion of the park is **no effect to historic properties.**

3.8 Fontanero to Uintah

Between Fontanero and Uintah, the interstate traffic capacity will increase to four through lanes in both directions. The safety project in the 1990s between Fillmore and Bijou added acceleration/deceleration lanes, straightened substandard curves, and reconstructed the Fontanero Street interchange. No additional right of way is needed to add through lanes, which will be constructed in the median of the existing highway.

a) **Denver & Rio Grande Railroad line (5EP2181.11).** Between Fillmore and Bijou, this contributing segment of railroad grade is on the east side of the interstate.

Because no additional lanes will be constructed in the median of I-25, no encroachment of the railroad will occur. The resulting determination of effect is **no historic properties affected**.

b) Monument Valley Park Historic District (5EP613). Between Fontanero and Uintah, the park is east of Monument Creek and includes a playground, soccer field (in a former reservoir), track field, and recreational trails. Even though these features do not contribute to the historic significance of the park, they do not disturb the integrity because they are in keeping with the park's original intent for recreation and relaxation. Contributing historic features between Fontanero in this section include WPA walls along Monument Creek, the Geologic Column with three bridges and a canal, the San Miguel rockwork entrance and pond with island, and the Columbia Street park entrance with stairs and bench. At Fontanero, the park is approximately 650 feet from I-25. The park remains on the east side of Monument Creek until Uintah, where it is approximately 1000 feet east of I-25. At its closest point in this segment, the park is about 450-500 feet from the interstate, and is separated by the creek, railroad tracks, industrial buildings, the headquarters of the Colorado Springs Parks, Recreation and Cultural Services Department, and the San Miguel neighborhood.

The noise impacts technical memorandum referenced above determined that noise projections for 2025, which considered traffic volumes during peak travel periods with the Proposed Action fully implemented, are below 66 decibels, except at the recreation trail in the extreme western border of the park at Recreation Way. 66 decibels (or an increase of 10 decibels over existing conditions) is the criterion for noise impacts for land uses including parks, according to CDOT Noise and Abatement Guidelines. Since this short segment of trail is exposed to noise levels in excess of 66 decibels, noise mitigation was investigated. In accordance with CDOT's Guidelines, the decision of whether to provide mitigation is based in part on how the facilities are used and on the desires of the owners. In this case, CDOT consulted with the City Park, Recreation and Cultural Services Department and the Parks and Recreation Advisory Board.

CDOT proposed two noise mitigation strategies to protect this very small section of the trail. In this area, the trail abuts Monument Creek, therefore the useable portion of the park is located on the opposite bank. Only this short trail section is exposed to noise levels in excess of the guidelines. Mitigation strategies for the trail were presented to the City Parks, Recreation and Cultural Services staff, the Recreation

staff, and the City's Parks and Recreation Advisory Board, as well as to the Friends of Monument Valley Park.

The first strategy, the construction of a noise wall, approximately 1500 feet long and 15 to 20 feet tall, was found to reduce noise for this small trail segment by three to four decibels, at a cost of $1,125,000. Construction of a noise wall to protect this small trail segment was considered cost prohibitive for the small benefit achieved. Construction of this noise wall was not supported by the City Parks, Recreation and Cultural Services or the Park and Recreation Advisory Board. The second strategy, the construction of a noise berm, was not supported by the City's Parks, Recreation and Cultural Services staff, the Park and Recreation Advisory Board, or the Colorado Springs Utility Department because it would close Recreation Way, an important roadway for Park and Utility operations. A combination of berm and wall was rejected since it would also require the closure of Recreation Way.

The increase in through lanes within the median of the existing highway template should not appreciably change the present setting of the park north of Uintah. In this segment between Fontanero and Uintah, the Proposed Action is not expected to have an impact on Monument Valley Park. The resulting determination of effect for this portion of the park is **no historic properties affected**.

c) **Old North End Historic District (5EP333):** This residential neighborhood was listed in the NRHP on December 17, 1982 under Criterion C. The neighborhood contains the finest collection of late nineteenth and early twentieth-century residential architecture in Colorado Springs.

The Old North End Historic District begins at Monroe and extends to Uintah Street between Wood Avenue and Nevada Avenue. Alamo Avenue, Culebra Place, and Culebra Avenue, which border Monument Valley Park, are not within the historic district. Monument Valley Park, Monument Creek, and the Denver & Rio Grande Railroad also buffer the neighborhood from the interstate. The western boundary of the district is approximately 1200-1500 feet from I-25. Due to this distance there are no direct impacts to the neighborhood from the Proposed Action.

The noise analysis did not identify levels above 66 decibels within the neighborhood or an increase of ten decibels or more. The visual analysis determined that the safety project between Bijou and Fillmore made I-25 more visually apparent in some locations in the Old North End neighborhood. The ability to see the interstate from the district does not diminish or alter the integrity or significance of the individual contributing structures or the district as a whole.

The Proposed Action will not result in direct or indirect adverse impacts to the Old North End and no adverse cumulative impacts have been identified. The resulting determination is **no historic properties affected**.

d) **205 West Fontanero (5EP4138):** This International Style House is eligible under Criterion C as an early example of this relatively rare style in Colorado Springs. The house sits above Monument Valley Park on a high bluff and is approximately 1500 feet east of I-25. The noise analysis did not identify levels above 66 decibels at this location or an increase of ten decibels or more. The visual analysis determined that the safety project between Bijou and Fillmore made I-25 more visually apparent in some locations in the streets east of Monument Valley Park. The ability to see the interstate from this property does not diminish or alter the integrity or significance of the structure.

The Proposed Action will not result in direct or indirect adverse impacts to this property and no cumulative impacts have been identified. The resulting determination of effect is **no historic properties affected**.

e) **1414 Culebra Ave. (5EP4139):** Eligible under Criterion B, this property is associated with iris hybridizer Dr. Phillip Loomis, and under Criterion C for architectural significance. The house sits above Monument Valley Park on a high bluff and is approximately 1000 feet east of I-25. The noise analysis did not identify levels above 66 decibels at this location or an increase of ten decibels or more. The visual analysis determined that the safety project between Bijou and Fillmore made I-25 more visually apparent in some locations in the streets east of Monument Valley Park. The ability to see the interstate from this property does not diminish or alter its significance.

The Proposed Action will not result in direct or indirect adverse impacts to this property and no cumulative impacts have been identified. The resulting determination of effect is **no historic properties affected**.

f) **1432 Culebra Ave. (5EP4140):** Eligible under Criterion C for its rustic Craftsman cottage design, this house sits above Monument Valley Park on a high bluff and is approximately 1000 feet east of I-25. The noise analysis did not identify levels above 66 decibels at this location or an increase of ten decibels or more. The visual analysis determined that the safety project between Bijou and Fillmore made I-25 more visually apparent in some locations in the streets east of Monument Valley

Park. The ability to see the interstate from this property does not diminish or alter its significance.

The Proposed Action will not result in direct or indirect adverse impacts to this property and no cumulative impacts have been identified. The resulting determination of effect is **no historic properties affected**.

g) 1722 Culebra Pl. (5EP4146): Eligible under Criterion C for its Tudor Revival Style, this house sits above Monument Valley Park on a high bluff and is approximately 1000 feet east of I-25. The noise analysis did not identify levels above 66 decibels at this location or an increase of ten decibels or more. The visual analysis determined that the safety project between Bijou and Fillmore made I-25 more visually apparent in some locations in the streets east of Monument Valley Park. The ability to see the interstate from this location does not diminish or alter its significance.

The Proposed Action will not result in direct or indirect adverse impacts to this property and no cumulative impacts have been identified. The resulting determination of effect is **no historic properties affected**.

h) San Miguel Historic District (5EP4200): This architecturally significant small neighborhood east of the interstate and accessed from Glen Ave., has a projected noise level of 66 decibels, a 2-decibel increase since 1990. The increase in noise, however, will not significantly alter or diminish the architectural significance of this small residential district.

Actions that have the potential to alter the integrity of historic properties and districts include transportation improvements to local streets; changes in zoning in historic neighborhoods from single-family dwellings to multi-family dwellings and/or mixed use commercial; changes in the economic viability of neighborhoods; and insensitive renovations and additions that alter the appearance of historic homes. Historic properties may also be subject to deterioration, alteration, or attrition due to private actions. The impacts of indirect stresses to historic properties and districts adjacent to I-25 are difficult to measure due to the complex issues that cause these changes. The resulting determination is **no adverse effect**.

3.9 Uintah to Bijou

Between Uintah and Bijou the interstate traffic capacity will increase to four through lanes in both directions. The safety project between Fillmore and Bijou added acceleration/deceleration lanes, straightened substandard curves, and reconstructed the Uintah Street interchange. No additional

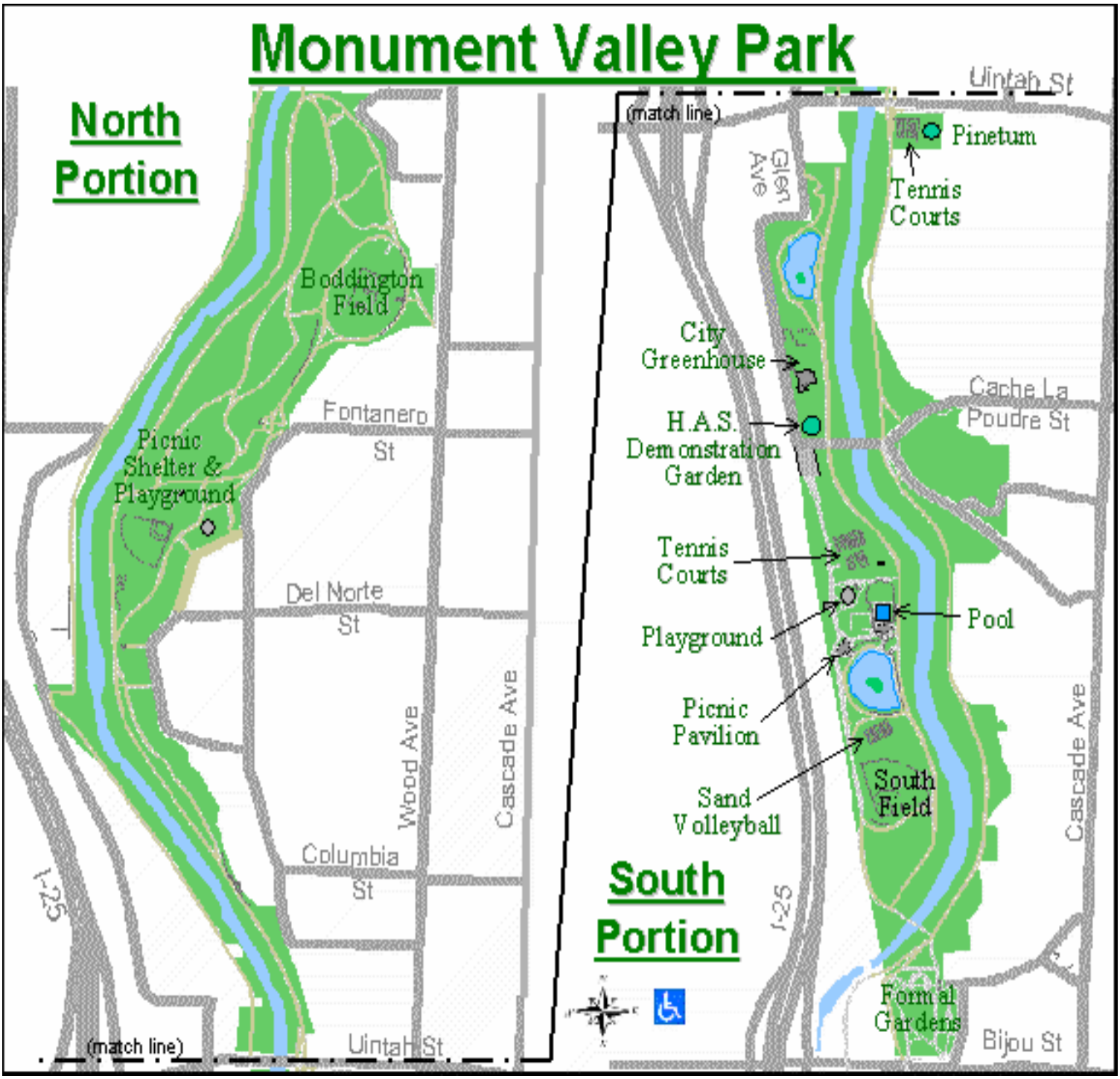
right-of-way is needed to add through lanes, which will be constructed in the median of the existing highway.

a) **Denver & Rio Grande RR line (5EP2181.11):** Between Fillmore and Bijou, this contributing segment of railroad grade is on the east side of the interstate. Because additional through lanes will be constructed in the median, no encroachment of the railroad will occur. The resulting determination is **no historic properties affected**.

b) **Monument Valley Park Historic District (5EP613).** In this segment of the park, contributing historical features include Duck Pond and Willow Haven, Palmer's office and greenhouses, Shadow Lake, Penrose Pavilion, Penrose bathhouse and swimming pool, baseball field and stands, Carlton Band Shell, rock entrances at Bijou Street and Willamette, and various dry-laid walls built both as original park features in 1904-1907 and by the WPA after 1935. In addition, the WPA floodwall lining Monument Creek, and the Art Deco Cache la Poudre Street Bridge are contributing historical features.

South of Uintah, the park is west of Monument Creek, and approximately 150 to 200 feet east of I-25. The railroad acts as a barrier between the park and the interstate. The increase in through lanes on I-25 in this section will have no direct impact to the park because of the distance and the presence of the railroad.

The noise projection along the western edge of this section of Monument Valley Park between Unitah and Bijou during peak period traffic in 2025 is 70 decibels, a 5-decibel increase from the 1990 levels. Because this increase is above the threshold of 66 decibels for consideration of noise abatement, FHWA and CDOT proposed mitigation strategies to protect this section of the park. These strategies were presented to the City Parks, Recreation and Cultural Services Staff, the recreation staff, and the city's Parks and Recreation Advisory Board, as well as to the Friends of Monument Valley Park. As a result, FHWA and CDOT will construct a visual barrier and three noise walls to block increased highway noise as part of the required noise mitigation.


Monument Valley Park
North Portion
South Portion
Uintah St
(match line)
Pinetum
Tennis Courts
Glen Ave
Boddington Field
City Greenhouse
Cache La Poudre St
H.A.S. Demonstration Garden
Fontanero St
Picnic Shelter & Playground
Tennis Courts
Del Norte St
Pool
Playground
Picnic Pavilion
Wood Ave
Cascade Ave
Sand Volleyball
South Field
Columbia St
I-25
Formal Gardens
Bijou St
(match line)
Uintah St

The proposed noise barriers will be built outside the western edge of the park and not on park land and will have no direct impact to the park. They will protect the contributing historical features of the park on the western edge of the park, including Duck Pond and Willow Haven, Palmer's Office and Greenhouse, the baseball field and stands, and various WPA dry-laid walls. Please see the section, Proposed Measures to Minimize Noise and Visual Impacts, at the end of this document for a description of the four proposed barriers, their locations, and a description of the park features that will be protected.

On May 30, 2003, FHWA and CDOT met with representatives of the State Historic Preservation Office (SHPO) to discuss the noise findings and the noise effect to Monument Valley Park. The SHPO unofficially concurred with the following: 1) the proposed noise and visual barriers will protect the contributing historical features at the western edge of the park, and (2) the presence of these barriers will have little negative impact on the park. The resulting determination of effect is **no adverse effect** for those contributing historical features within the area of project noise level increases on the western edge of the park.

The proposed sound barriers will not be located on park land and will have little indirect visual impact on the park. These barriers may also prove beneficial in screening the visual impact of passing traffic on the interstate and will lessen the noise impacts of the growing urban transportation corridor to the western edge of the park. The proposed visual barrier will be located in the park. Additional trees will be planted between existing large cottonwood trees south of the existing noise wall, from the baseball field to Shadow Lake. This is a visual barrier only (in-fill with lower growing trees blocking view of highway).

The proposed barriers have been agreed to by CDOT, City of Colorado Springs, and Parks and Recreation Department and are described in detail in the Proposed Measures to Minimize Noise and Visual Impacts at the end of this document. The resulting effects determination is **no adverse effect** to Monument Valley Park with regard to the construction of the proposed visual and sound barriers along the western edge of the park.

c) Van Briggle Pottery Company (5EP614): This building, now the physical plant for Colorado College, located at Uintah and Glen Avenue, will not be directly impacted by the project because there are no additional improvements planned for Uintah Street. The noise analysis identified a potential indirect noise impact for this property, but it will not alter or change the significance of the building as an early

pottery studio producing nationally significant Art Nouveau designs. In addition, the noise increase will not alter the architectural significance of the design and craftsmanship of the building. The proposed noise barrier at I-25 and south of Uintah will reduce the sound from I-25, but there is still the traffic noise from Uintah and Glen Avenue. There should be no substantial vibration impacts to the building from the work in the project vicinity because no major work is required at this interchange. The resulting determination of effect is **no historic properties affected**.

d) **Zuyder Zee Historic District**: The three houses that comprise this small district are on the eastern edge of Monument Valley Park at the bottom of Willamette Avenue. They are eligible under Criterion C for architectural significance. The houses are approximately 800 feet east of the interstate. The noise analysis did not identify levels above 66 decibels at this location or an increase of ten decibels or more. The visual analysis determined that the safety project between Bijou and Fillmore made I-25 more visually apparent from this small district. The ability to see the interstate from this district does not diminish or alter its significance.

The Proposed Action will not result in direct or indirect adverse impacts to this property and no cumulative impacts have been identified. The resulting determination of effect is **no historic properties affected**.

e) **Fine Arts Center (5EP622):** The noise analysis did not identify levels above 66 decibels in the vicinity of the Fine Arts Center or an increase of ten decibels or more. The visual analysis determined that the safety project between Bijou and Fillmore made I-25 more visually apparent from this location. The ability to see the interstate from the Fine Arts Center does not diminish or alter its significance.

The Proposed Action will not result in direct or indirect adverse impacts to this property and no cumulative impacts have been identified. The resulting determination of effect is **no historic properties affected**.

f) **Cache la Poudre Bridge (5EP974):** The noise analysis did not identify levels above 66 decibels in the vicinity of this bridge or an increase of ten decibels or more. The visual analysis determined that the safety project between Bijou and Fillmore made I-25 more visually apparent from this location. The ability to see the interstate from this bridge does not diminish or alter its significance.

The Proposed Action will not result in direct or indirect adverse impacts to this property and no cumulative impacts have been identified. The resulting determination of effect is **no historic properties affected**.

g) **Emmanuel Presbyterian Church (5EP321):** This church is on the west side of I-25 in the Westside neighborhood. It is behind the sound wall on Spruce Street, which blocks the view of I-25 and also helps filter any increase in noise that may be expected from the increased traffic. The Proposed Action will not have direct or indirect adverse effects to this property due to the presence of the sound wall. The resulting determination of effect is **no historic properties affected**.

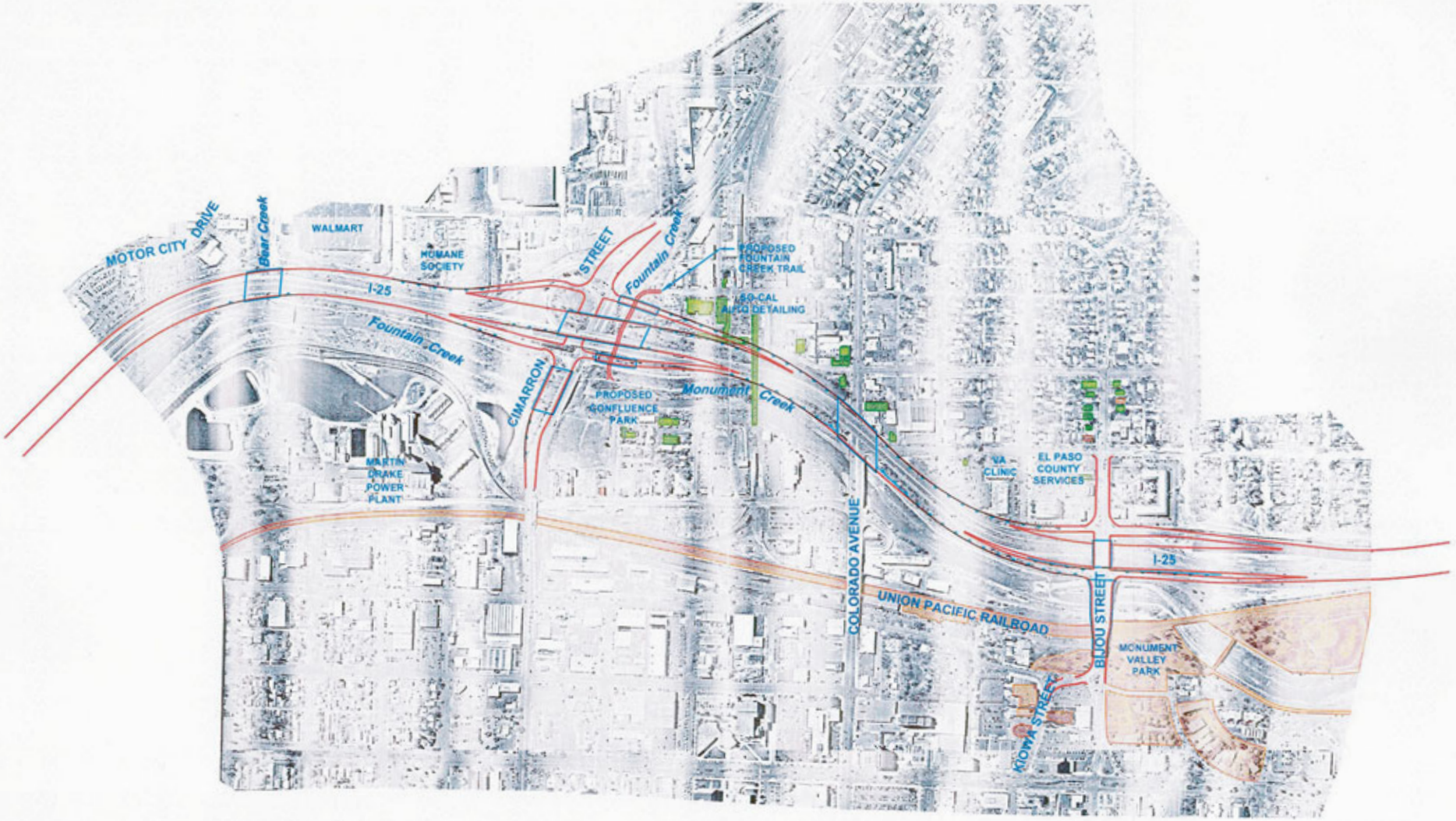
h) **Boulder Crescent Historic District (5EP1063):** The noise analysis did not identify levels above 66 decibels in this district or an increase of ten decibels or more. The visual analysis determined that the safety project between Bijou and Fillmore made I-25 more visually apparent from the district. The ability to see the interstate from the district does not diminish or alter its significance. The Proposed Action will not result in direct or indirect adverse impacts to this district and no cumulative impacts have been identified. The resulting determination of effect is **no historic properties affected**.

i) **West View Place Historic District (5EP616):** The noise analysis did not identify levels above 66 decibels in this district or an increase of ten decibels or more. The visual analysis determined that the safety project between Bijou and Fillmore made I-25 more visually apparent from the district. The ability to see the interstate from the district does not diminish or alter its significance. The Proposed Action will not result in direct or indirect adverse impacts to this district and no cumulative impacts have been identified. The resulting determination of effect is **no historic properties affected**.

3.10 Bijou to Cimarron

Cimarron Street/Bijou Street/I-25 Interchanges:

Traffic on I-25 between Cimarron and Bijou is especially congested due to heavy commuter use in this segment during peak traffic hours. The existing interchanges are 40 years old and do not meet requirements for current and projected traffic volumes. The Proposed Action in this segment includes adding acceleration/deceleration lanes; improving adjacent local streets; and improving sight distances and safety by reconstructing I-25 and the interchanges at Cimarron and Bijou. Travel lanes will increase to three in each direction and a HOV lane. A diamond type interchange will replace the existing partial cloverleaf at Cimarron. At Bijou Street, a tight diamond interchange will be constructed with a triple left-turn from southbound I-25 to eastbound Bijou Street.



LEGEND

- OLDER PROPERTY
- ELIGIBLE PROPERTY

1" = 600'

I-25 CIMARRON/ BIJOU INTERCHANGE COMPLEX
HISTORIC PROPERTY INVENTORY

WILSON & COMPANY

FELSBURG HOLT & ULLEVIG

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Right-of-way will be acquired for this project on the west side of I-25, impacting several commercial properties, none of which is eligible for or listed on the NRHP. On the east side of I-25, a small amount of right-of-way is required in the St. Mary's Church parking lot, as described below. Sidewalk removal will occur in front of the entrance arch to Monument Valley Park and in front of the parking lot at St. Mary's Church.

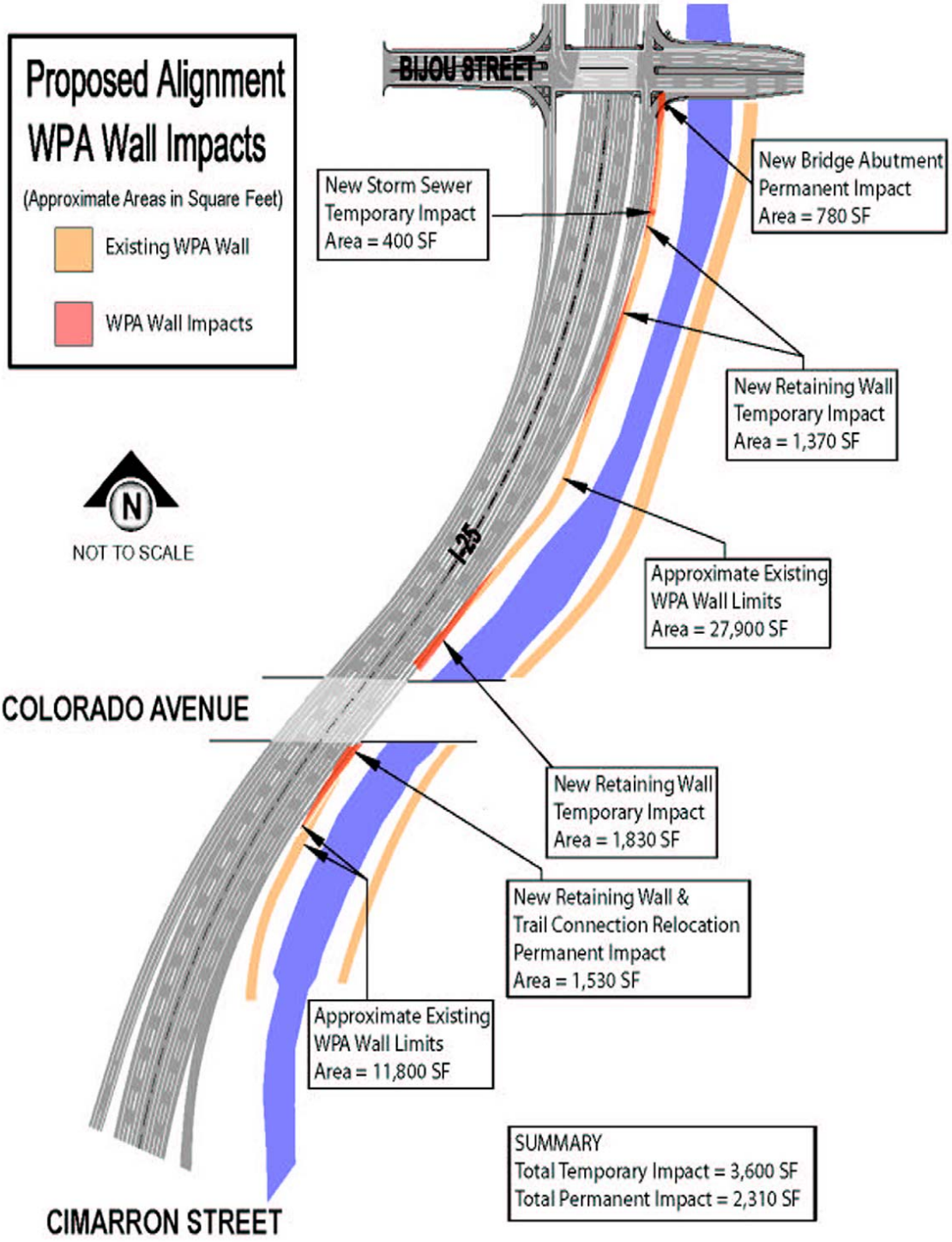
Several bridges will be replaced as part of the project including the Cimarron Street Bridge over Fountain Creek and Bijou Street Bridges over I-25, Monument Creek and the railroad bridge. None of these bridges are eligible for the NRHP.

a) **Denver & Rio Grande RR line (5EP2181.11):** Between Fillmore and Bijou, this contributing segment of railroad grade is on the east side of the interstate. Because no additional widening will take place to add through lanes to the highway, no encroachment of the railroad will occur. The resulting determination of effect is **no historic properties affected.**

b) **422 W. Bijou (5EP4208**). This house is west of the proposed action on Bijou Street and will not be impacted by the work. The determination of effect is **no historic properties affected**.

c) **WPA Wall (5EP3856):** The WPA floodwall on Monument Creek is found on the east and west sides of the creek in the Bijou to Cimarron segment. At Colorado Avenue, the replacement of the Colorado Avenue Viaduct by the City of Colorado Springs resulted in the removal of approximately 300 square feet of the west wall on both sides of the bridge. South of Colorado Avenue, approximately 11,800 square feet of WPA wall exists on the west side of the creek. North of Colorado extending up to Bijou, there is 27,900 square feet of WPA wall, also on the west side of the creek. The total amount of wall between Cimarron and Bijou on the west is 39,700 square feet. On the east side of the creek, the total amount of wall between Cimarron and Bijou is approximately 36,100 square feet, bringing the total for both sides of the wall to 75,800 square feet. North of Bijou. The WPA wall continues to the north along the creek through Monument Valley Park.

   The proposed project will result in 3,600 sf of temporary impact and 2,710 sf of permanent impact to the WPA wall south of Bijou on the west side of Monument Creek. The term "temporary impact" is used here to refer those areas that will be removed, but can be restored after work is completed. "Permanent impact" refers to the areas where the wall will be removed and cannot be restored. All of the impacts result in an **adverse effect**. See Figure 7 for location on impacts.


Proposed Alignment
WPA Wall Impacts
(Approximate Areas in Square Feet)
Existing WPA Wall
WPA Wall Impacts
BIJOU STREET
New Storm Sewer
Temporary Impact
Area = 400 SF
New Bridge Abutment
Permanent Impact
Area = 780 SF
New Retaining Wall
Temporary Impact
Area = 1,370 SF
N
NOT TO SCALE
I-25
Approximate Existing
WPA Wall Limits
Area = 27,900 SF
COLORADO AVENUE
New Retaining Wall
Temporary Impact
Area = 1,830 SF
New Retaining Wall &
Trail Connection Relocation
Permanent Impact
Area = 1,530 SF
Approximate Existing
WPA Wall Limits
Area = 11,800 SF
SUMMARY
Total Temporary Impact = 3,600 SF
Total Permanent Impact = 2,310 SF
CIMARRON STREET

Cantilever Retaining Walls. The proposed project includes constructing a cantilevered roadway slab and cantilever retaining walls above the WPA wall in three locations to minimize the amount of wall that may be impacted with a traditional retaining wall design.

Cantilever retaining walls will be constructed at the WPA wall north of Colorado Avenue Bridge (1,830 sf of temporary impact).

South of the Colorado Avenue Bridge a new retaining wall and relocation of the existing trail connection from Colorado Avenue to the greenway trail. (1,530 sf permanent impact)

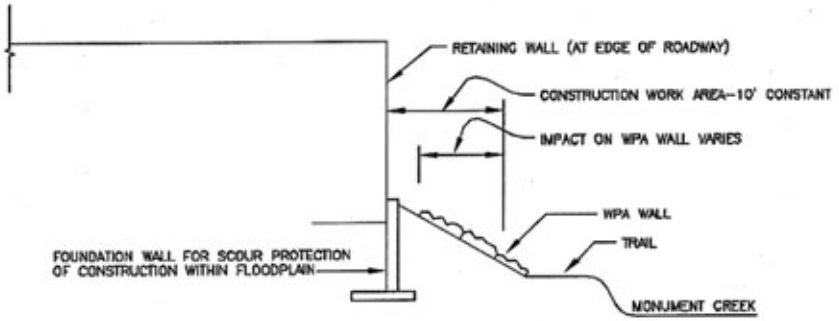
A new retaining wall adjacent to the NB off-ramp at Bijou (1,370 sf temporary impact) Engineers investigated several alternatives to determine if a prudent and feasible alternative existed to impacting the WPA wall. When the final design and contractor selection for the retaining walls have been completed the extent of impacts will be submitted to SHPO. See Figure 7A showing cross-sections of three avoidance alternatives for the retaining walls in relation to the WPA wall.

Storm Sewer. A storm sewer outfall pipe south of Bijou will be installed of the wall by removing stones and then replacing them after the storm sewer is installed. (400 sf permanent impact)

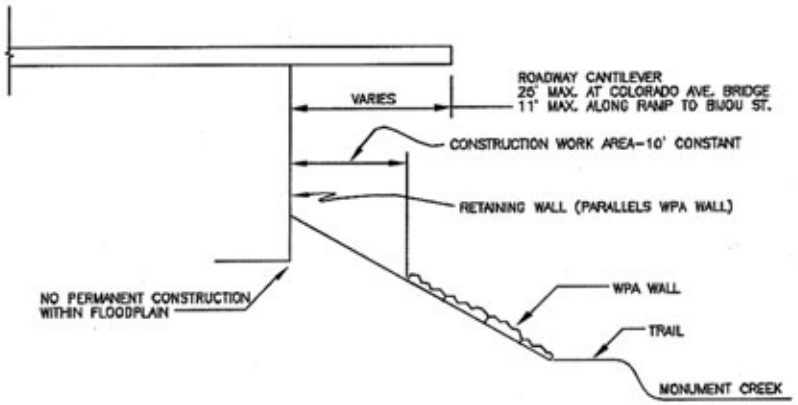
Bijou Bridge Abutment. The Bijou Street bridge will be replaced and the WPA wall will be removed in this location for the abutment construction. (780 sf permanent impact)

Visual Impact. The construction of a cantilevered roadway over the WPA wall and construction of retaining walls will have an adverse visual impact on the original setting of the WPA wall.

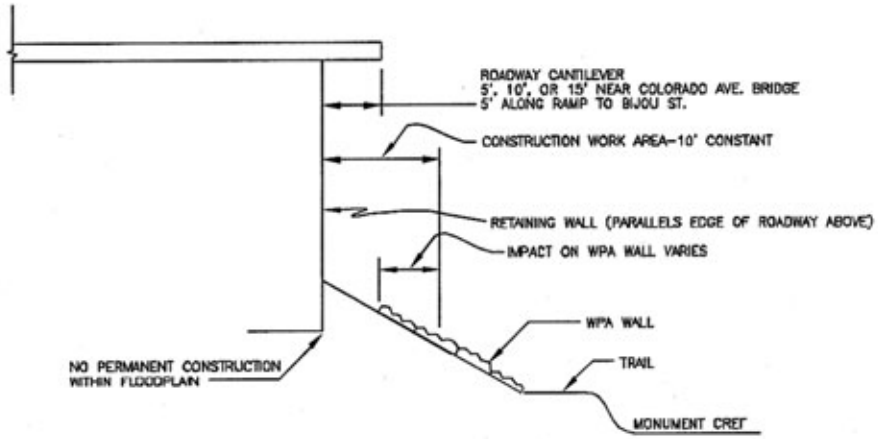
The resulting **determination of effect is adverse** for the WPA floodwall on the west side of the creek. There are no impacts to the wall on the east side of the creek.



MAXIMUM IMPACT WITHOUT CANTILEVER



TOTAL AVOIDANCE–VARIABLE CANTILEVER



PARTIAL AVOIDANCE–STEPPED CANTILEVER

WILSON & COMPANY | FELSBURG HOLT & ULLEVIG

Computer File Information			Index of Revisions			Colorado Department of Transportation	As Constructed	I-25 TYPICAL SECTION CANTILEVER		Project No./Code
Creation Date: 8/20/02	Initials: RPS					1480 Quail Lake Loop, Colorado Springs, Colorado 80906 Phone: 719-634-2325 FAX: 719-227-3268	No Revisions:			IM 0252-233
Last Modification Date:	Initials: RPS						Revised:	Designer:		PROJ. CODE
Full Path:								Detailer:		
Drawing File Name:							Void:	Sheet Subset:	Subset Sheets: of	Sheet Number
Acad Ver. R2002	Scale: NTS	Units: English				Region 2 James Flohr				

WPA Wall Options:

i. **Do Nothing, or No Build,** is considered not prudent or feasible because it does not meet the project purpose and need. It would not allow for capacity increases, implement safety measures, or improve sight distance on I-25.

ii. **Improve Highway without using WPA wall**

1. Decrease Design Speed: Engineers investigated the possibility of decreasing the design speed from 70 mph to 60 mph between Cimarron and Bijou. This would involve a required reduction in the curve radius from 2100 feet to 1400 and 1600 feet, and the alignment of I-25 could curve slightly to the west, thereby avoiding the WPA wall. This option also uses a variable cantilevered wall design with widths up to 25'.

   This alternative is considered not feasible or prudent because the reduction of design speed in this segment of the corridor will cause problems for driver expectancy and produce inconsistencies in the design speed for the corridor. It would require taking two commercial properties: City Glass and SoCal Auto Detailing, a cost of approximately $2 million. The excessive width of the cantilevered wall would be hard to construct and cause maintenance problems.

2. Maintain Design Speed and Move Alignment to west: This alternative maintains the design speed of 70 mph but moves the alignment further to the west.

   This alternative is considered not feasible or prudent because of substantial right-of-way takes, including the Veteran's Administration-El Paso County property, City Glass, and SoCal Auto Detailing, a cost of approximately $25 million.

iii. **Improve Highway on New Location**: This alternative is not feasible or prudent because the highway is located within a developed urban corridor. Monument Creek and Monument Valley Park limit its location to the east, as does extensive commercial and residential development on the west.

d) Monument Valley Park Historic District (5EP613). The proposed construction is located near the south end of Monument Valley Park. There will be no right of way takes from the park. The new bridges will occupy approximately the same footprint as exists currently to avoid taking any park land, which is prohibited by Palmer's 1907

deed of the park to the city. Bijou Street Bridge will be raised four to five feet to meet standards in vertical clearance required by the railroad and for flood control on the interstate. Since there will be no right of way take from the park, the footprint of the roadways remain essentially the same as they are today, and the change in elevation of the bridges is minor, there will be no direct or indirect impacts to the integrity of the park. Therefore, the recommended determination is no adverse effect.

e) Monument Valley Park Rock Entrance Gate (5EP613.13) A series of new bridges will be built for Bijou Street over I-25, Monument Creek, and the railroad. The new bridges will have a higher vertical clearance for flood control measures and to meet the standard vertical clearance of the railroad. At the rock entrance arch to Monument Valley Park, this increase in elevation is 18". To compensate for this small change in elevation, 4-5 steps will be built with a railing next to the gateway to allow pedestrians to continue to use the sidewalk on Bijou and access the park through the gateway. Please see Figures 8, 9, and 10 for more detail.

A vibration analysis conducted by Felsburg, Holt and Ullevig in October 2002 determined allowable and restricted activities in the vicinity of the arch, which is located about 8 feet from the Bijou Street curb. The gateway is a heavy stone masonry and steel structure. Due to the close proximity of existing driving lanes that are not restricted as to size, weight, and type of vehicle usage, it is not anticipated that the gateway will experience any more intense on-going vibration than exists currently.

The structural and engineering analysis in April 2003 by A-E design Associates found the structural integrity to be good and not susceptible to structural damage to the point where its stability and integrity would be at risk during the project construction. The gateway is of durable exterior materials and has been well maintained and repaired. It is lightly loaded and low-stressed stone masonry and would remain relatively stable even if it were physically impacted. (See Attachments for structural and engineering studies of the gateway.)

Allowable activities identified by the vibration analyses include:

1. Caisson drilling 123 feet to the west for the Bijou Street Bridge.

2. Pavement removal and earthwork using small bulldozers at a distance of 8 feet to the south on Bijou Street.

Restricted activities include:

1. Pavement removal and earthwork using jackhammers at a distance of 11 feet and large bulldozers at a distance of 20.5 feet from the arch. The pavement

directly next to the arch will be removed by hand to avoid damage to the structure.

2. Construction traffic, notably loaded trucks at a distance of 18.5 feet from the arch to avoid vibration impacts.

Recommendations include:

1. Produce a photo log of the arch prior to and following construction to determine its baseline condition prior to and following construction associated with this project. It is suggested that similar views be taken one prior to construction and two times following construction. (immediately following and 3 to 6 months thereafter) to inspect changes as a result of the construction or proximity to the roadway.
2. Provide fencing and cones to limit the proximity of construction equipment to the allowable distance.
3. Provide the Contractor with written and oral instruction regarding construction limitations.

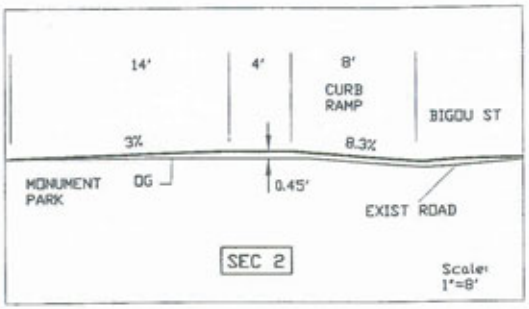
The results of the vibration and structural studies demonstrate that the arch can withstand activities such as drilling for the Bijou Street Bridge, careful removal by hand of the sidewalk next to the arch, and construction of stairs to allow for pedestrian access to the park from Bijou Street. The landscaping for the entrance area of the arch will match the current landscaping, including the location of the beds and the types of vegetation. The resulting determination of effect is no adverse effect in the vicinity of the gateway provided the above precautions are in place. Please see Figure 13 for a conceptual drawing of the work in the vicinity of the historic arch.

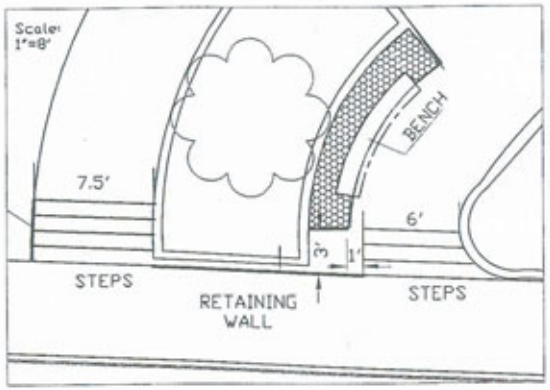

WEST VIEW
ONE WAY

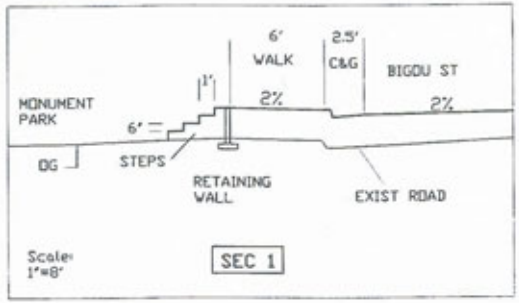
Q:\X031000320

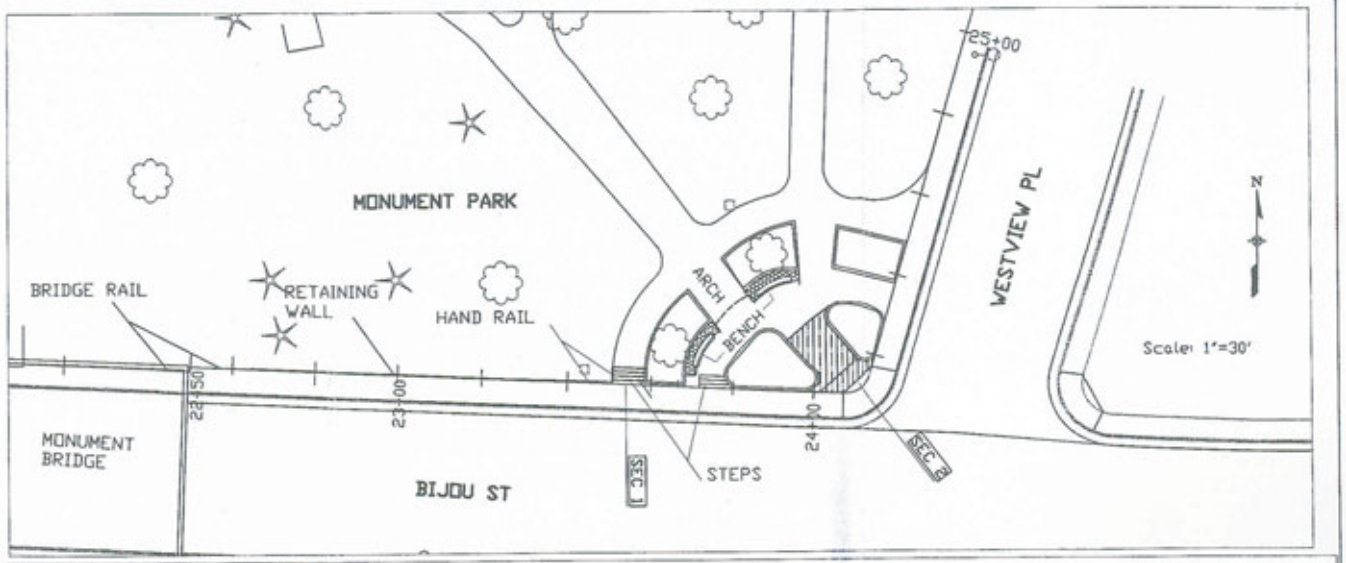
Monument Valley Park Arch
Sidewalk Entrance Improvements

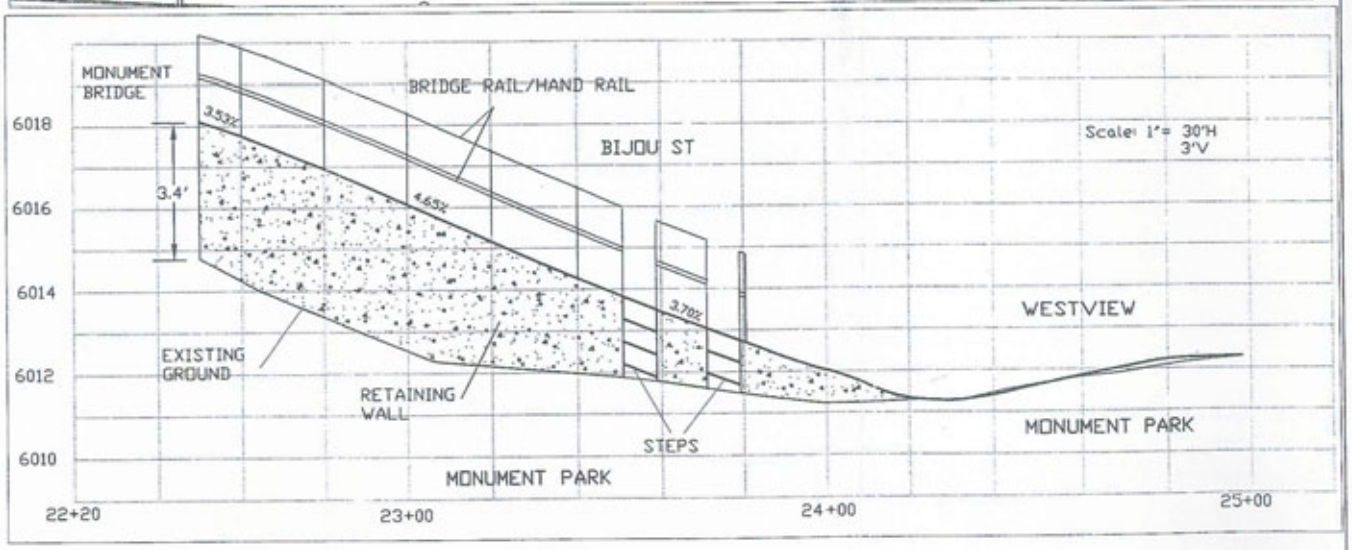
East Entrance
Proposed Condition











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Computer File Information		
Creation Date:	Initials:	
Last Modification Date:	Initials:	
Full Path:		
Drawing File Name:		
Acad Ver.	Scale:	Units:

Index of Revisions			

Colorado Department of Transportation
1480 Quail Lake Loop
Colorado Springs, Colorado 80906
Phone: 719-634-2323 FAX: 719-227-3298
Region 2 James Flohr

As Constructed				
No Revisions:				
Revised:	Designer:			
Void:	Detailer:			
	Sheet Subset:	Subset Sheets:	of	Sheet Number

Project No./Code

f) St. Mary's Church (5EP208): Located between Bijou, Kiowa, Sierra Madre, and Cascade streets, the St. Mary's Church and parking lot property is east of the Bijou Street Bridge that will be replaced as part of this project. Across the street from the church on Sierra Madre is a small piece of Monument Valley Park. A small portion of the St. Mary's parking lot will be acquired due to the slight realignment of Bijou Street and the sidewalk, removing approximately 20 parking spaces. Bijou will be realigned slightly because of the change in elevation of the new bridge and to correct the curve from Bijou Street eastbound to Kiowa Street. The additional right-of-way is needed on the church property because no right-of-way can be taken from the park on the west. Please see Figure 11 for a conceptual drawing of the amount of the parking lot that will be removed as part of the project.

A vibration analysis conducted for the church identified the following allowable activities:

1. Caisson drilling for Bijou Street Bridge at a distance of 315 feet results in no vibration impact.
2. Pavement removal and earthwork activities using jackhammers and small bulldozers at a distance of fifteen feet results in no vibration impact.
3. Construction traffic, including loaded trucks at a distance of 20 feet results in no vibration impact.

Restricted activities include:

1. Pavement removal and earthwork activities using a large bulldozer no closer than 20.5 feet to the building.

Recommendations include:

1. Produce a photo log of the building prior to and following construction.
2. Provide fencing and cones to limit proximity of construction equipment to the allowable distance.
3. Provide the Contractor with written and oral instruction regarding construction limitations.

FELSBURG HOLT & ULLEVIG

VIBRATION IMPACT EXHIBIT
BIJOU STREET AREA

0 50 100
SCALE

N

Along with the removal of 20 parking spaces, St. Mary's will reconfigure their parking lot to allow enough room for parking during services and meetings at the church. The additional work that involves removal of pavement and slight adjustment of Kiowa and Bijou streets in front of the church will not impact the historic significance of the church. Because the there will not be a significant reduction in parking, and the church will be developing a new parking plan to meet its needs, the resulting determination of effect is **no adverse effect**.

g) St. Mary's School (5EP3854): Located on the southeast corner of Sierra Madre and Kiowa Street, there is no potential for direct impacts to the school because the project limits end before the school.

A vibration analysis conducted for the school identified the following allowable activities:

1. Caisson drilling for Bijou Street Bridge at a distance of 380 feet results in no vibration impact.
2. Pavement removal and earthwork activities using jackhammers and small bulldozers at a distance of fifteen feet results in no vibration impact.

Restricted activities include:

1. Pavement removal and earthwork activities using a large bulldozer no closer than 20.5 feet to the building.
2. Construction traffic of all types, most notably loaded trucks, restricted to no closer than 18.5 feet to the building to avoid impact as a result of vibration.

Recommendations include:

1. Produce a photo log of the building prior to and following construction.
2. Provide fencing and cones to limit proximity of construction equipment to the allowable distance.
3. Provide the Contractor with written and oral instruction regarding construction limitations.

Due to the location of the building outside of the limits of construction, and the findings that vibration should not impact the building, the resulting determination is **no historic properties affected**. Please refer to Figures 17 and 18 for more details on location of building in relation to caisson construction and pavement removal.

h) Knights of Columbus (5EP634): Located on Kiowa Street east of the St. Mary's School, the Knights of Columbus will not directly impacted by the proposed alternative because the work will stop at Bijou Street.

A vibration analysis conducted for the building identified the following allowable activities:

1) Caisson drilling for Bijou Street Bridge at a distance of 485 feet results in no vibration impact.
2) Pavement removal and earthwork activities using jackhammers and small bulldozers at a distance of 50 feet results in no vibration impact.
3) Construction traffic, including loaded trucks, at a distance of 50 feet results in no vibration impact.

Restricted activities include:

1) None within the types of activities and equipment evaluated within this analysis.

Recommendations include:

1) Produce a photo log of the building prior to and following construction.
2) Provide the Contractor with written and oral instruction regarding construction limitations.

Due to the location of the building outside of the limits of construction, and the findings that vibration should not impact the building, the resulting determination is **no historic properties affected**. Please refer to Figures 12 and 13 for more details on location of building in relation to caisson construction and pavement removal.

i) Carnegie Library (5EP646): Located on Kiowa Street east of the Knights of Columbus building, the Carnegie Library will not directly be impacted by the proposed alternative because the work will takes place to the west on Bijou Street. A vibration analysis conducted for the building identified the following allowable activities:

1) Caisson drilling for Bijou Street Bridge at a distance of 572 feet results in no vibration impact.

2) Pavement removal and earthwork activities using jackhammers and small bulldozers at a distance of 150 feet results in no vibration impact.

3) Construction traffic, including loaded trucks, at a distance of 150 feet results in no vibration impact.

Restricted activities include:

1) None within the types of activities and equipment evaluated within this analysis.

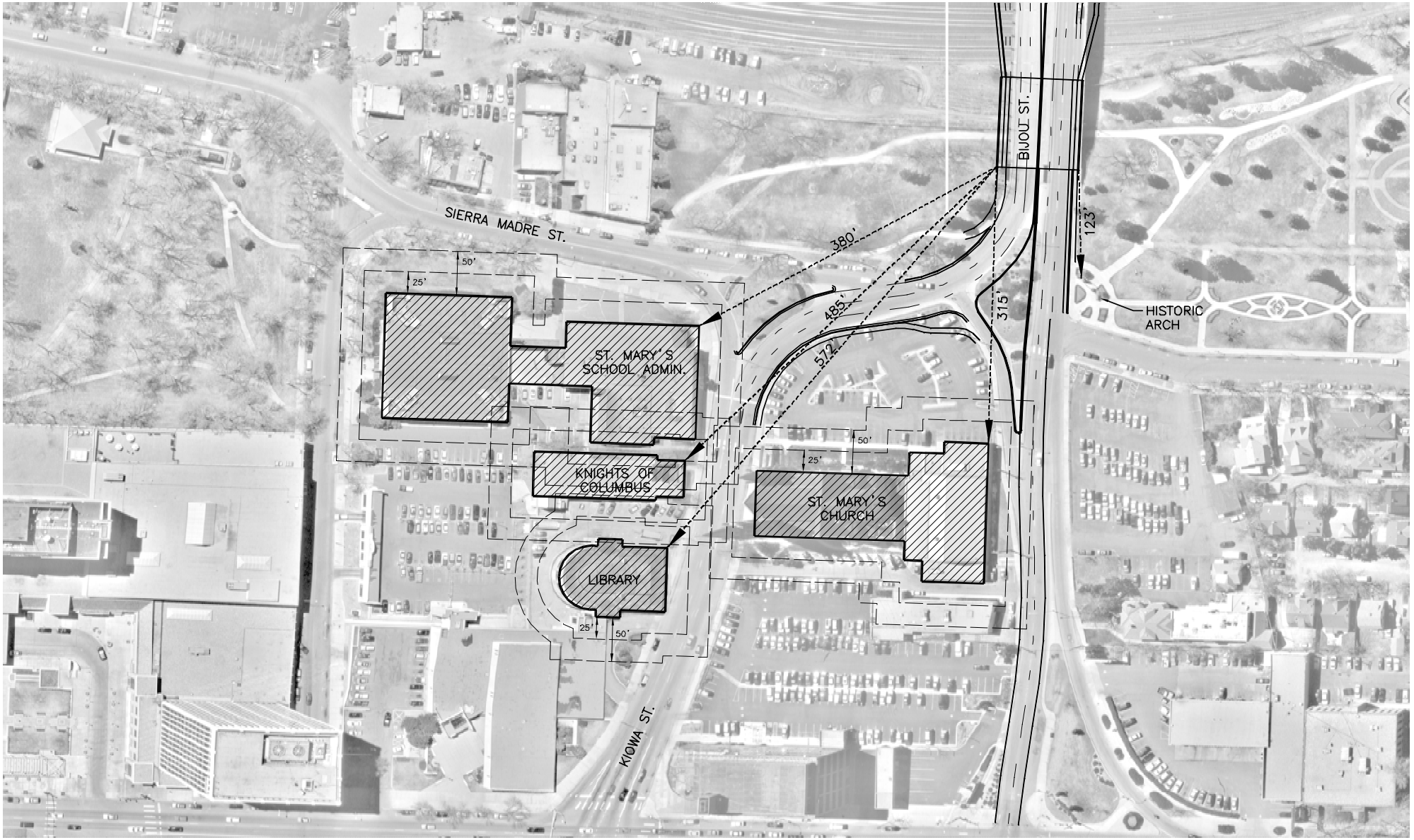
Recommendations include:

1) Produce a photo log of the building prior to and following construction.

2) Provide the Contractor with written and oral instruction regarding construction limitations.

Due to the location of the building outside of the limits of construction, and the findings that vibration should not impact the building, the resulting determination is **no historic properties affected**. Please refer to Figures 12 and 13 for more details on location of building in relation to caisson construction and pavement removal.

j) Denver & Rio Grande RR Depot (5EP618): The Denver & Rio Grade Depot is separated by railroad yard, switching tracks, and Monument Creek from I-25, and is approximately 1000 feet east of the interstate. No direct work will impact the depot. The clearing of natural vegetation along Monument Creek and the WPA wall to build the cantilevered sections of northbound I-25 will make the interstate more visible from the depot. This is true particularly on the north end of the building where there are no buildings between the depot and the highway to block the view. The ability to see the interstate from the historic property, due to the clearing of vegetation, does not constitute an alteration of change in the property's significance.



FELSBURG HOLT & ULLEVIG

VIBRATION IMPACT EXHIBIT
BIJOU STREET AREA
CLOSEST CAISSON CONSTRUCTION

0 50 100
SCALE

N

FELSBURG HOLT & ULLEVIG

VIBRATION IMPACT EXHIBIT
BIJOU STREET AREA
CLOSEST PAVEMENT REMOVAL

0 20 40
SCALE

N

A vibration analysis conducted for the building identified the following allowable activities:

(1) Caisson drilling for Bijou Street Bridge at a distance of 788 feet results in no vibration impact.

(2) Retaining wall construction that involve any of the following methods at a distance of 434 feet results in no vibration impact to the building as a result of this activity:

(a) Pile driver (impact)

(b) Pile driver (sonic)

(c) Clam shovel drop (slurry wall)

(d) Hydromill (slurry wall)

Restricted activities include:

None within the types of activities and equipment evaluated within this analysis.

Recommendations include:

1) Produce a photo log of the building prior to and following construction.

2) Provide the Contractor with written and oral instruction regarding construction limitations.

Due to the location of the building outside of the limits of construction, and the findings that vibration should not impact the building, the resulting determination is **no historic properties affected**. Please refer to Figure 14 for more details on location of building in relation to caisson construction and retaining wall construction.

k) Chadbourn Gospel Mission (5EP643): This structure is outside of the limits of construction. There will be no direct or indirect impacts. The determination of effect is **no historic properties affected**.

3.11 Cimarron to S. Nevada/S. Tejon:

There are no eligible or listed historic properties in this segment.

FELSBURG
HOLT &
ULLEVIG

VIBRATION IMPACT EXHIBIT
BIJOU STREET AREA
CLOSEST PAVEMENT REMOVAL

0 20 40
SCALE

N

3.12 S. Nevada/S. Tejon to Lake Ave

CDOT is currently reconstructing the S. Nevada and S. Tejon Street bridges over I-25. On and off ramps are being rebuilt and the interstate slightly realigned to the north as part of the project. No additional lanes are being constructed, but the work will allow for increase in capacity. Arvada Street is also being widened to two lanes in each direction and a new bridge built over Cheyenne Creek on Arvada Street. Safety improvements for pedestrians and motorists are also part of the current safety project.

533 E. Brookside (5EP4199): The cast stone house, eligible under Criterion C, at 533 E. Brookside is south of the interstate and the interstate will be slightly realigned away from this historic property. Noise is expected to increase by one or two decibels for this property, but the slight increase in noise will not alter the architectural significance of the property, the only ornamental concrete block building recorded during the present survey. The determination of effect is **no adverse effect**.

3.13 Lake Ave. to South Academy

Lake Avenue Interchange has already been reconstructed as part of the earlier safety projects. The proposed alternative will increase through lanes in this section of the interstate from two to three on each side of the interstate. The increased lanes will not require additional right-of-way.

Al Kaly Shrine Mule Team Barn (5EP4209): Located south of Harrison High School on Janitell Road, this property is eligible under Criterion A. The proposed alternative will not result in direct impacts to this building. Noise levels are projected to increase by two decibels, but this increase does not alter the significance of the historic property as part of an early dairy company (Sinton) with statewide significance. The dairy no longer operates in the building, which boards mules for the Al Kaly Shrine. The resulting determination of effect is **no adverse effect**.

3.14 South Academy to SH 16

There are no eligible or listed historic properties in this segment.

4.0 PROPOSED MITIGATION AND MEASURES TO MINIMIZE ADVERSE EFFECTS

4.1 USAFA Academy

During the design charette process for North Gate and Powers Blvd, participants developed strategies to mitigate the impact of the Proposed Alternative through the USAFA. These strategies include keeping the interstate below the existing centerline grade to lessen the possibility of seeing it from high vantage points within USAFA, including the Cadet and Academic areas. The North Gate Interchange Complex will be built below grade to minimize the intrusion of the interchange structures in this sensitive

natural environment. The cut and fill slopes of the interchange complex will be designed by a landscape designer to avoid a harshly engineered appearance. Vegetation removed for the construction of frontage roads and ramps, including scrub oak, trees, and riparian species, should be replaced with similar species after construction. Final designs will be developed as part of the plans prior to construction.. CDOT will work with the USAFA to apply landscape design concepts that will soften the affects to the visual landscape and minimize urban elements that negatively affect the historic cultural landscape. USAFA representatives will be included in the design process to ensure that final project design is compatible with USAFA expectations regarding aesthetics. When final drawings of the interchanges and plans for the surrounding landscape are prepared, they will be forwarded to SHPO and USAFA for comment.

In addition, a detailed narrative history on the USAFA and archival photographs of the present appearance of the six miles of I-25 through USAFA property will be provided to the SHPO in the form of Level II documentation. It is recommended that the N RHP Nomination currently being prepared by the National Park Service to recognize USAFA as National Register Historic Landmark will satisfy the requirements of Level II Documentation for a detailed narrative history of the USAFA.

4.2 WPA Wall

The majority of the wall that will be removed due to the cantilevered roadway, the retaining walls, and storm sewer can be rebuilt after the roadway has been constructed. Only 2,710 square feet cannot be replaced, at the trail connection relocation and the new bridge abutment for the Bijou Bridge. It is recommended that qualified stonemasons number the stones before removal and reconstruct the impacted portions of the wall using the same stones removed prior to construction of the retaining walls and storm sewer structure. Detailed plans and photographs will be prepared to show the present condition of the wall so stonemasons can rebuild the wall to match its present appearance. Any stones that are not used in rebuilding the wall can be stockpiled for future repair projects, or used to replace the riprap underneath the Colorado Avenue Bridge. In addition, it is recommended that the scrub vegetation growing between the stones along the entire length of the floodwalls on both sides of the creek be removed and the mortar repaired and stabilized. This vegetation is weakening the mortar and stones and causing the wall to deteriorate.

The visual setting of the WPA wall will be adversely impacted by the construction of the cantilever retaining walls and cantilevered roadway over the wall and must be mitigated by a wall design that is compatible with the original wall. The final design will be

submitted to SHPO for review comment to ensure it is compatible with the WPA floodwall.

Input from stakeholders will be sought before the final design is prepared. Level II documentation is recommended as another form of historic mitigation, including archival photographs and a narrative history of the WPA wall.

5.0 Proposed Measures to Minimize Noise and Visual Impacts

5.1 Monument Valley Park

Four strategies have been identified to minimize noise and visual impacts to Monument Valley Park. They have been organized according to Areas A through D, and are depicted in Figure 15. The contributing features within the park that this mitigation protects are also included within each area described.

Area A Sound Barrier:

Proposed Design: An earth berm from 5' to 25' high from Bijou Street extending north to baseball field.

Location: CDOT right-of-way between I-25 and railroad.

Contributing Features within Park Receiving Benefit: Southern part of the baseball field (MVP 9), Tahama Spring, (MVP 8), Plymouth Rock (MVP 7).

Non-Contributing Features within Park Receiving Benefit: Trails and gardens south of the field.

Input from Park Staff: No objection to earth berm, but at this time City has no funds for landscape maintenance.

Area B Visual Barrier:

Proposed Design: Additional trees planted between existing large cottonwood trees north of baseball field to south end of Shadow Lake, south of the existing noise wall. This is a visual barrier only (in-fill with lower growing trees blocking view of highway). There would be very little measurable decrease in noise levels, but there could be a perceived noise reduction due to the visual screening.

Location: In the park, along the west property line.

Contributing Features within Park Receiving Benefit: There are no features within the vicinity of this barrier.

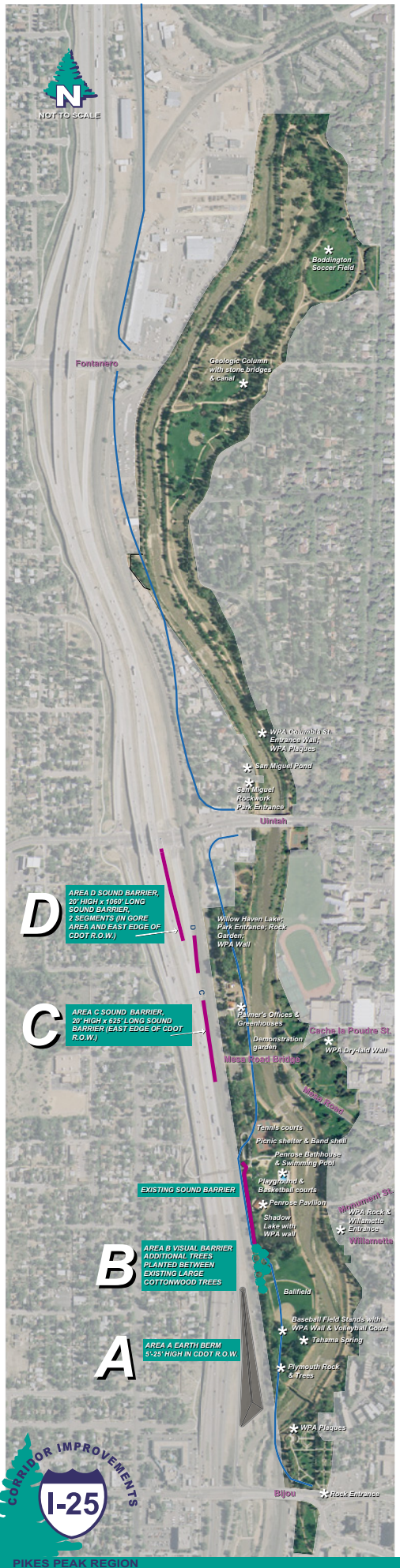
Input from Park Staff: No issues.

Area C Sound Barrier:

Proposed Design: 20' high by 625' long sound barrier between Glen Avenue and Palmer's greenhouses.

Location: On east edge of CDOT right-of-way, in the fence line between the railroad corridor and highway.

Monument Valley Park



BEFORE

AREA D SOUND BARRIER

AFTER

20' HIGH x 1060' LONG SOUND BARRIER, 2 SEGMENTS (IN GORE AREA AND EAST EDGE OF CDOT R.O.W.)

BEFORE

AREA C SOUND BARRIER

AFTER

20' HIGH x 625' LONG SOUND BARRIER (EAST EDGE OF CDOT R.O.W.)

BEFORE

AREA B VISUAL BARRIER

AFTER

VISUAL BARRIER: ADDITIONAL TREES PLANTED BETWEEN EXISTING LARGE COTTONWOOD TREES

BEFORE

AREA A EARTH BERM

AFTER

EARTH BERM: 5'-25' HIGH IN CDOT R.O.W.

Contributing Features within Park Receiving Benefit: Palmer's office and greenhouses (5EP613.2),
Non-Contributing Features within Park Receiving Benefit: Demonstration garden, Horticulture Center Building (MVP 26).
Input from Park Staff: No issues.

Area D Sound Barrier:

Proposed Design: Two sound barriers totaling 20' high by 1060' long between Uintah Street extending past rock garden to WPA wall.
Location: Two segments in gore area in east edge of CDOT right-of-way between the railroad and the highway.
Contributing Features within Park Receiving Benefit: Duck Pond and Willow Haven (MVP 27)
Non-contributing Features within Park Receiving Benefit: Trail south of Uintah Street, rock garden, park entrance.
Input from Park Staff: No issues.

6.0 CUMULATIVE EFFECTS ANALYSIS

6.1 Introduction

Federal guidelines to address cumulative impacts for this analysis include *Considering Cumulative Effects Under the National Environmental Policy Act* (Council on Environmental Quality, January, 1997), and *Position Paper: Secondary And Cumulative Impact Assessment In The Highway Project Development Process*, (Federal Highway Administration Project Development Branch, HEP-31, April 1992). In addition, Section 106 of the National Historic Preservation Act directs Federal agencies to determine reasonably foreseeable cumulative effects and effects that may occur at a later date or at some distance as a result of the undertaking. [36 CFR 800.5(a)(1)] This cumulative effects analysis identifies past, present, and reasonably foreseeable impacts by federal, state, city, and private actions.

The following goals were developed for this cumulative impact assessment for historic properties:

1) Affected Environment: Summarize results from previous historic surveys for projects on I-25 corridor, including a list of not eligible, eligible, and listed properties and impacts that occurred to these properties.

2) Stresses from Proposed Action: Determine magnitude and significance of cumulative effects that Proposed Action may have to historic properties and districts in project area.

3) Other Stresses to Resources: Determine magnitude and significance of other actions, regardless of agency responsibility or scope, and their impact to historic properties and districts in project area.

6.2 Affected Environment

The geographic scope for cumulative effects analyzes the same area of potential effects that was the subject of this historic resources survey: beginning at the intersection of SH 105 and I-25 in Monument to the intersection of SH 16 and I-25 at the entrance to Fort Carson, south of Colorado Springs. The time frame begins in 1984, the year CDOT and SHPO began consultation for the first major new interchange to be built on I-25 at Briargate Parkway on the USAFA.

The following summary of CDOT projects in the corridor organizes projects from the earliest to the latest. The dates following each project note the year that consultation was initiated between CDOT and SHPO. Construction dates are always after consultation, and in some cases, the projects were never constructed. If a project was never constructed, this is noted.

Project C04-0083-BS, Briargate and Stout Allen Interchanges, 1984

Description: Environmental Assessment analyzed impacts to construct two interchanges on I-25 on USAFA land at: Briargate and Stout Allen Road (Stout Allen was renamed Fairlane Parkway and then InterQuest Parkway. InterQuest was constructed in 1998.)

Site Number	Eligible or Listed Historic Property	Determination of Eligibility	Determination of Effect	Mitigation
Not provided	Town site of Husted	Needs data	No effect—outside of APE	N/A
Not provided	Town site of Summers	Needs data	No effect—outside of APE	N/A
Not provided	Town site of Breed	Needs data	No effect—outside of APE	N/A
Not provided	Town site of Edgerton	Needs data	No effect—outside of APE	N/A
Not provided	Trappers (Cherokee) Trail	Non-contributing segment	No effect	N/A
Not provided	Butterfield Overland Dispatch		No effect—outside of APE	N/A

Project IR 25-2(212): Bijou Street North, 1987

Description: Safety project to reconstruct I-25 and lengthen acceleration and deceleration lanes at interchanges between Bijou and Fillmore. This project later became part of the larger Corridor Improvement Feasibility Study (summarized in this analysis under Project IR 025-2(229) S. Academy Blvd. to N. Academy Blvd). The historic survey for this project resulted in determinations of eligibility for the following properties.

Site Number	Eligible or Listed Historic Property	Determination of Eligibility	Determination of Effect	Mitigation
5EP321	Emmanuel Presbyterian Church	NRHP Listed	No effect	N/A
5EP235	Westside Historic District	Not Eligible	No effect	N/A
5EP611	Colorado College Historic District	Eligible	No effect	N/A
5EP615	Boulder Crescent Place Historic District	Eligible	No effect	N/A
5EP616	West view Place Historic District	Eligible	No effect	N/A
5EP646	Penrose Public Library/Carnegie Wing	Eligible	No effect	N/A
5EP614	Van Briggle Art Pottery Building	Eligible	No effect	N/A
5EP618	D&RG Depot	Eligible	No effect	N/A
5EP622	Colorado Springs Fine Arts Center	Eligible	No effect	N/A
5EP619	Antlers Park	Eligible	No effect	N/A

Project IR 25-2(240), Bijou Street-North (Waterline), 1989

Description: Relocate existing eight-inch non-potable waterline in median of I-25, which is required before beginning work on Project IR 25-2 (212). The relocation of the waterline required minor amounts of land from Monument Valley Park.

Site Number	Eligible or Listed Historic Property	Determination of Eligibility	Determination of Effect	Mitigation
5EP613	Monument Valley Park	Not eligible	No effect	N/A
5EP613.	Two rock walls	Eligible	No effect	N/A
5EP975	Cache la Poudre Bridge	Eligible	No effect	N/A

Project IR 025-2(229) North Academy to S. Academy, 1988, 1991

Description: Widen I-25 to four to six lanes from North Academy to South Academy and eight lanes from Garden of the Gods Road on the north to the Tejon/Nevada Interchange on the south. In 1988, this project was an Environmental Assessment that investigated widening I-25 from four to six lanes between S. Academy and N. Academy Blvd. interchanges, a distance of 15 miles. The historic survey report noted the North End Historic District, listed on the NRHP, two individual buildings on the Colorado College campus listed on the NRHP as a Multiple Property Submission, and the Emmanuel Presbyterian Church, also listed on the NRHP. In addition, one site was eligible for listing: Cache la Poudre Street Bridge in Monument Valley Park. The SHPO concurred that because none of these historic properties were located within the area of potential effects, there would be no effect to historic resources.

In 1991, consultations identified the need for substantial takes in the Westside and Mesa Springs neighborhoods, as well as construction of the sound wall and linear park with a recreational trail. On the east side, the project was limited by the presence of the Denver & Rio Grande Railroad, Monument Valley Creek, and Monument Valley Park, and there were no right-of-way impacts.

The historic survey undertaken for this project concluded that there was no potential for an eligible historic district in the Westside and Mesa Springs neighborhoods due to the large number of insensitive alterations and renovations on homes in the area. This finding agreed with earlier surveys by the City of Colorado Springs and CDOT in the Westside neighborhood. SHPO concurred with the determination of not eligible, but selected 19 homes representing the architectural styles of the neighborhoods that CDOT recorded on cultural resource inventory forms to adequately document the types of homes that were removed as part of the project. Of the remaining buildings surveyed on the west side of the wall, only two were found to be eligible.

A third, the TB cottage behind 306 Dale Street, was not eligible because it had been moved from its original location. But this cottage, considered to represent the history of Colorado Springs as a health resort, was later moved to the Rockledge Ranch for preservation. Although this project removed a large number of older homes (approximately 60), this was not considered a significant historic impact because the neighborhood was not an eligible historic district.

Site Number	Eligible or Listed Historic Property	Determination of Eligibility	Determination of Effect	Mitigation
5EP1361	315 North Pine	Not Eligible	No effect	N/A
5EP1362	423 North Pine	Not Eligible	No effect	N/A
5EP1363	712 North Pine	Not Eligible	No effect	N/A
5EP1364	732 North Pine	Not Eligible	No effect	N/A
5EP1365	736 North Pine	Not eligible	No effect	N/A
5EP1366	306 Dale	Not eligible	No effect	N/A
5EP1367	TB cottage (306 Dale)	Not eligible	No effect	Relocate
5EP1368	302 Dale Street	Not Eligible	No effect	N/A
5EP1369	317 Nichols Court	Not eligible	No effect	N/A
5EP1370	320 Mesa Road	Not eligible	No effect	N/A
5EP1371	314 Mesa Road	Not eligible	No effect	N/A
5EP1372	431 San Rafael	Not eligible	No effect	N/A
5EP1373	506 Buena Ventura	Not eligible	No effect	N/A
5EP1374	1629 Cooper	Not eligible	No effect	N/A
5EP1375	1919 Cooper	Not eligible	No effect	N/A
5EP1376	2228 Walnut	Not eligible	No effect	N/A
5EP1377	2304 Walnut	Not eligible	No effect	N/A
5EP1378	2316 Walnut	Not eligible	No effect	N/A
5EP1379	2320 Walnut	Not eligible	No effect	N/A
5EP235.86	417 North Pine	Not eligible	No effect	N/A
5EP1359	517 North Pine	Not eligible	No effect	Photos and construction history

Site Number	Eligible or Listed Historic Property	Determination of Eligibility	Determination of Effect	Mitigation
5EP235.49	321 Mesa Road	Eligible	No Adverse Effect	Create buffer zone with noise barrier between hwy and remaining residential areas; landscape residential side of noise barrier; landscape in vicinity of historic properties to maintain character and setting
5EP1360	450 Uintah	Eligible	No Adverse Effect	Create buffer zone & noise barrier between hwy & residential areas; landscape west side of noise barrier; landscape in vicinity of historic properties to maintain their character & setting

Project IR 25-2(229) South Academy Blvd. to North Academy Blvd., 1995

Description: Removal of house at 450 Uintah Street for placement of water pipelines in property.

Site Number	Eligible or Listed Historic Property	Determination of Eligibility	Determination of Effect	Mitigation
5EP1360	450 Uintah	Officially Eligible	Adverse Effect	Relocate to Rockledge Ranch
5EP235.49	321 Mesa Road	Officially Eligible	No Adverse Effect	Create buffer zone with noise barrier between hwy and remaining residential areas; landscape residential side of noise barrier; landscape in vicinity of historic properties to maintain their character and setting
5EP1367	TB Cottage behind 306 Dale Street	Officially Not Eligible	No Adverse Effect	Relocated to Rockledge Ranch

Project CC 0250-313, Fairlane (InterQuest) Parkway Interchange, 1998

Description: Briargate Parkway was constructed in 1987, but Stout Allen Interchange was not constructed at that time. This later project involved an historic survey of the USAFA for an additional interchange, which eventually became InterQuest Parkway. This project updated the historic survey and re-evaluated impacts to construct Fairlane Parkway on the same location as Stout Allen Road. The interchange had four lanes east of I-25 to connect with SH 83. No new roads entered USAFA as part of the project.

Site Number	Eligible or Listed Historic Property	Determination of Eligibility	Determination of Effect	Mitigation
5EP595	USAFA Historic Cultural Landscape	Officially Eligible	No effect (no significant buildings or sites in area of interchange)	N/A
5EP182	Pioneer Cabin	Listed, NRHP	No effect—not in APE	N/A
5EP1222	Carlton House	Listed, NRHP	No effect—not in APE	N/A
5EP2181	Denver & Rio Grande Western Railroad	Eligible	No effect—not in APE	N/A
5EP1003	Santa Fe Railroad	Eligible	No effect—not in APE	N/A
5EP595.1	Cadet Chapel	Eligible	No effect—not in APE	N/A
5EP2540	Farish Memorial Recreational Area HD	Eligible	No effect—not in APE	N/A

Project IM 0252-309, S. Nevada/S. Tejon Interchanges, 1999

Description: Rebuild S. Nevada/S. Tejon interchange and realign and reconstruct several local streets.

Site Number	Eligible or Listed Historic Property	Determination of Eligibility	Determination of Effect	Mitigation
5EP3485	1402 S. Tejon	Not Eligible	No effect	N/A
5EP3486	1332 S. Tejon	Not Eligible	No effect	N/A

Project IM 0252-310, Woodmen Road Interchanges, 2000

Description: This safety improvement project, currently underway, will improve mobility at the Woodmen Road interchange. Additional through lanes and turn lanes will be provided, and the bridges over Pine Creek, Cottonwood Creek and Woodmen Road will be replaced.

Site Number	Eligible or Listed Historic Property	Determination of Eligibility	Determination of Effect	Mitigation
5EP1003.5	Santa Fe Railroad right-of-way	Non contributing segment	No effect	N/A
5EP1003.1	Santa Fe Railroad right-of-way	Needs data	Not in APE	N/A
5EP3358	Pine Creek Bridge	Eligible	Adverse Effect	OAHP Level II Documentation
5EP807	Pine Creek Bridge	Eligible	Adverse Effect	OAHP Level II Documentation

Project IM 0252-328, Nevada/Rockrimmon Interchanges, I-25, 2002

Description: This project was surveyed in 2000 for historical properties, with consultation between CDOT and SHPO in 2002. The project description included improving the outdated interchanges and interstate roadway in order to meet current, higher safety standards. Substandard access ramps at Rockrimmon Boulevard, Mark Dabling Boulevard and North Nevada Avenue will be improved and access points will be reduced to for driver safety. The project also will include a better east-west connection between North Nevada Avenue and Rockrimmon Blvd. CDOT and SHPO have already consulted on eligibility and effect determinations for this project.

Site Number	Eligible or Listed Historic Property	Determination of Eligibility	Determination of Effect	Mitigation
5EP972	Cottonwood Creek Bridge (Vincent Dr.)	Officially Eligible	No effect	N/A
5EP901	Pikeview Mine	Not Eligible	No effect	N/A
5EP2181.9	Denver & Rio Grande RR segment	Non-contributing	No effect	N/A
5EP1003.7	Santa Fe RR segment	Non-contributing	No effect	N/A
5EP3540	Kiln Site	Not Eligible	No effect	N/A
5EP3538	Withers House, 6510 Vincent Dr.	Not Eligible	No effect	N/A
5EP3539	House, 5415 Vincent Dr.	Not Eligible	No effect	N/A

6.3 Summary of Affected Environment

CDOT and SHPO have consulted on 11 projects with the potential to affect historic resources in this corridor, including the Nevada/Rockrimmon Interchange. The historic property surveys for the projects recorded 61 historic properties or districts. Twenty-three of these properties were determined to be eligible for or listed on the NRHP, and therefore protected by Section 106 of the National Historic Preservation Act. Of these 23 properties, the proposed undertaking had no adverse effect on two properties and an adverse effect on three properties. The properties with no adverse effect determinations were part of the Bijou-Fillmore safety project, at 321 Mesa Road, and the TB cottage at 306 Dale. The properties with adverse effect determinations were 450 Uintah, which was removed to Rockledge Ranch as part of the Colorado Springs Utilities project, and the Pine Creek Bridges, which were removed as part of the Woodmen Road Interchange project.

6.4 Stresses from Proposed Action

The Proposed Action has few direct stresses to historic properties because most properties are located 250-500 feet or more from the highway corridor. The Proposed Action will directly or indirectly impact the properties described below. Indirect stresses, such as audio, visual, and vibration, have been described in this effects analysis.

Adverse Effect

USAFA due to increased easements required for highway widening and the construction of the North Gate/Powers Blvd. Interchange Complex. Widening of I-25 and the construction of the North Gate Interchange Complex has an adverse visual impact to the setting of the eastern boundary of the USAFA, officially eligible as a historic cultural landscape district

WPA Floodwall due to removal and reconstruction of portions of the floodwall on the west side of Monument Creek and to cantilevering the highway, bridge abutment, and storm sewer;

No Adverse Effect

St. Mary's Church parking lot due to a minor right-of-way acquisition;

Monument Valley Park rock entrance gate where there will be sidewalk improvements in the vicinity of the, at Bijou Street.

Monument Valley Park measures to reduce noise**.**

Cumulative Effects, United States Air Force Academy

Transportation-related effects

Since the construction of the interstate in the late 1950s, there have been gradual changes to the original environmental setting and certain attributes associated with the historic cultural landscape of the USAFA, including increased traffic and visual impacts such as the addition of interchanges at InterQuest and Briargate.

Construction of these two interchanges interjected a modern, urban design into the rural environment of the USAFA. Both are above-grade with concrete girder bridges and steep cut and fill slopes. At the time these two interchanges were constructed, consultations between the SHPO, CDOT and USAFA found that the work did not impact the qualities of significance of the USAFA because no significant historical features were removed or altered. The USAFA was seen as being too vast, and covered with enough vegetation that the highway interchanges would not impact important features, particularly the Cadet Area, Falcon Drive, and Falcon Stadium. For several years, the interchanges at Briargate and InterQuest were isolated modern intrusions into an open undeveloped landscape. Now Briargate is surrounded by commercial development, and InterQuest is gradually becoming that way. This change in land use from open grassland and pine forest to dense urban development is likely to continue into the foreseeable future. Current land use plans project a mixture of residential and commercial development along the east side of the Interstate from Monument into Colorado Springs. It is likely, then, that land along the entire eastern boundary will be developed in the future, changing the context and setting of the USAFA.

Although careful planning of the North Gate/Powers interchange will result in less visual intrusion than the Briargate and InterQuest interchanges, construction will nevertheless change the visual landscape at this northern entry into the USAFA. The addition of ramps, bridges, and interchange lighting will create a more urban appearance and feel which may be more consistent with the urban development that is occurring at the boundary of the USAFA than the open expanses and broad vistas associated with the Academy. Widening the interstate from two to three and four lanes in each direction will also contribute to that urban character along the entire seven-mile eastern edge of the USAFA. These changes to the highway will become even more

The overall cumulative effect from the changes in time to the interstate will be to emphasize the urban character of the land that is occurring just beyond the USAFA boundary.

Other Cumulative Effects to USASA

Changes to the interstate are not, and will not be, the only changes that are occurring around the USAFA. Other past, present, and reasonably foreseeable public and private actions also affect the context of the Academy and its historic cultural landscape. Past urban development beyond the Academy has altered the surrounding land patterns, converting expansive natural landscapes into a patchwork of residential and commercial uses. As development continues, it is likely to have a substantial effect on the current, almost rural setting of the Academy, making it appear almost like an island within a highly urbanized landscape. Urban uses, especially high-rise buildings, will be visible from many vantage points on the Academy grounds, including the Cadet Area. Even at night, light from homes and business will create a brighter urban edge.

There are other important changes in the past that have had a substantial influence on the setting and the historic cultural landscape of the Academy. In the mid-1970's the Atchison, Topeka & Santa Fe Railroad consolidated operations on track owned by the Denver and Rio Grande Railroad. That resulted in the abandonment of the Santa Fe mainline and the removal of track, trestles, and rail sidings. Only the railroad grade, now converted in part to a multi-use trail, remains today. Also, the high visual quality of the USAFA is being diminished by the nearby mountain quarry. Mining for rock in the Pikeview Quarry located on the mountainside just south of the USAFA has created a major visual scar that impairs vistas across the Academy and affects the quality of the mountain backdrop. This operation will likely continue for the next 12 to 20 years, and reclamation is expected to take many years thereafter.

Cumulative Effects, Monument Valley Park

Transportation-related effects

Since the construction of the interstate in the late 1950s, there have been gradual changes to the original environmental setting and feeling of the park, including increased traffic and visual impacts such as adding acceleration and deceleration lanes, raising and lowering the elevation of the interstate in certain locations, and adding a sound wall on the west side of I-25 opposite from the park. The past action occurred when the park was considered not eligible to the National Register.

A noise wall was constructed in the 1990s at the pavilion to protect this feature from interstate noise. CDOT has undertaken two minor utility projects in the park. The first was the relocation of an existing 8" non-potable waterline that was originally in the median of I-25. This waterline was moved to the east and for the most part placed beneath CDOT right-of-way and city streets, but also impacted less than one acre of Monument Valley Park. In addition, at that time, the park was considered not eligible, so under Section 106 there was no effect to the property. The second project involved enlarging a storm drainage pipe from the east edge of I-25 to Monument

Creek, which impacted a small part of the WPA wall below the northwest corner of Cache la Poudre Street Bridge and a WPA decorative wall to the north of the bridge that was reconstructed after the project.

Other Impacts to Monument Valley Park

Changes to the character of a historic property can result from a series of unrelated projects carried out by a variety of different entities. When all of these actions are combined, there may be indirect and cumulative impacts to historic properties.

Actions that have the potential to alter the integrity of historic properties and districts include transportation improvements to local streets; changes in zoning in historic neighborhoods from single-family dwellings to multi-family dwellings and/or mixed use commercial; changes in the economic viability of neighborhoods; and insensitive renovations and additions that alter the appearance of historic homes. Historic properties may also be subject to deterioration, alteration, or attrition due to private actions. The impacts of indirect stresses to historic properties and districts adjacent to I-25 are difficult to measure due to the complex issues that cause these changes.

Monument Valley Park has experienced some minor changes over time. The numbers of vehicles using the roads within the park have increased. The Parks, Recreation and Cultural Services Department has updated some features of the park for recreational purposes, including new playground equipment, tennis courts, volleyball courts, and soccer fields, updated swimming pool, and a new parking lot near the pavilion. CDOT constructed a noise wall east of I-25 to protect the park pavilion from freeway noise, and lighting and other city utilities, particularly overhead electric lines and a transformer station, have been installed in the park.

These changes in the original setting and feeling of the park, and the changes to the park over time, including the addition of non-contributing features, have not compromised the park's integrity as an historic resource, or have altered, either directly or indirectly, the characteristics of the park that qualify it for inclusion in the National Register of Historic Places.

6.5 Other Stresses to Historic Properties

Changes to the character of a historic property can result from a series of unrelated projects carried out by a variety of different entities. When all of these actions are combined, there may be significant, indirect, cumulative impacts to historic properties.

Potential actions that have the potential to alter the integrity of historic properties and districts include transportation improvements to local streets; changes in zoning in historic neighborhoods from single-family dwellings to multi-family dwellings and/or mixed use commercial; changes in the economic viability of neighborhoods; and insensitive renovations and additions that alter the

appearance of historic homes. Historic properties may also be subject to deterioration, alteration, or attrition due to private actions. The impacts of indirect stresses to historic properties and districts adjacent to I-25 are difficult to measure due to the complex issues that cause these changes.

7.0 CONCLUSION

The current survey, which recorded 228 properties, determined 31 properties were field eligible or listed on the NRHP or SRHP. Of these 31 properties, two will be adversely impacted: the United States Air Force Academy and the WPA Flood Wall on Monument Creek south of Bijou. The Proposed Action will have no adverse effect on an additional six properties: Reynolds Ranch; San Miguel Historic District; Monument Valley Park and the park entrance gate at Bijou Street; St. Mary's Church; the cast stone house at 533 E. Brookside; the Al Kaly Shrine Mule Team Barn. The Proposed Action will not impact the remaining 23 properties, directly or indirectly. The determination of effect for these properties is no historic properties affected.

Five of the remaining 23 properties were directly impacted by past actions in the project corridor, or roughly 21 percent. The Proposed Action will have an adverse effect on six percent of the eligible or listed properties in this analysis; no adverse effect on 19 percent; and no effect on the remaining 74 percent of the historic properties.

Attachments

1. Powers/Northgate Interchange Concepts 1-7, U.S.A.F.A. Design Charette Summary
2. Ackerman Overlook Concept, U.S.A.F.A, THK
3. Monument Valley Park Gateway, Structural Study, A-E Design Associates
3. Monument Valley Park Gateway, Engineering Study, FHU

Northgate-Baptist Interchange Improvements

TECHNICAL MEMORANDUM

TO: File

FROM: R.A. Plummer, PBS&J

CC: Kit Roupe, USAFA
James Flohr, CDOT Region 2
Dan Hunt, CDOT Region 2
Dick Annand, CDOT Region 2
Dave Poling, CDOT Region 2
Chris Smith, CDOT Region 2
Doug Eberhart, Wilson and Company
Allan Brown, J.F. Sato and Associates

DATE: June 24, 2002

SUBJECT: Design Charette Summary

INTRODUCTION

The objective of the *Northgate-Baptist Interchange Improvements* project is to recommend a proposed action for the reconstruction of the Northgate Boulevard and Baptist Road interchanges on I-25 in El Paso County. The reconstruction of the Northgate Boulevard Interchange also includes the planned connection from Powers Boulevard to I-25. Because the Northgate Interchange is located on United States Air Force Academy (USAFA) property, the USAFA is an important stakeholder in developing the interchange solution. At the request of the USAFA, the Colorado Department of Transportation (CDOT) hosted a four-day design charette to analyze the issues in the area and develop possible alternative solutions. The purpose of the design charette was to provide a forum to ensure that stakeholder issues were presented and considered in the development, analysis and selection of interchange concepts for the I-25 connection to Powers Boulevard and Northgate. A traditional brainstorming process was used to identify broad issue categories that were then expanded to pinpoint important categories to be used in the development of interchange concepts. The details of the design charette are provided in this technical memorandum.

HISTORY OF DESIGN CHARETTE

The USAFA has actively supported the development of Powers Boulevard since the mid 1960's. The USAFA, as a major stakeholder, recently requested that CDOT provide them the opportunity to collaborate in the alternative selection process for the Northgate Interchange. In keeping with its commitment to a pro-active public involvement process with all stakeholders, CDOT directed its consultant PBS&J to coordinate the design charette. This interactive technique was chosen to ensure that an unbiased, fresh perspective was followed to select the proposed action. The design charette approach also provided an opportunity for the USAFA,

CDOT and the Federal Highway Administration (FHWA) to confirm that the overall project vision, the mission of each entity, and the aesthetic, safety, operational, and environmental requirements were addressed in the alternative selection process.

DESIGN CHARETTE PROCESS

The overall schedule for the four-day process included:

- Definition of Goals
- Definition of Issues
  - EA Scoping issues
  - Other Constraints
  - USAFA Issues
- Development of measurable objectives/mission statements
  - Development of alternatives
  - Northgate Interchange concepts
- Development of matrix of objectives and alternative effectiveness
- Completion of fatal flaw screening

Future steps in the process were identified as:

- Conducting detailed evaluation of remaining alternatives
- Conducting comparative screening
- Selection of a proposed action

Each step of the design charette process is discussed in further detail below.

DEFINITION OF GOALS

The goals of the design charette were defined to incorporate:

- Discussion of interchange improvement needs
- Verify continued USAFA involvement as an environmentally responsible stakeholder
- Recognize and respect USAFA's mission to protect natural resources in its care
- Preserve USAFA infrastructure and land
- Necessitate USAFA's protection obligation
- Maintain visual aesthetics in the project corridor

The goals of the design charette were used as the basis to develop the elements of the project vision:

- Keep I-25 as natural as possible
- Maintain USAFA involvement in land-use decisions
- Honor the original master plan concepts for USAFA

DEFINITION OF ISSUES

Three main sources of issues were recognized as being essential to consider in the decision making process: 1) EA Scoping Issues; 2) Other Constraints; and 3) USAFA Issues. Fifteen issue categories shared by the three sources were then identified as the basis for analysis:

1. Security
2. Visual
3. Safety
4. Traffic Operations
5. Access
6. Trail
7. System-to-system interchange
8. Powers connection
9. Land use
10. Preble's Meadow Jumping Mouse
11. Historic resources
12. Hydraulic
13. Flight clear zones
14. EA public process
15. Other environmental resources

DEVELOPMENT OF MEASURABLE OBJECTIVES/MISSION STATEMENTS

The charette team then combined similar issues to form seven issue categories to be used for screening alternative concepts. Each issue category was then assigned measurable objectives to provide a qualitative assessment of each concept. The seven issues categories and the measurable objectives for each include:

1. Traffic
    a. Provide Powers interchange system-to-system connection
    b. Ability to handle special event traffic
    c. Driver expectancy
2. Safety
    a. Ability to meet design standards
3. Access
    a. Access to and from USAFA
    b. Access to and from Gleneagle and local areas
4. Visual
    a. Ability to use natural terrain
    b. Minimize flyover structures
    c. Avoid "mixing bowl" effect
    d. Maintain arrival atmosphere to USAFA
    e. Ability to maintain buffer areas
5. Environmental
    a. Potential impacts to Preble's Meadow Jumping Mouse habitat
    b. Potential impacts to traditional historic resources
    c. Potential impacts to wetlands
    d. Potential impacts to USAFA historic resources

6. Security
    a. Ability to separate traffic uses entering USAFA gate
    b. Ability to maintain distance between trail and guard gate
    c. Potential for encroachment to aircraft clear zones
    d. Ability to accommodate expanded operational needs
7. Real Estate
    a. Ability to minimize local development impacts
    b. Ability to minimize USAFA real estate impacts

Other considerations that were incorporated into the issues determination included; minimize an urban feel (signals); consideration of the three primary travel markets, USAFA, local, and regional; the capacity needs of each travel market and the deficiencies of the Northgate Interchange; cut-through type of impacts; regard for CDOT's environmental responsibility; off-system access; ability to meet design standards and minimize variances; maintenance issues; desire to stay east of USAFA; blend the military and campus feel; awareness of adjacent land-uses through coordination with city and county; traffic handling at Northgate vs. Southgate; and expanded operational needs of USAFA since 9/11.

NORTHGATE INTERCHANGE CONCEPTS

Seven design concepts for the Northgate Interchange were developed and evaluated at the USAFA design charette. These concepts include:

Concept 1: Realign Powers Along Northgate Boulevard to Improved Northgate Interchange
As shown in Figure 1, Concept 1 is a freeway-to-freeway interchange that realigns Powers Boulevard along Northgate Boulevard. It is one fully directional interchange. An east-west local road north of Northgate Boulevard would be constructed to provide access to the Gleneagle subdivision.

Concept 2: Realign USAFA Entrance to Meet Powers South at a New Interchange
As shown in Figure 2, Concept 2 is a stretched version of the interchange included in Concept 1. Powers Boulevard would be constructed south of Northgate Boulevard and would be built under I-25 in a northwesterly direction, providing free flowing movement from Powers Boulevard to Northgate Boulevard at the USAFA.

Concept 3: Collector/Distributor Roads with Diamond Interchange at Northgate and New Powers Connection
As shown in Figure 3, Concept 3 utilizes a collector/distributor road to access Northgate and Powers Boulevard. Concept 3 includes two interchanges; the Northgate Interchange would consist of a diamond configuration and a new freeway-to-freeway interchange would be provided for Powers Boulevard. Access to Gleneagle would be provided through the collector/distributor road.

Concept 4: Diamond Interchange at Northgate with New Powers Connection and Limited USAFA Access

As shown in Figure 4, Concept 4 consists of a split diamond interchange at Northgate with braided ramps to the Powers Boulevard freeway-to-freeway interchange. This interchange concept consists of four access points and is not fully directional.

Concept 5: New Powers Interchange and No Interchange at Northgate

As shown in Figure 5, Concept 5 removes the ramps at Northgate and constructs a freeway-to-freeway interchange at Powers Boulevard.

Concept 6: Powers Alignment East of I-25 with North Connection at Diamond Interchange at Northgate

As shown in Figure 6, Concept 6 consists of a diamond interchange at Northgate with the Powers alignment running parallel to I-25 on the east side to an alignment north of existing Northgate. The connection to Powers from I-25 is handled with ramps north of the existing Northgate Interchange. A northbound exit ramp to Powers Boulevard and a southbound entrance ramp to I-25 are still provided south of Northgate.

DEVELOPMENT OF MATRIX OF OBJECTIVES AND ALTERNATIVE EFFECTIVNESS

The development of the matrix of objectives was an interactive process. Once fifteen shared issues were identified from the three issue sources, the issues were combined to form seven issue categories. The seven issue categories were then assigned measurable objectives to evaluate each concept's ability to address the greatest number of issues and constraints. The completed evaluation matrix is attached as Table 1.

COMPLETION OF FATAL FLAW SCREENING

Seven schematic layouts for interchange concepts were generated by the team through the design charette process. The measurable objectives were then applied to gauge each concept's ability to address the identified issues and constraints. Finally, interchange alternatives versus issues were discussed. A matrix of objectives and alternatives effectiveness was compiled to identify the most appropriate alternatives to carry forward for further analysis. The charette team agreed that Concepts 1,2,5 and 6 do not meet most of the needs. Concept 3 and 4a were first suggested. Then 4b was developed as part of the outbriefing. Concept 4b was the most popular alternative at the design charette. Only Concept 4b is going forward. The retained concept (Concept 4b) was a variation of Concepts 3 and 4. Concept 4b was the alternative identified through the charette process that best met the identified objectives and addressed constraints. Concept 4b is a diamond interchange at Northgate with a new fully directional interchange at Powers, as shown in Figure 7. The difference between Concept 4 and Concept 4b is that Concept 4b provides access to the USAFA from Powers Boulevard. A detailed evaluation of the retained alternative is being conducted and will be followed by the selection of a proposed action.

Reasons for eliminating the six other concepts are described below:

- Concept 1 would impact properties along Northgate Boulevard and would bring freeway traffic to the front door of the USAFA. Multiple structures required for the construction of this interchange concept would provide a visual impact. In addition, Concept 1 would require relocation of the USAFA gatehouse and Santa Fe Trail. (Figure 1).

- Although Concept 2 would not impact properties along Northgate Boulevard, freeway traffic would still arrive at the front door of the USAFA. In addition, multiple structures required for the construction of this interchange concept would create a visual impact. The USAFA gate location and Santa Fe Trail would require relocation. (Figure 2).

- Concept 3 has a longer footprint that caused visual concerns and the collector distributor system was questionable in terms of driver expectancy. (Figure 3).

- Concept 4 has access restrictions from the USAFA onto southbound Powers Boulevard. In addition, vehicles wanting to access the USAFA from northbound Powers Boulevard would be required to exit at Voyager Parkway and use Northgate. (Figure 4).

- Concept 5 negatively impacts access to and from the USAFA, as well as access to and from Gleneagle and the surrounding local area. Multiple structures required for the construction of this interchange concept would provide a visual impact. This concept also negatively impacts driver expectancy and the ability to handle special event traffic. (Figure 5).

- Concept 6 negatively impacts driver expectancy and the ability to use the natural terrain. This concept also impacts wetlands and historic resources. (Figure 6).

NEXT STEPS

A detailed evaluation of Concept 4b (now being called Concept 4 for the public) is being completed. Communication with the USAFA has continued with monthly coordination meetings. Selection of the proposed action is scheduled for September 2002.

		Build Concepts						
		1	2	3	4a	4b	5	6
Traffic	Provide Powers I/C System-to-System Connection	5	5	3	5	5	5	5
	Ability to Handle Special Event Traffic	5	5	5	3	3	1	3
	Driver Expectancy	5	3	3	5	5	1	1
Safety	Ability to Meet Design Standards	5	5	5	1	1	5	5
Access	Access to and from USAFA	5	1	5	1	5	1	5
	Access to and from Gleneagle and local area	5	1	5	5	5	1	5
Visual	Ability to Use Natural Terrain	1	1	5	5	5	5	1
	Minimize Flyover Structures	1	3	5	5	5	5	5
	Avoid "Mixing Bowl" Effect	1	1	5	5	5	5	5
	Maintain Arrival Atmosphere to USAFA	1	1	5	5	5	1	5
	Ability to Maintain Buffer Areas	B	D	C	C	C	A	B
Environmental	Potential Impacts to PMJM Habitat	E	E	C	C	B	B	D
	Potential Impacts to Traditional Historic Resources	1	1	5	5	5	5	5
	Potential Impacts to Wetlands	1	1	1	3	3	1	1
	Potential Impacts to USAFA Historic Resources	1	1	1	1	1	1	1
Security	Ability to Separate Traffic Uses Entering USAFA Gate	1	1	3	3	3	5	3
	Ability to Maintain Distance between Trail and Guard Gate	5	5	3	3	3	3	3
	Potential for Encroachment to Aircraft Clear Zones	1	1	5	5	5	5	5
	Ability to Accommodate Expanded Operational Needs	5	5	3	1	1	1	3
Real Estate	Ability to Minimize Local Development Impacts	1	5	5	5	5	5	5
	Ability to Minimize USAFA Real Estate Impacts	D	E	B	B	B	A	C

5 - Minimal Impact/Accomodates Goal
3 - Neutral/Not Applicable
1 - Significant Impact/Does Not Meet Goal

Concept 1-Realign Powers Along Northgate Boulevard to Improved Northgate Interchange
Concept 2-Realign USAFA Entrance to meet Powers south at a New Interchange
Concept 3-Collector/Distributor Roads with Diamond Interchange at Northgate and New Powers Connection
Concept 4a-Diamond Interchange at Northgate with New Powers Connection and Limited USAFA Access
Concept 4b-Diamond Interchange at Northgate with New Fully Directional Interchange at Powers
Concept 5-New Powers Interchange and No Interchange at Northgate
Concept 6-Powers Alignment east of I-25 with north connection and Diamond Interchange at Northgate

Table 1

Build Concepts	Traffic			Safety	Access		Visual			
	Provide Powers I/C System-to-System Connection	Ability to Handle Special Event Traffic	Driver Expectancy	Ability to Meet Design Standards	Access to and from USAFA	Access to and from Gleneagle and local area	Ability to Use Natural Terrain	Minimize Flyover Structures	Avoid "Mixing Bowl" Effect	Maintain Arrival Atmosphere to USAFA
Concept 1 - Realign Powers along Northgate Road to Improved Northgate Interchange	+	+	+	+	+	+	-	-	-	-
Concept 2 - Realign USAFA Entrance to meet Powers south at a New Interchange	+	+	o	+	-	-	-	o	-	-
Concept 3 - Collector/Distributor Roads with Diamond Interchange at Northgate and New Powers Connection	o	+	o	+	+	+	+	+	+	+
Concept 4a - Diamond Interchange at Northgate with New Powers Connection and Limited USAFA Access	+	o	+	-	-	+	+	+	+	+
Concept 4b - Diamond Interchange at Northgate with New Fully Directional Interchange at Powers	+	o	+	-	+	+				
Concept 5 - New Powers Interchange and No Interchange at Northgate	+	-	-	+	-	-	+	+	+	-
Concept 6 - Powers Alignment east of I-25 with north connection and Diamond Interchange at Northgate	+	o	-	+	+	+	-	+	+	+

+ - Minimal Impact/Accommodates Goal
o - Neutral/Not Applicable

	Environmental				Security				Real Estate	
Ability to Maintain Buffer Areas	Potential Impacts to PMJM Habitat	Potential Impacts to Traditional Historic Resources	Potential Impacts to Wetlands	Potential Impacts to USAFA Historic Resources	Ability to Separate Traffic Uses Entering USAFA Gate	Ability to Maintain Distance between Trail and Guard Gate	Potential for Encroachment to Aircraft Clear Zones	Ability to Accommodate Expanded Operational Needs	Ability to Minimize Local Development Impacts	Ability to Minimize USAFA Real Estate Impacts
B	E	-	-	-	-	+	-	+	-	D
D	E	-	-	-	-	+	-	+	+	E
C	C	+	-	-	o	o	+	o	+	B
C	C	+	o	-	o	o	+	-	+	B
	B	+	o	-	o	o	+	-	+	B
A	B	+	-	-	+	o	+	-	+	A
B	D	+	-	-	o	o	+	o	+	C

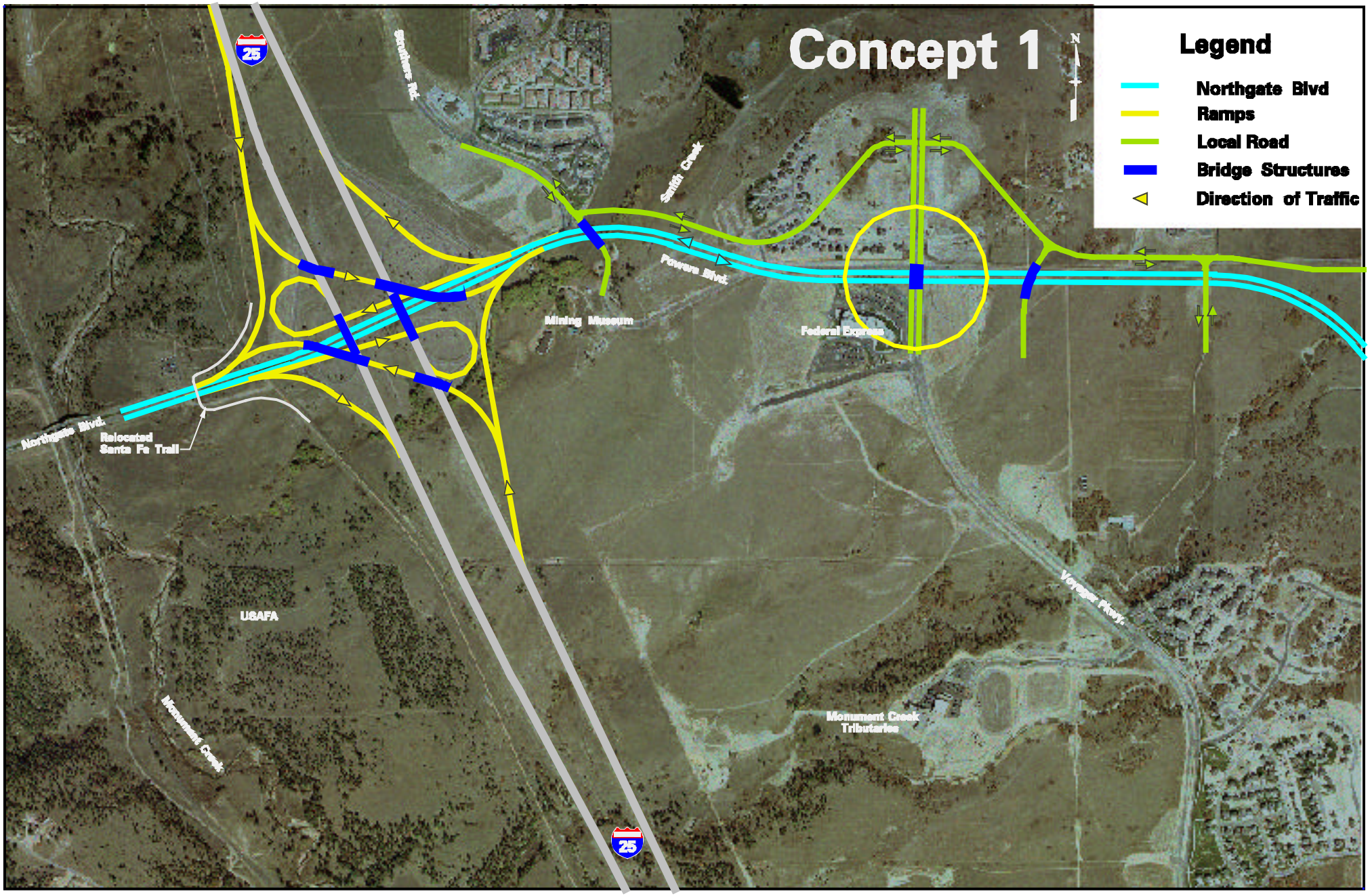

Concept 1
N
Legend
Northgate Blvd
Ramps
Local Road
Bridge Structures
Direction of Traffic
Struthers Rd.
Smith Creek
Powers Blvd.
Mining Museum
Federal Express
Northgate Blvd.
Relocated
Santa Fe Trail
USAFA
Monument Creek
Monument Creek
Tributaries
Voyager Pkwy.
25
25

Figure 1

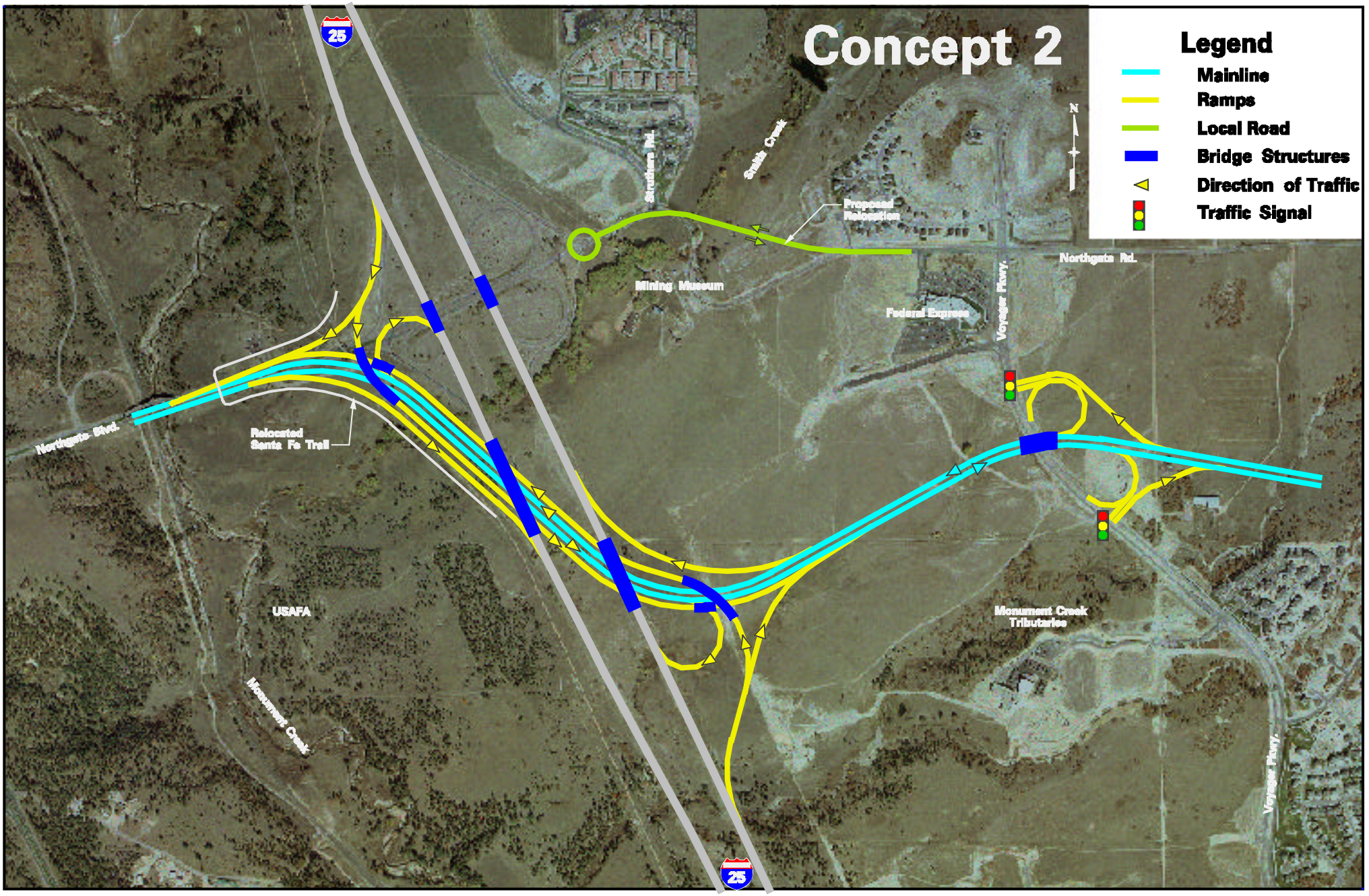

Concept 2
Legend
Mainline
Ramps
Local Road
Bridge Structures
Direction of Traffic
Traffic Signal
N
25
Struthers Rd.
Shuttle Creek
Proposed Relocation
Northgate Rd.
Mining Museum
Federal Express
Voyager Pkwy.
Northgate Blvd.
Relocated Santa Fe Trail
USAFA
Monument Creek
Monument Creek Tributaries
Voyager Pkwy.
25

Figure 2

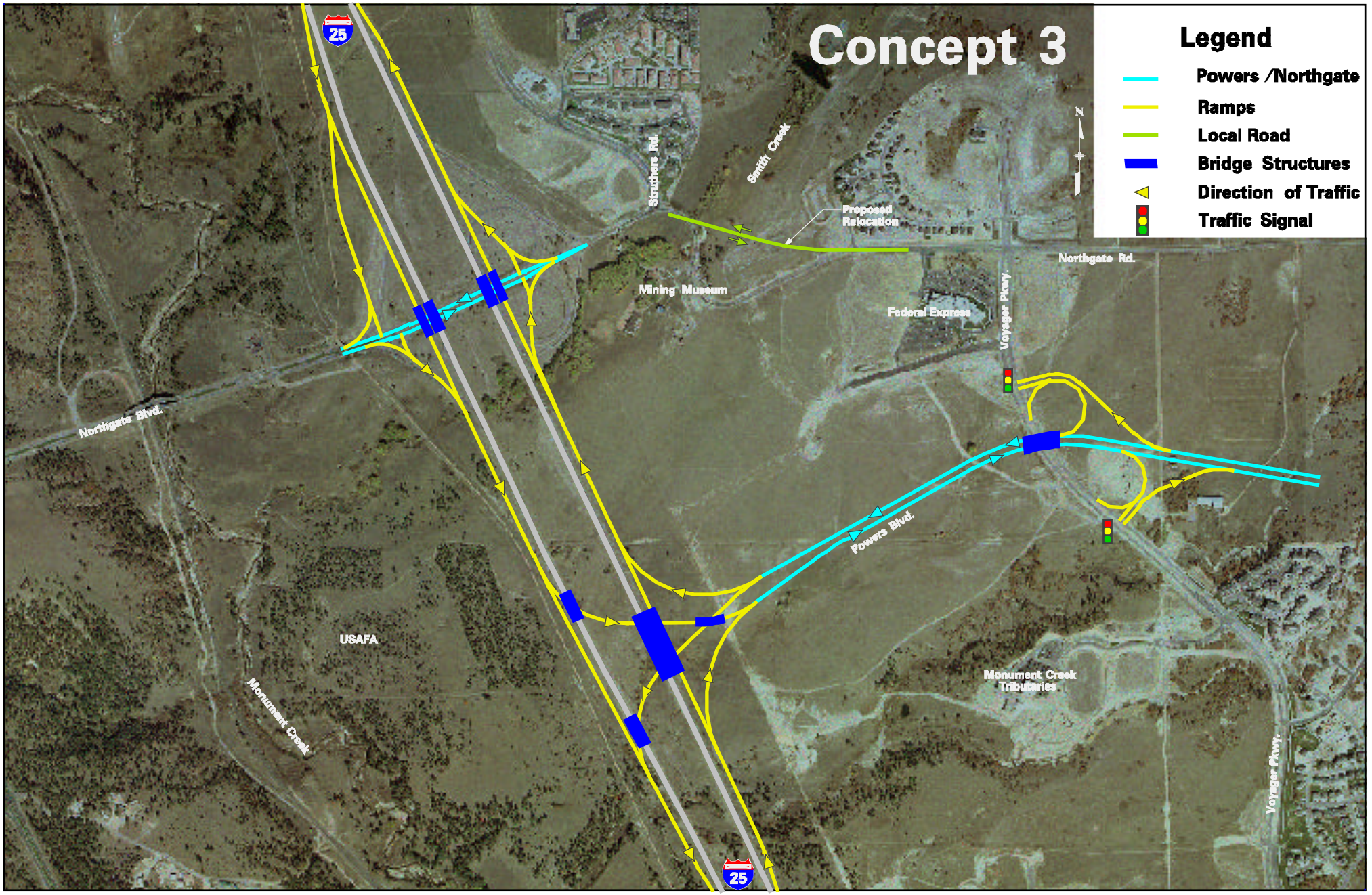

Concept 3
Legend
Powers /Northgate
Ramps
Local Road
Bridge Structures
Direction of Traffic
Traffic Signal
N
25
Struthers Rd.
Smith Creek
Proposed Relocation
Northgate Rd.
Mining Museum
Federal Express
Voyager Pkwy.
Northgate Blvd.
Powers Blvd.
USAFA
Monument Creek
Monument Creek Tributaries
Voyager Pkwy.
25

Figure 3

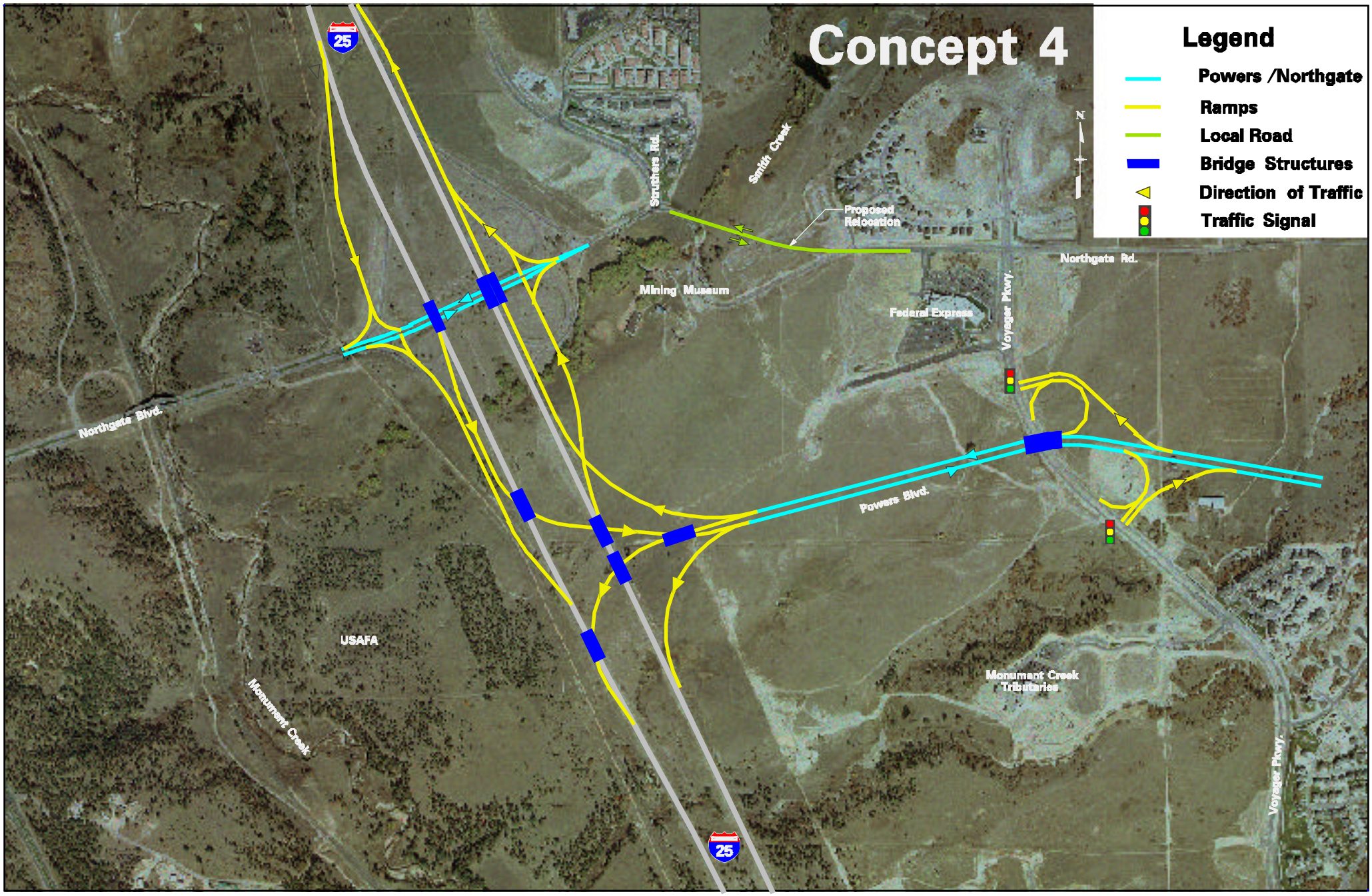
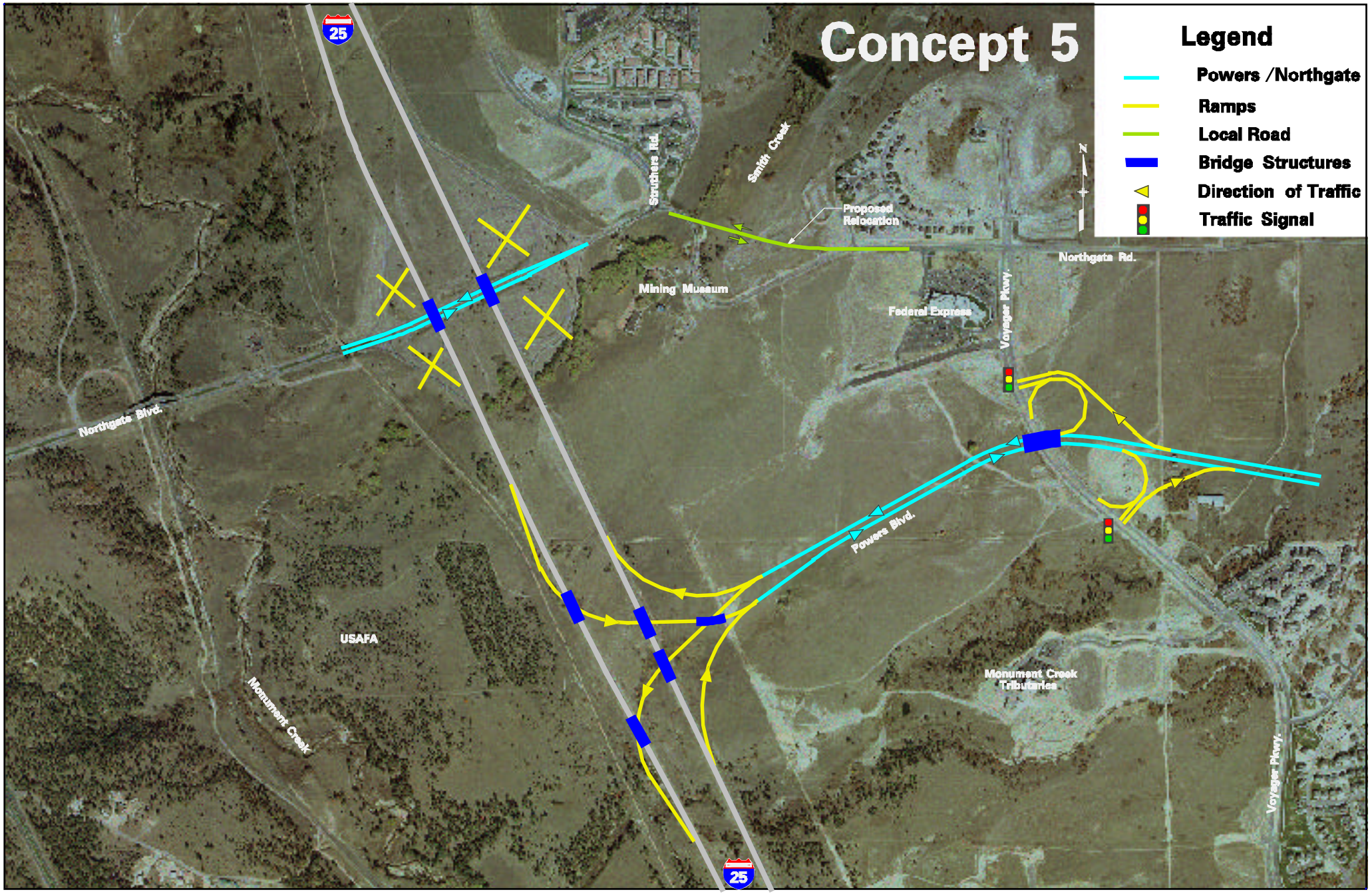

Concept 4
Legend
Powers /Northgate
Ramps
Local Road
Bridge Structures
Direction of Traffic
Traffic Signal
N
25
Struthers Rd.
Sanitk Creek
Proposed Relocation
Northgate Rd.
Mining Museum
Federal Express
Voyager Pkwy.
Northgate Blvd.
Powers Blvd.
USAFA
Monument Creek
Monument Creek Tributaries
Voyager Pkwy.
25

Figure 4


Concept 5
Legend
Powers /Northgate
Ramps
Local Road
Bridge Structures
Direction of Traffic
Traffic Signal
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Struthers Rd.
Smith Creek
Proposed Relocation
Northgate Rd.
Mining Museum
Federal Express
Voyager Pkwy
Northgate Blvd.
Powers Blvd.
USAFA
Monument Creek
Monument Creek Tributaries
Voyager Pkwy.
N

Figure 5

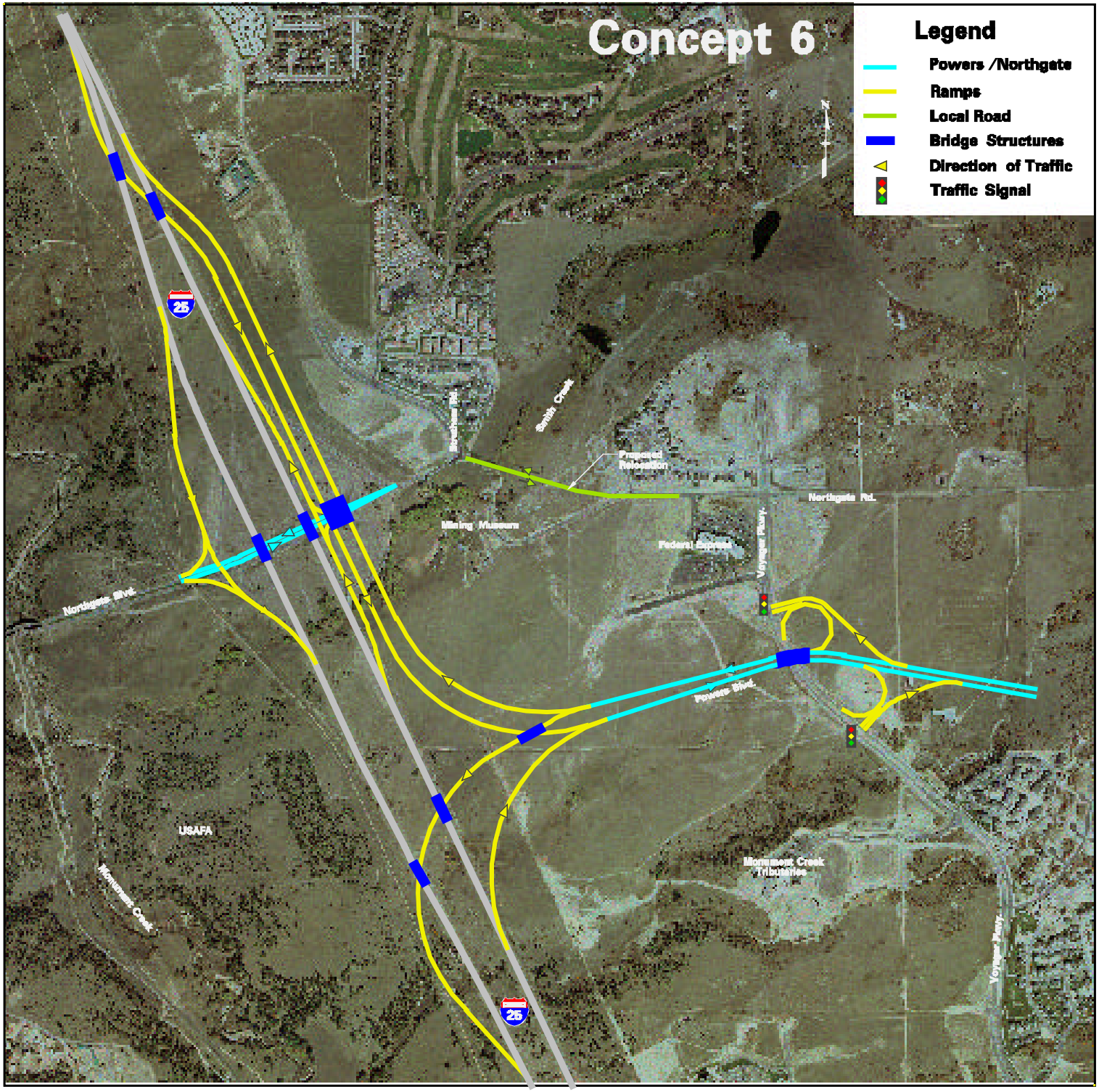
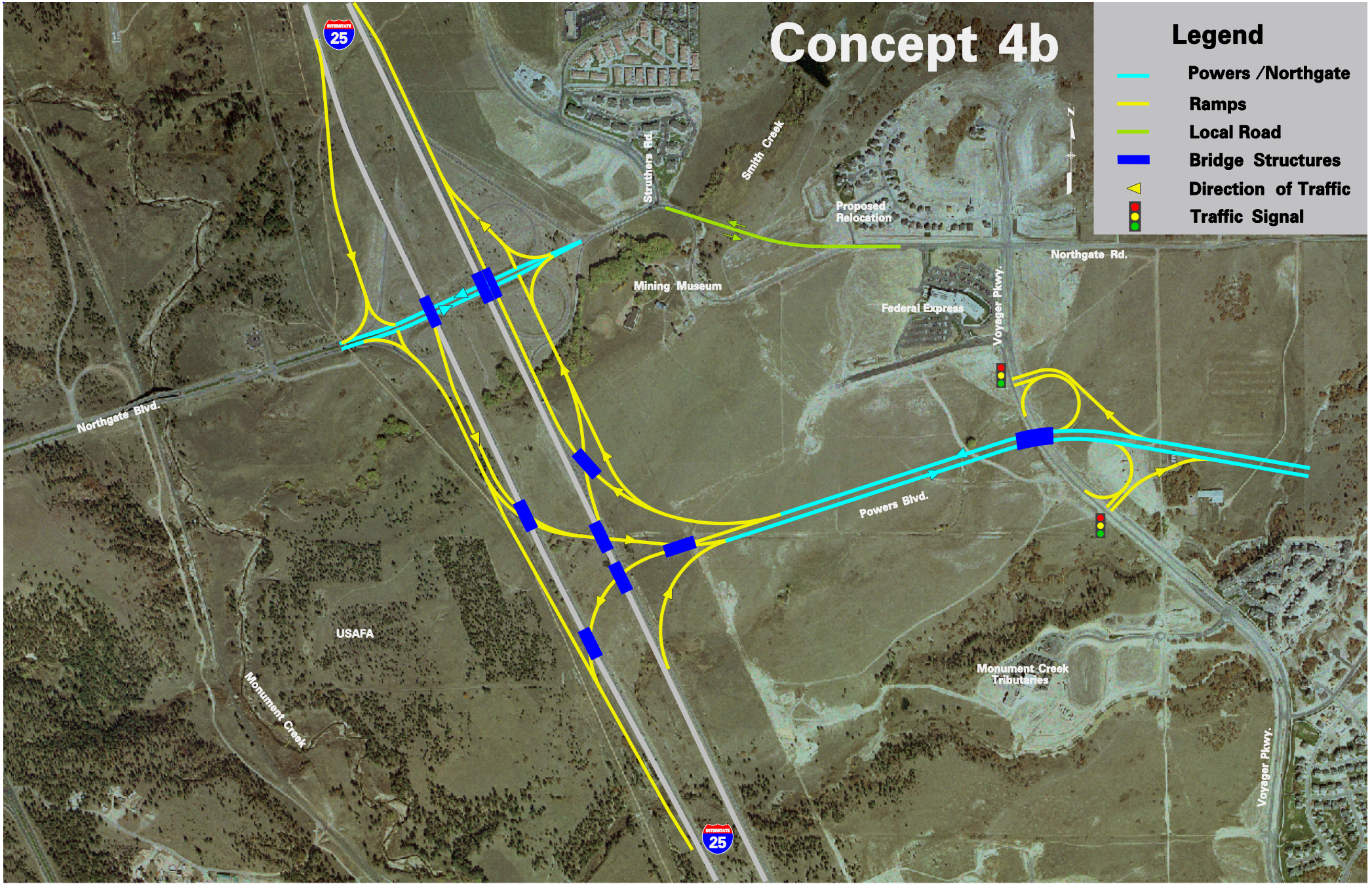

Concept 6
Legend
Powers /Northgate
Ramps
Local Road
Bridge Structures
Direction of Traffic
Traffic Signal
25
Briargate Rd.
Smith Creek
Proposed Relocation
Northgate Rd.
Mining Museum
Federal Express
Voyager Pkwy.
Northgate Blvd.
Powers Blvd.
USAFA
Monument Creek
Monument Creek Tributaries
25
Voyager Pkwy.

Figure 6


Concept 4b
Legend
Powers /Northgate
Ramps
Local Road
Bridge Structures
Direction of Traffic
Traffic Signal
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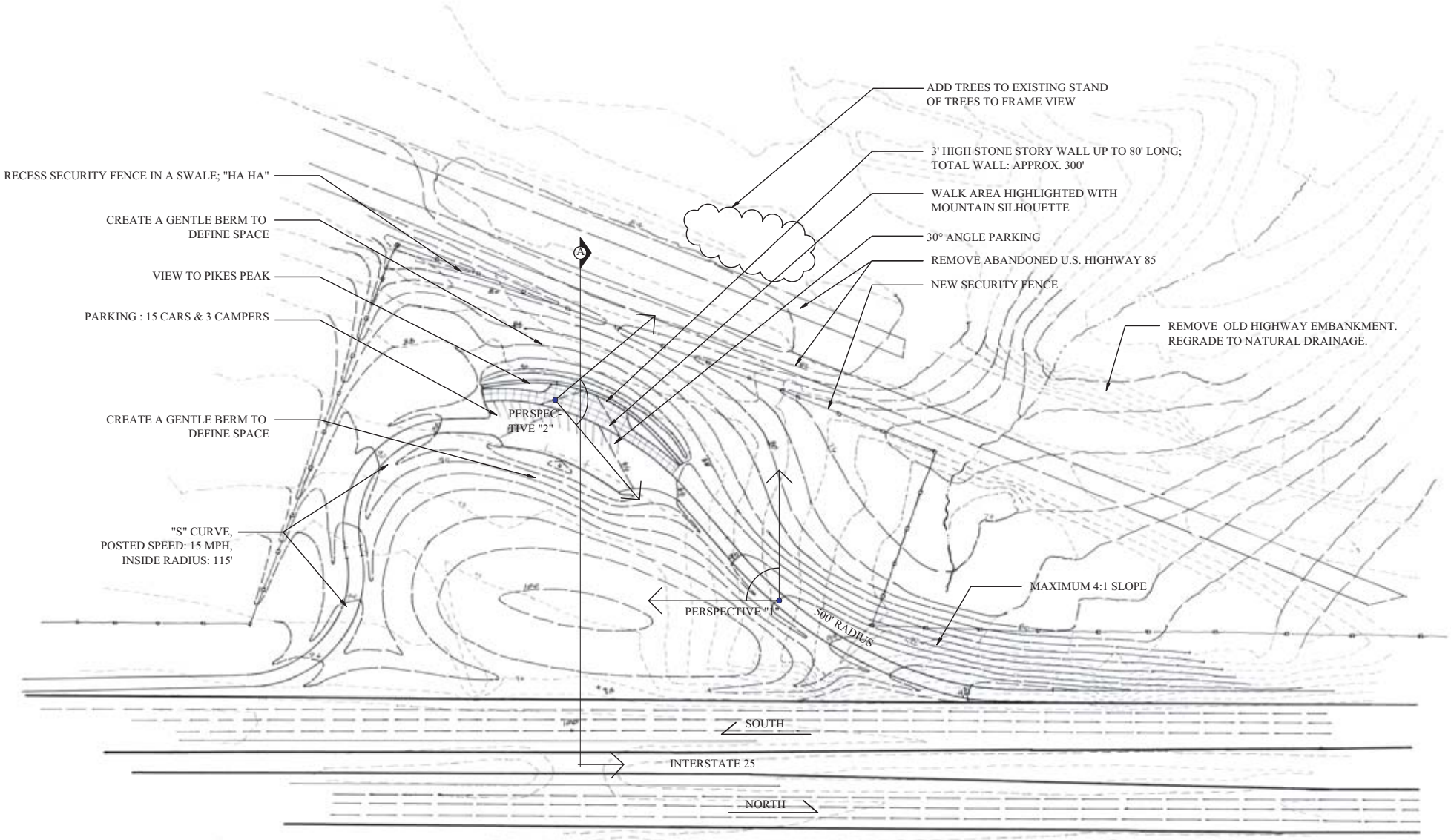
Smith Creek
Proposed Relocation
Northgate Rd.
Mining Museum
Federal Express
Voyager Pkwy.
Northgate Blvd.
Powers Blvd.
USAFA
Monument Creek
Monument Creek Tributaries
Voyager Pkwy.
25

Figure 7



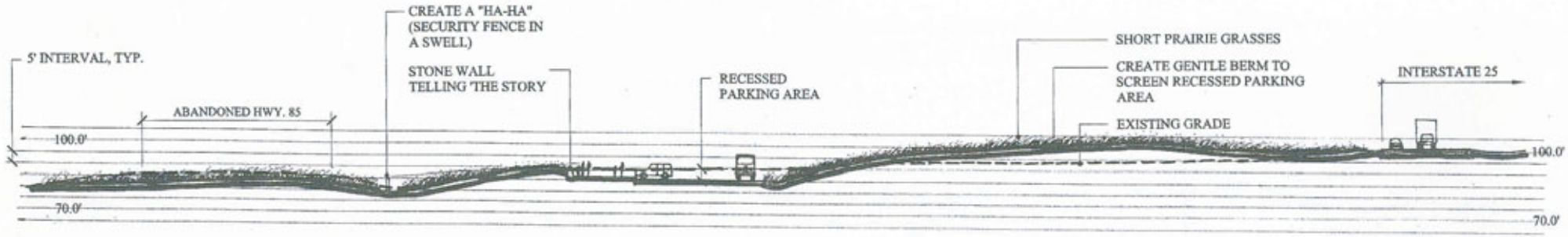
ACKERMAN OVERLOOK CONCEPT

I-25 AT AIR FORCE ACADEMY
EL PASO COUNTY

JANUARY 2003

NOTE:
Contours shown are approximate at 2' contour interval. Contours have been labelled using I-25 as 100' elevation.

th associates inc.
Scale 1" = 50'
North



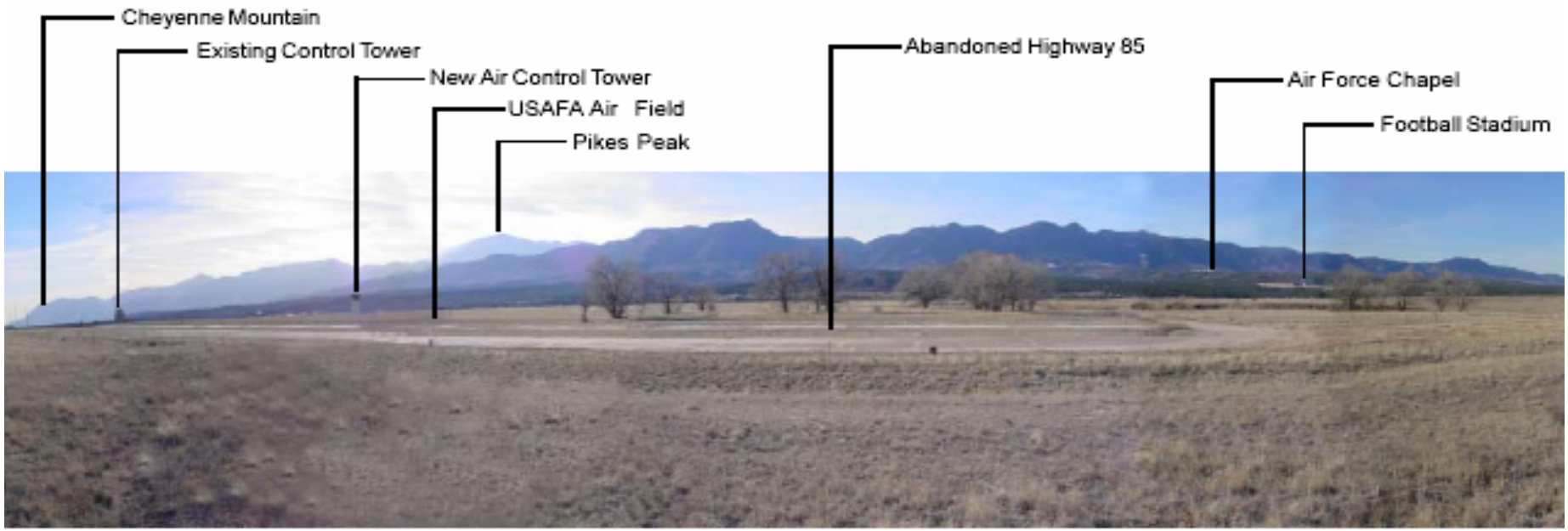
ACKERMAN OVERLOOK CONCEPT

I-25 AT AIR FORCE ACADEMY
EL PASO COUNTY

CROSS SECTION 'A'
LOOKING NORTH

JANUARY 2003

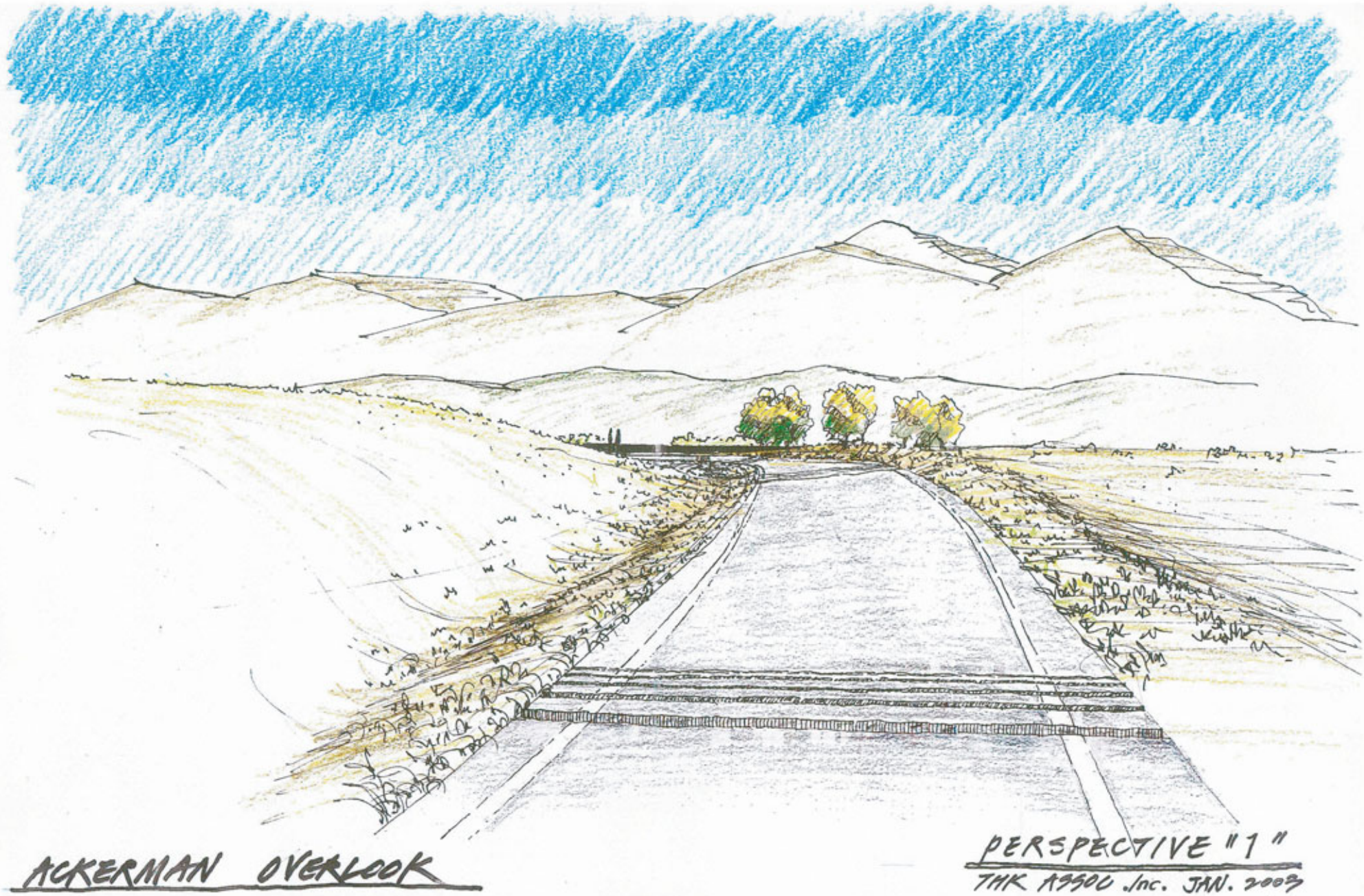
0 10 20 40
Scale

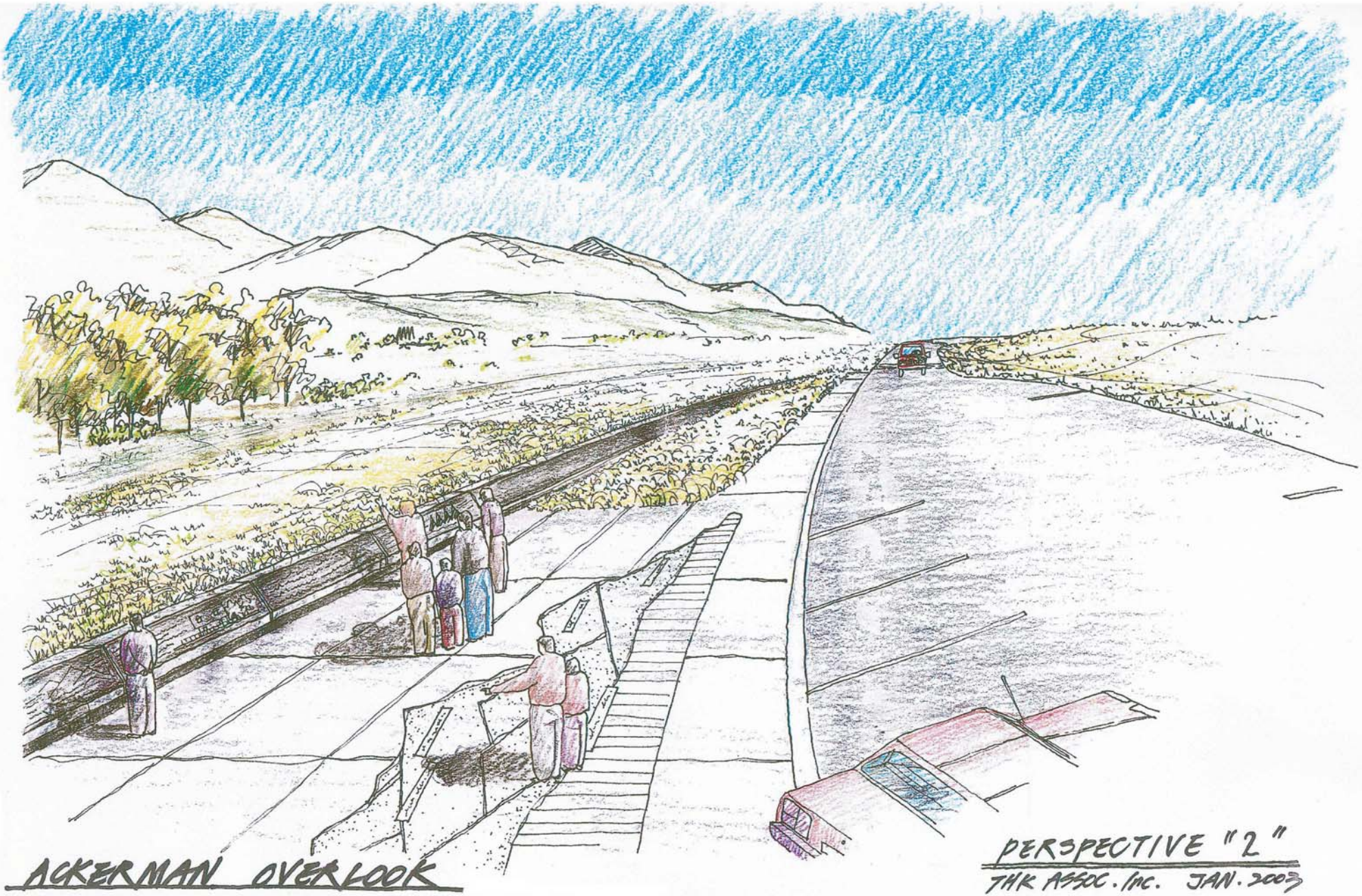


View From Approximate Site of Ackerman Overlook

Looking West

JANUARY 2003


ACKERMAN OVERLOOK
PERSPECTIVE "1"
THK ASSOC. Inc. JAN. 2003


ACKERMAN OVERLOOK
PERSPECTIVE "2"
THK ASSOC. Inc. JAN. 2003

A-E DESIGN ASSOCIATES, P.C.
526 SOUTH COLLEGE AVENUE
FORT COLLINS, COLORADO 80524
PHONE: 970-407-9970
FAX: 970-407-9977

DATE: May 1, 2003
TO: Robert Refvem, P.E.
FROM: Dick Beardmore, P.E.
SUBJECT: Colorado Springs Monument Valley Arch – Structural Integrity and Construction Phase Impact

Per your request, we have completed our review and engineering evaluation of this historic structure particularly with respect to its current structural integrity and the risk of potential structural damage as associated with the proposed Bijou Street Bridge Approach Improvement project.

Based on our cursory field investigations, the outlined construction and historical information, the existing construction detailing, present condition of the masonry and steel arch components, presumptive in-situ strength of the stone and mortar masonry and relative susceptibility to construction induced vibrations, the assumed nature of the proposed adjacent bridge approach construction impact, and the existing subsurface soils, it is our professional opinion that this stone masonry and steel arch structure is not susceptible to structural damage to the degree that its stability and structural integrity would be at risk during the anticipated construction activities. Companion to this is the opinion that, even if some minor damage does occur from construction related activity, the atypical nature of this structure (as more of an outdoor object versus a habitable building) significantly reduces, thus minimizes, the potential for significant personal and/or property damage. Moreover, this structure consists of relatively straight-forward and durable exterior construction materials, appears to have been well maintained and even recently repaired, is lightly loaded therefore low-stressed stone masonry, and is of such a mass, shape, and scale to remain relatively stable even if physically impacted.

To graphically convey the exiting conditions of this structure, please see the attached digital images (EC-1 trhough EC-5) recorded during our field investigations. These photographs also document the general construction detailing, geometry, and overall site and structural context.

With regard to any specific precautionary measures to be implemented during the bridge approach improvement project, we strongly recommend that a physical construction perimeter barrier be built to protect this structure. This pre-emptive approach should assist in reducing the likelihood that the arch might sustain any direct

damage from errant construction equipment. Without this barrier, it seems quite possible that the modest scale of this structure, combined with its immediate proximity within the anticipated construction battery limits, would result in it becoming an easy "target" for physical damage. Companion to this barrier recommendation is the need to field verify the limits of its foundation system (now hidden by turf and hard surface paving) prior to any active construction. Then, at a minimum, the installation of the recommended construction barrier outside of these existing foundation limits.

Respectfully submitted,

Richard S. Beardmore, P.E., President
for A-E Design Associates, P.C.

Colorado Springs Monument Valley Arch – Overall with site context as viewed from southeast

Colorado Springs Monument Valley Arch – Middle with site context as viewed from southeast

Colorado Springs Monument Valley Arch – East end as viewed from southeast

Colorado Springs Monument Valley Arch – West end as viewed from southeast

Colorado Springs Monument Valley Arch – Overall with site context as viewed from west

Colorado Springs Monument Valley Arch – East end as viewed from center (beneath arch)

Colorado Springs Monument Valley Arch – East end as viewed from northeast

Colorado Springs Monument Valley Arch – Overall with site context as viewed from west

Colorado Springs Monument Valley Arch – West end base plate

Colorado Springs Monument Valley Arch – West end as viewed from east base plate

Colorado Springs Monument Valley Arch – Masonry

Colorado Springs Monument Valley Arch – Closer view of masonry

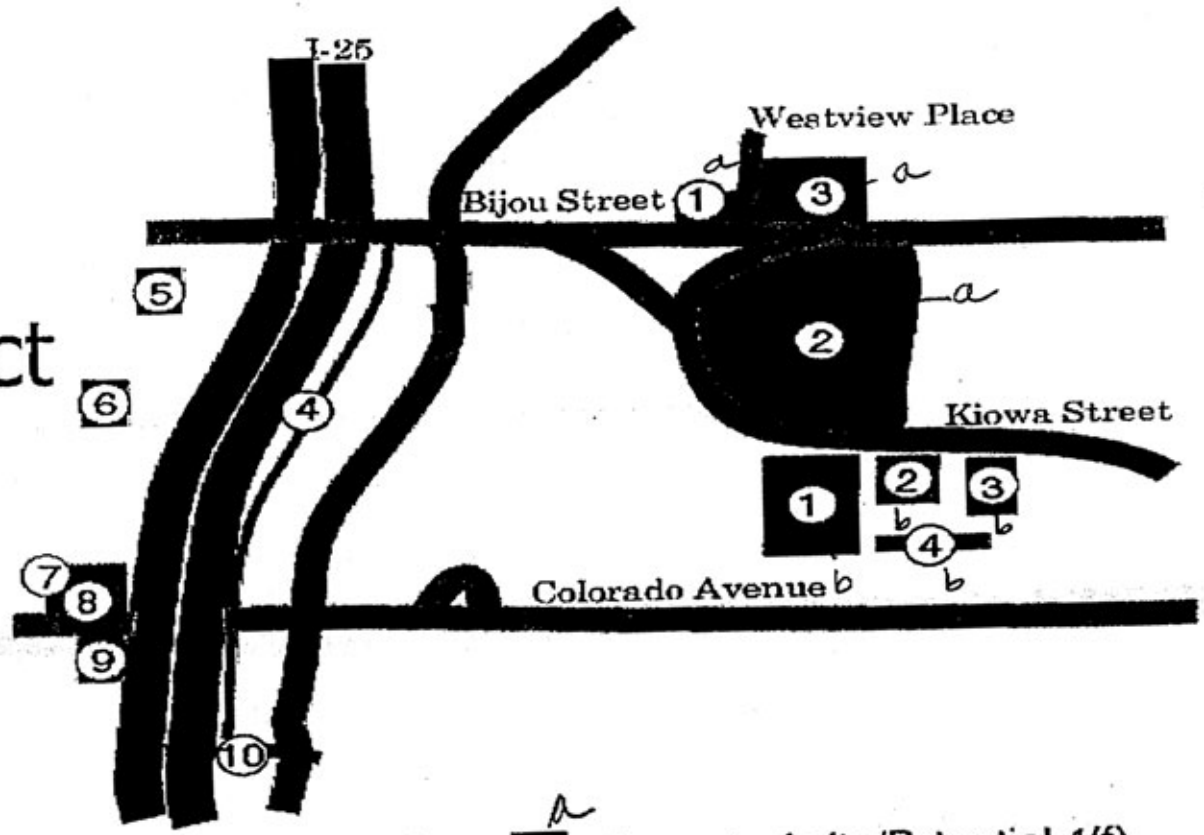
1a Monument Valley Park
Bijou Entrance

Eligible

4(f) issues:

- Grade reconstruction at NW corner of Bijou/Westview will require removal and replacement of portion of SE entrance to the Park (as seen above). Approximately 8750 sf
- No acquisition or conversion of parkland anticipated
- Grade change on Bijou will affect noise contours
- Grade change on Bijou will slightly impact viewscape

Applicable Properties within Project Study Area

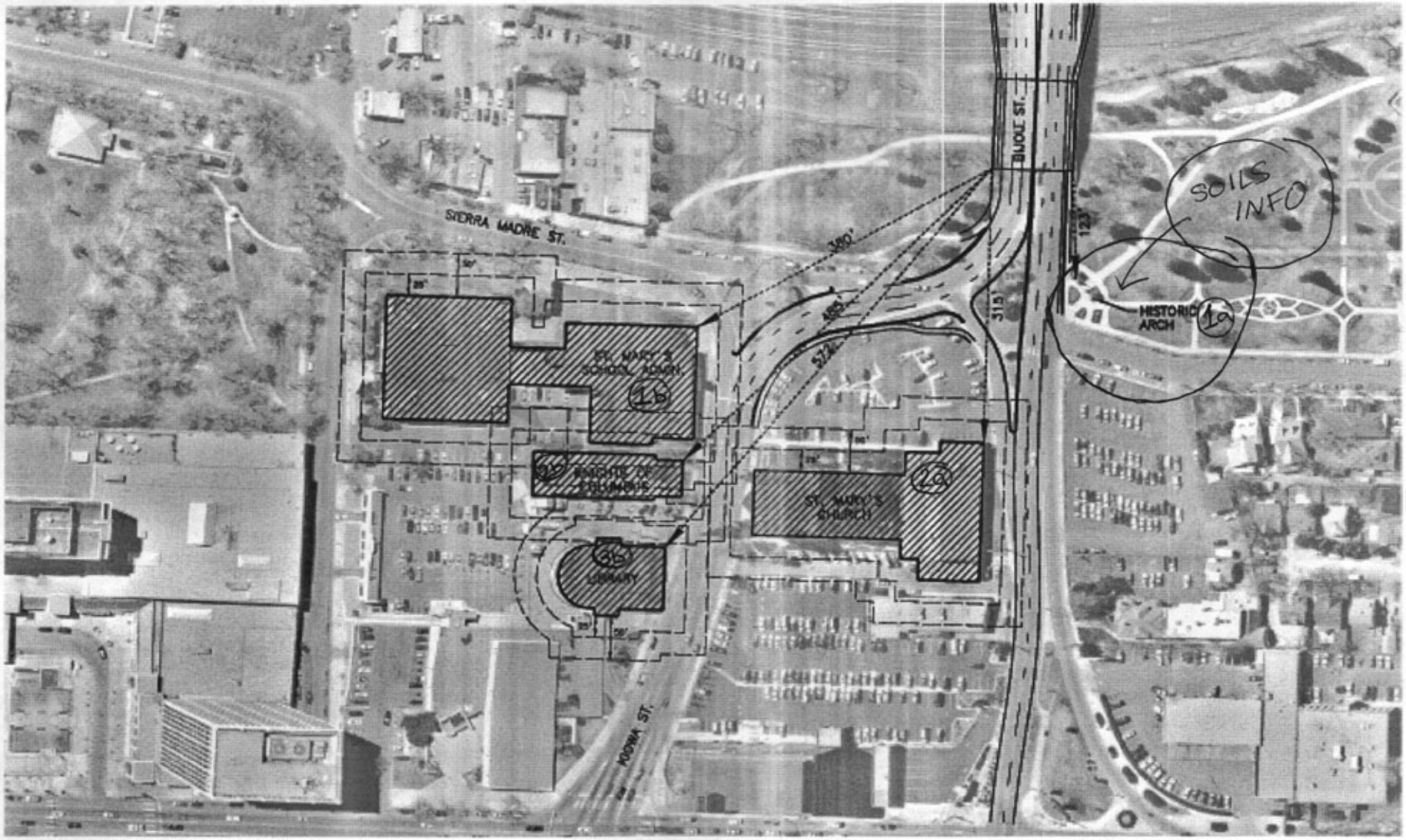


b - No impacts/No adverse effect

1. St. Mary's School
2. Knights of Columbus Hall
3. Carnegie Library
4. Antler's Garage
5. Residence
6. Residence
7. Harmon Auto Glass
8. City Glass
9. Koscove's Scrap Metal
10. Midland Railroad Corridor

a - Impacted site/Potential 4(f)

1. Monument Valley Park Entrance
2. St. Mary's Church and Parking Lot
3. Marion House and Parking Lot



FILSBURG HOLT & ULLEVIG

VIBRATION IMPACT EXHIBIT
BIJOU STREET AREA
CLOSEST CAISSON CONSTRUCTION

0 50 100
SCALE

FELSBURG HOLT & ULLEVIG

Memo

To: Elizabeth Stolfus

From: Stephanie Sangaline

CC: Rob Refvem

Date: October 31, 2002

Re: Cimarron-Bijou - Opinion of Vibration Impact to the **Historic Monument Valley Park Entrance Arch**

As requested, we have investigated the criteria and potential for vibration impact to an historic arch, located in close proximity to Bijou Street. The following information outlines the data reviewed, and our opinion of the potential impact.

Criteria Reviewed: Transit Noise and Vibration Impact Assessment – Final Report
April 1995
Prepared for the Federal Transit Administration (FTA), Washington, D.C.

It should be noted that this criteria manual is predominantly directed toward transit and train operation noise and vibration, as the source. Receivers are primarily residential properties, and buildings with vibration-sensitive equipment, such as electron microscopes.

However, there is some discussion regarding rubber-tire transportation corridors, and references to "fragile historic buildings", from which we developed this information and opinion.

There are two vibration scenarios to be considered:
1. On-going Vibration – permanent due to the highway corridor
2. Vibration during Construction – temporary due to construction activities

This memorandum includes the Summary of Findings and Recommendations, followed by the detailed analysis and exhibits.

Memorandum
October 31, 2002

Summary of Findings and Recommendations

On-going Vibration –

The historic arch is about 8 feet from the curb face of Bijou Street. This roadway is traveled regularly by a variety of vehicles.

From observation only, it appears the arch is a heavy masonry or stone structure. This type of material would not propagate vibration easily. Area geology does not support the conclusion that on-going vibration impact, even as a result of current traffic, is a problem. Due to the close proximity of existing driving lanes that are not restricted as to size, weight and type of vehicle usage, it is not anticipated that the arch will experience any more intense on-going vibration than exists currently.

To further refine this evaluation, verification of materials and foundation type would be needed. In the absence of additional data, and to support this opinion of no *additional* on-going vibration impact, a "current condition" photo log of the arch should be taken to document its baseline condition prior to and following construction associated with this project. It is suggested that similar views be taken once prior to construction, and two times following construction (immediately following and 3-6 months following) to inspect for changes as a result of on-going close proximity roadway usage.

To firmly document the effects of vibration on this historic arch as a result of this project, a full structural evaluation could be completed. Following construction, a follow up evaluation and documentation would verify the effects, if any, as a result of this project.

Vibration During Construction –

Historic Arch –

Allowable Activities:

1. Calculations for caisson drilling activities result in vibration levels well below allowable thresholds for "extremely fragile historic buildings." Therefore no vibration impact as a result of caisson drilling at 123 feet is anticipated.

2. Pavement removal and earthwork activities using small bulldozers at a distance of 8 feet results in no vibration impact as a result of these activities.

Restricted Activities:

1. Pavement removal and earthwork activities using jackhammers and large bulldozers are restricted. Jackhammers should not be used closer than 11'-0" to the arch. Large bulldozers should not be used closer than 20' – 6" to the arch to avoid impact as a result of vibration.

2. Construction traffic of all types, most notably loaded trucks, are restricted to not closer than 18' – 6" to the arch to avoid impact as a result of vibration.

Recommendations:

1. Produce a photo log of the arch prior to and following construction
2. Provide demarcation (fencing/cones) to limit proximity of construction equipment to the allowable distance
3. Provide the Contractor with written and oral instruction regarding construction limitations

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NOTE: Calculations and results are for the distances shown on the attached exhibits and the equipment listed only. No assumptions should be made with regard to other distances or other types of equipment without revisiting the FTA guidelines for the specific scenario in question.

Detailed Analysis and Exhibits

On-going Vibration:

Levels of Vibration -
The background vibration velocity level in residential areas is usually 50 VdB (vibration decibels) or lower, well below the threshold of perception for humans which is around 65 VdB. Typical outdoor sources of perceptible ground-borne vibration are construction equipment, steel-wheeled trains, and traffic on rough roads. If the roadway is smooth, the vibration from traffic is rarely perceptible.

The attached Figure 7-3 from the FTA manual illustrates common vibration sources and human and structural response to ground-borne vibration. The range of interest is from approximately 50 VdB to 100 VdB. Background vibration is usually well below the threshold of human perception and is of concern only when the vibration affects very sensitive manufacturing or research equipment. Electron microscopes and high-resolution lithography equipment are typical of equipment that is highly sensitive to vibration.

Although the perceptibility threshold is about 65 VdB, human response to vibration is not usually significant unless the vibration exceeds 70 VdB. This is a typical level 50 feet from a rapid transit or light rail system. Buses and trucks rarely create vibration that exceeds 70 VdB unless there are bumps in the road.

The guidelines indicate that it is extremely rare for vibration from *train* operations to cause any sort of building damage, even minor cosmetic damage. However, there is sometimes concern about damage to fragile historic buildings. Even in these cases, damage is unlikely except when the *track* will be very close to the structure. In terms of roadways with rubber tire vehicles, most complaints about vibration caused by buses and trucks are related to rattling of windows or items hung on the walls. These vibrations are usually the result of airborne noise and not ground-borne vibration. In the case where ground-borne vibration is the source of the problem, the vibration can usually be related to potholes, some sort of bump in the road, or other irregularities.

Receiving Structures -
The vibration levels inside a building are dependent on the vibration energy that reach the building foundation, the coupling of the building foundation to the soil, and the propagation of the vibration through the building. The general guideline is that the heavier the building is, the lower the response will be to the incident vibration energy. Wood frame buildings, such as the typical residential structure, are more easily excited by ground vibration than heavier buildings. In contrast, large masonry buildings with spread footings have a low response to ground vibration.

There is no specific information regarding structures, other than buildings. Therefore this arch is evaluated as though it is an historic building. Based on observation only, it appears the materials of the arch are masonry or heavy stone, which would not typically support high propagation of vibration.

Geology –
The FTA guidelines indicate that there are situations where ground-borne vibration propagates much more efficiently than normal. The result is unacceptable vibration levels at distances two to three times the normal distance. Unfortunately, the geologic conditions that promote efficient propagation have not been well documented and are not fully understood. Shallow bedrock or stiff clay soil often are involved. One possibility is that shallow bedrock acts to keep the vibration energy near the surface. Much of the energy that would normally radiate down is directed back towards the surface by the rock layer with the result that the ground surface vibration is higher than normal. Generally, it is more difficult to get vibration energy into rock. Therefore, propagation through rock usually results in lower vibration than propagation through soil. Some geologic

conditions are repeatedly associated with efficient propagation. Shallow bedrock, less than 30 feet below the surface, is likely to have efficient propagation. Other factors that can be important are soil type and stiffness. In particular, stiff clayey soils have sometimes been associated with efficient vibration propagation.

In order to effectively determine if vibration propagation occurs to a facility, it is best to review available geological data and any complaint history from the facilities where the propagation is possible.

Review of the closest soil borings to the arch indicate that under 1-2 feet of base course/paving or fill material, the soil is clayey sand and sandy clay or sand to a depth of between 38 and 53 feet, underlain by claystone bedrock. The bedrock does not appear to be shallow enough to enhance vibration propagation. The soil type is not described as stiff, and therefore also is not likely to have efficient propagation of vibration.

Other Considerations -
Calculations were completed as part of the Vibration During Construction portion of the analysis (next section) regarding distance between "loaded trucks" and "extremely fragile historic buildings." Those calculations determined that loaded trucks could have a vibration impact on extremely fragile historic buildings at a distance of 18'-6" or closer. This is mentioned in the On-going Vibration discussion because the existing pavement and driving lanes in the vicinity of the arch are less than the allowable 18'-6". This distance is not a result of this project, but rather an existing condition. Therefore on-going vibration from loaded trucks, of any kind, within 18'-6" of the arch may be having a vibration impact as the trucks travel in the close proximity lanes currently.

Conclusions -
Due to the observed arch materials along with the area geology, it is not anticipated that on-going vibration impact as a result of this project will occur. Due to the close proximity of existing driving lanes that are not restricted as to size, weight and type of vehicle usage, it is not anticipated that the arch will experience any more intense on-going vibration than exists currently.

Vibration during Construction:
The FTA manual provides a procedure for estimating the potential vibration at sensitive structures based on the distance from the equipment to the structure, and the type of equipment to be used. To use this procedure, we identified the closest construction activities to the arch, and the anticipated types of equipment at each of those locations. The attached exhibit shows those activities and distances.

The equation used is as follows:

$$PPV_{equip} = PPV_{ref} \times [25/D]^{1.5}, \text{ where}$$

PPV_{equip} = peak particle velocity in in/sec of the equipment adjusted for distance
PPV_{ref} = reference vibration level in in/sec at 25 feet (from attached Table 12-2)
D = distance from the equipment to the receiver

The "vibration damage" threshold criterion for "extremely fragile historic buildings" is 0.12 in/sec (or 95 VdB). The following tables summarize the findings of this analysis for each structure.

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Historic Arch

Activity	Distance (D) (ft)	Equipment	PPV $_{ref}$ (In/sec)	PPV $_{equip}$ (in/sec)	Threshold Criteria (in/sec)	Comments	Distance from structure at which activity is allowable
Caisson drilling for new bridge	123	Caisson drilling	0.089	0.0082	0.12	Well below threshold	N/A
Pavement removal / earthwork	8	Large bulldozer	0.089	0.4917	0.12	**Above allowable threshold**	Closest distance for this equipment is 20'-6"
Pavement removal	8	Jackhammer	0.035	0.1933	0.12	**Above allowable threshold**	Closest distance for this equipment is 11'-0"
Construction Traffic – Loaded Trucks *	8	Loaded trucks	0.076	0.4198	0.12	**Above allowable threshold**	Closest distance for this equipment is 18'-6"
Pavement removal / earthwork	8	Small bulldozer	0.003	0.0166	0.12	Well below threshold	N/A

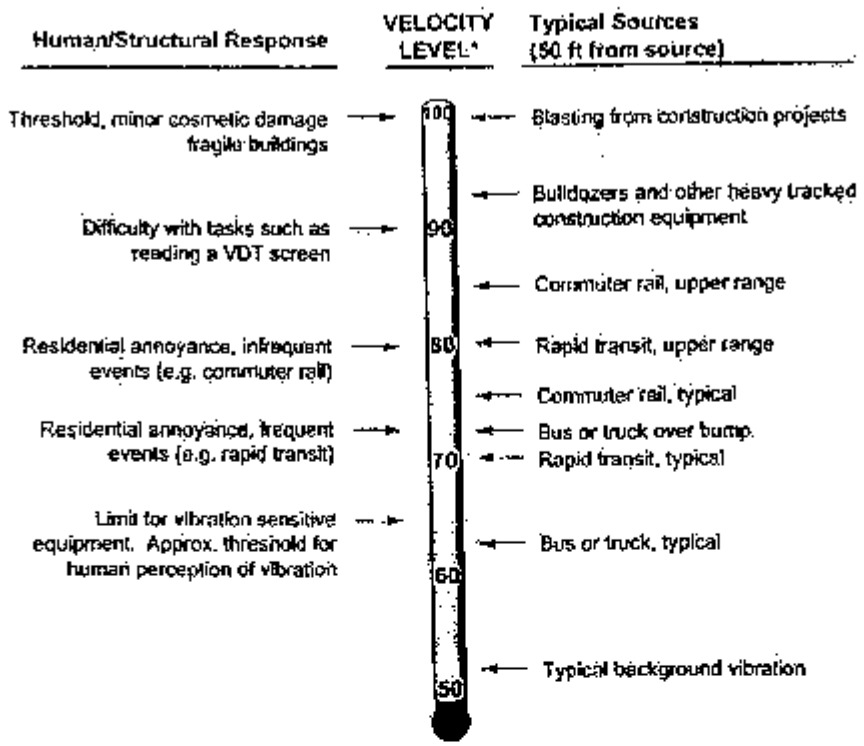
* It should be noted that the existing pavement and driving lanes in the vicinity of the arch are 8 feet away. This distance is not a result of this project. This analysis indicates that vibration from loaded trucks may be having an impact on this structure as they travel in the close proximity lanes currently. A current condition photo log of this feature should be taken to document the baseline condition of the arch, prior to construction associated with this project. Otherwise, vibration impacts to the arch that may be a result of past and current traffic in close proximity, may be misconstrued as being a result of activities associated with this project.

Consideration of annoyance or interference with vibration-sensitive activities is evaluated separately by calculating the vibration level, L_v, at any distance, D, from the construction activity. Because the historic arch does not house any habitable space or contain any potentially vibration sensitive equipment, this calculation does not apply to this feature, and was not completed as part of this evaluation.

Based on the results of this evaluation, it is not anticipated that the proposed project will have vibration impacts on the arch during construction.

Although none of the construction activities are anticipated to have vibration impacts on the historic arch, the FTA manual provides guidance regarding avoidance of potential vibration which can be included in the construction specifications or in an agreement with or instructions to the Contractor. These guidelines offer suggestions regarding design considerations, sequencing of operations, and construction methods which will help control the level of vibration.

Attachments
FTA Figure 7-3 Typical Levels of Ground-Borne Vibration
FTA Table 12-2 Vibration Source Levels for Construction Equipment
Vibration Impact Exhibit – Bijou Street Area (1 – 11 x 17 exhibit)
- Closest Caisson Construction
- Closest Pavement Removal



** RMS Vibration Velocity Level in VdB relative to 10^{-6} inches/second*

Figure 7-3 Typical Levels of Ground-Borne Vibration

Table 12-2 Vibration Source Levels for Construction Equipment (From measured data.[approximate])

Equipment		PPV at 25 ft (in/sec)	Approximate L_v[†] at 25 ft.
Pile Driver (impact)	upper range	1.518	112
	typical	0.644	104
Pile Driver (sonic)	upper range	0.734	105
	typical	0.170	93
Clam shovel drop (slurry wall)		0.202	94
Hydromill (slurry wall)	in soil	0.008	66
	in rock	0.017	75
Large bulldozer		0.089	87
Caisson drilling		0.089	87
Loaded trucks		0.076	86
Jackhammer		0.035	79
Small bulldozer		0.003	58

† RMS velocity in decibels (VdB) re 1 μinch/second