

SECTION 4

Cumulative Impacts

Environmental regulations implementing the National Environmental Policy Act (NEPA) require federal agencies to consider direct, indirect, and cumulative effects of a proposed federal action. Direct and indirect effects are discussed earlier in Section 3 of this I-25 Environmental Assessment. Cumulative effects are discussed below.

Cumulative effects, or impacts, result from the incremental impact of an action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over time.

If an individual project has no direct or indirect effects upon a resource, then it also has no cumulative effects upon that resource. According to federal guidance, cumulative effects analysis should focus on resources that are important and relevant (“Count what counts”).

Regional Cumulative Effects Analysis

This Environmental Assessment for Interstate 25 capacity improvements was begun by the Colorado Department of Transportation at a time when Environmental Assessments for several other transportation projects in the region were also imminent. Environmental Assessments for capacity improvements on Powers Boulevard and Woodmen Road are indeed well underway, while a South Metro Accessibility Study will evaluate east-west corridor solutions in the general vicinity of Drennan Road.

Recognizing the potential for multiple environmental processes to be looking separately at cumulative effects, CDOT with the cooperation of various community groups, resource experts, and citizens has prepared a cumulative effects resource document entitled, *Sustaining Nature and Community in the Pikes Peak Region (A*

As a basis for analyzing cumulative effects in this EA and for other transportation projects, CDOT prepared a report entitled, *Sustaining Nature and Community in the Pikes Peak Region (A Sourcebook for Analyzing Regional Cumulative Effects)*.

Sourcebook for Analyzing Regional Cumulative Effects). This document examines big-picture environmental trends in the region, based on the assumed implementation of current land use and transportation plans, including the projects listed above. The document is included in the Technical Appendices to this EA.

The goals of the regional cumulative effects analysis were to provide a regional framework for evaluating the cumulative effects of the four transportation projects, and to develop comprehensive strategies to reduce, mitigate, or reverse negative environmental trends and support sustainability and quality of life in the Pikes Peak region.

Two expert panels focused on community resources and natural resources, respectively, and identified as their overall goals the sustainability of quality of life (people’s overall well-being) and biodiversity (variety of life in all of its forms, including ecosystem diversity). The study uses the concept of sustainability as an approach for addressing cumulative effects in the region, and identifies the following topics, or “indicators,” to frame sustainability issues:

- A. Landscape Patterns
- B. Water Quality and Quantity
- C. Air Quality
- D. Transportation Patterns
- E. Noise Levels
- F. Visual Character

The elements listed above relate in various ways to the resources analyzed in this EA. For example, the Landscape Patterns topic addresses several of the resources, including Land Use, Parks and Trails, Historic and Cultural Resources,

Threatened and Endangered Species, Wetlands, and Floodplains. A list identifying the corresponding sections between the National Environmental Policy Act topics and the Cumulative Effects Analysis is provided in Table 4-1.

TABLE 4-1
Corresponding Sections Between the National Environmental Policy Act Topics and the Cumulative Effects Analysis

National Environmental Policy Act (NEPA) Topic	Corresponding Section of Cumulative Effects Analysis
Land use	Landscape Patterns
Traffic	Traffic Patterns
Air quality	Air Quality
Noise	Noise Levels
Farmlands	Landscape Patterns
Section 4(f) / 6(f)	Landscape Patterns
Ecology	Landscape Patterns
Threatened or endangered species	Landscape Patterns
Wetlands	Landscape Patterns
Floodplains	Landscape Patterns
Hydrology	Landscape Patterns Water Quality and Quantity
Water Quality	Water Quality and Quantity
Senate Bill 40 (Wetlands approval by the Colorado Division of Wildlife)	Landscape Patterns
401 Permit (Clean air)	Air Quality
402 Permit (Clean water)	Water Quality and Quantity
404 Permit (Wetlands)	Landscape Patterns
Visual	Visual Character

The regional cumulative effects analysis generally looked backward in time as far as to the mid-1950s, and as far forward in time as the year 2025, which is the planning horizon year for the *PPACG Destination 2025 Regional Transportation Plan*. Community resources were examined within the framework of political boundaries (the planning region covered by the Pikes Peak Area Council of Governments), while natural resource issues were more conducive to examination in terms of watersheds (primarily, the south-flowing Fountain

Creek and Chico Creeks watersheds, but also the north-flowing Kiowa and Cherry Creek watersheds within El Paso County).

The regional cumulative effects analysis noted that appropriate timeframes for examining individual environmental resources vary, depending on data availability and other factors pertaining to the resource in question. It should be noted that the alignment of I-25 through Colorado Springs was studied and selected in the 1940s, and the roadway was constructed during the late 1950s, opening in 1960. At that time, environmental data was not collected consistently, or, in the case of some environmental resources, not collected at all. For example, air quality data was not collected prior to the passage of the Clean Air Act of 1970.

A. Landscape Patterns

The arrangement of landscape components is critical from both a biological and human perspective. Appropriate landscape patterns can help sustain quality of life and biodiversity. This is because people need access to such places as factories, offices, schools and stores, and wildlife need access to places for eating, finding cover, breeding and drinking. If the needed resources aren't accessible, life can be difficult or impossible.

Landscape patterns do not focus on the narrow aesthetic issue of landscaping, but rather address the broad overall form and function of land use patterns in terms of how well they serve the needs of people and nature.

Landscape Patterns: Past

The population of El Paso County was approximately 144,000 in 1960, and the City of Colorado Springs had approximately 70,000 residents. In terms of population, the Colorado Springs was smaller than the City of Pueblo was in 1960, when I-25 was opened through both cities (Today, Colorado Springs is about three times the size of Pueblo). Interstate 25's construction did displace homes and businesses, but the roadway paralleled already existing linear barriers in the form of freight railroad tracks and Monument Creek.

A study that ultimately led to the alignment of I-25 in its current location had considered other alternative alignments, including one on the eastern edge of development, Union Boulevard.

However, like most other “big” cities, Colorado Springs chose to have the freeway built to provide convenient access to the central business district downtown.

A major impetus for growth in the region has been the establishment and growth of military bases, including Fort Carson, Ent Air Force Base (now the U.S. Olympic Training Center), the U.S. Air Force Academy, the North American Air Defense Command, Peterson Air Force Base, and Falcon Air Station (now Schriever Air Force Base). Most recently, in the aftermath of the September 11, 2001, terrorist attacks, Colorado Springs was also selected as the headquarters for the Northern Command, which is the nerve center for dealing with any future attacks against the American homeland.

These military installations transformed a once sleepy resort city into Colorado’s second largest metropolitan area. Growth boosters in the 1960s were proud of their “space-age” city. The influx of military personnel generated demand for housing, durable goods, and consumer goods and services. Many retirees from the military bases enjoyed the Colorado Springs climate and decided to make the region their permanent home.

In the City, historic old downtown buildings gave way to newer, taller office buildings, and parking garages have sprung up to shelter growing numbers of solo-driving commuters. High-tech firms discovered the region in the 1980s and added to the region’s growth, often pioneering new suburban growth clusters, such as along Garden of the Gods Road. Growth followed Interstate 25 northward, partly due to the lack of other major roadways in the region. The Briargate area in northern Colorado Springs sprang up to house incoming job seekers.

Conversion of land from prairie grasslands and ranches to urban uses has eliminated vast quantities of wildlife habitat, gradually displacing species such as the pronghorn that require wide open spaces. The growth in population not only consumed land, it also consumed resources. Aggregates were needed for roads, homes, and other structures, which required the mining of mountain slopes and streams. The solid wastes generated by the growing population resulted in the need for large landfills.

Increased vehicle traffic on more and more roads have fragmented habitats and created barriers to animal movement, while also helping to disperse the seeds of noxious and invasive plants. Other grassland species native to the semi-arid Pikes Peak region have been displaced as increasing numbers of human inhabitants planted countless non-native trees and Kentucky bluegrass lawns. Native species of mammals and birds have given way to opportunistic species better adapted to the urban forest.

Landscape Patterns: Present

Today, the Interstate 25 corridor is largely developed, and the ultimate inadequacies of 1960s-era interchange designs for third millennium traffic volumes has led to interchange reconstruction and other safety projects that reinforce I-25’s linear barrier qualities. Five existing noise walls along the corridor add to this perception.

Downtown Colorado Springs has developed into a vibrant center of office buildings, restaurants and small shops. Academy Boulevard is lined with “big box” retailers, but is starting to lose business to the next wave of big boxes along Powers Boulevard. Residential growth is surging east of Powers Boulevard, and thousands of new residents have chosen to live further east (out to Falcon or Peyton via Woodmen Road or US Highway 24) or up Ute Pass to high-altitude Woodland Park or points further west. Noticeable amounts of infill development are occurring within Colorado Springs as long-vacant lots are giving way to final buildout. More lights than ever before shine at night from homes nestled along the foothills below Pikes Peak and Cheyenne Mountain.

The U.S. Air Force Academy, once the only sign of civilization in northern El Paso County, is rapidly becoming surrounded by suburbia and has become the only respite from civilization. Development pressure nearby has adversely impacted the riparian habitat of the Preble’s meadow jumping mouse, which was listed as a Threatened Species in 1997.

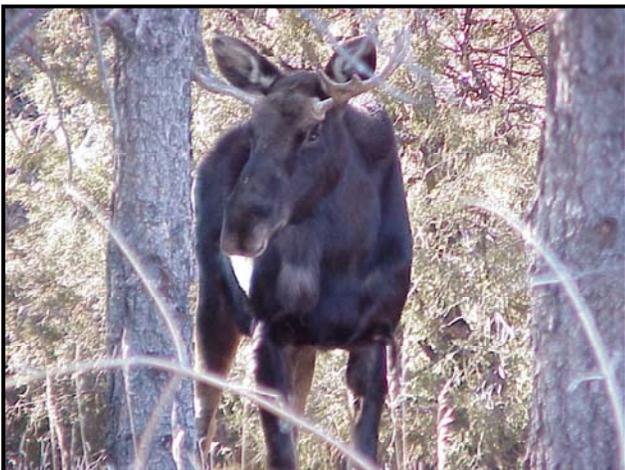
Taller buildings have arisen in downtown, and ground is being turned for the construction of Confluence Park, intended as a catalyst for efforts to redevelop southern, lower downtown (“LoDo”).

Expensive lofts have actually been built near downtown in the Lowell School redevelopment project, as planners hope to attract residents back downtown from the suburbs.

The City of Colorado Springs completed a milestone Comprehensive Plan in 2001, including actual zoning maps for planned land uses, and has adopted ordinances to protect hillsides, streamsides, and the Historic Old North End neighborhood. The City approved its first “mixed use” zoning classification in 2003.

A recent citizen opinion poll identified growth pressures and traffic congestion as top concerns of the populace.

Voters approved a dedicated city sales tax to fund trails and open space projects in 1997 and voted in 2003 to extend the tax. Major progress has been made in protecting scenic open spaces and building urban multi-use trails, although the region reportedly lags behind other Front Range communities in per-capita inventories of both resources. Nevertheless, the region’s network of trails, open spaces and riparian corridors is extensive enough and sufficiently continuous to accommodate wildlife movement. Within the past several years, a moose, mountain lion and bear have managed to wander down from their mountain homes into central Colorado Springs. Connection of open spaces is important for sustaining biodiversity.



This moose wandered down into Colorado Springs from the mountains in 2001 using the area’s riparian corridors (Monument Creek adjacent to I-25) and parks before returning home via the U.S. Air Force Academy.

Landscape Patterns: Reasonably Foreseeable Future

Another 200,000 residents will live in the region by the year 2025, according to official projections, and unofficial projections for 2030 push the number far higher. Some of these residents will live in the vast new subdivisions planned around Powers Boulevard in northern El Paso County, and developers are preparing to get their heavy equipment mobilized in the 20,000-acre Banning-Lewis Ranch that is the City’s primary future growth area. That equipment currently is occupied building commercial and residential developments east of the central-northern Powers Corridor.

Intense development is expected east of the I-25 North Gate Interchange, as well as along Baptist Road. Boosters of downtown are advocating for a Convention Center, and the owner of the Pacific Coast League AAA baseball team has been very public about his desire to have a publicly supported stadium built downtown to replace the team’s existing Powers Boulevard facility.

The City is exploring option for improved roadway access to the Municipal Airport, perhaps via Drennan Road, as intense development is anticipated for City-owned land south of the airport, in accordance with the adopted Airport Master Plan. The City is still trying to recover from the loss of locally-based Western Pacific Airlines in 1998, to re-establish more nonstop service and more fare competition among carriers at the Airport.

Wetlands will continue to be impacted by public as well as private projects. Some wetlands will be replaced through mitigation. Others will lose their higher function and ecological value. It is estimated that up to 450 acres of wetlands could be impacted by 2025 due to overall urban development. This represents less than five percent of the estimated wetland area in the region.

Impacts of No-Action Alternative

A larger metropolitan area, both in size and in population, is predicted by 2025 whether capacity improvements are made on Interstate 25 or not. Native species of plants and animals, and shortgrass prairie ecosystems will continue to be displaced as the result of urban and suburban development. Construction of homes, buildings, and other structures would continue to consume

local sources of rock and sand, leading to the enlargement of existing quarries and pits. As these sources are diminished, new ones must be opened, resulting in the potential for additional habitat loss and land scarring. Solid waste would continue to be generated, filling existing landfill space.

Under the No-Action Alternative, CDOT would not need to mitigate I-25 impacts to Preble's mouse habitat. CDOT's plan to establish habitat linkages for isolated Preble's populations would therefore have to be implemented by others, perhaps as part of the Habitat Conservation Plan that is currently being developed by El Paso County.

Regional land use and transportation plans are integrated with respect to the fact that available transportation funding has been prioritized for projects that serve forecasted transportation demand, based on assumed land uses and development rates. For example, capacity improvements to Interstate 25 and other major corridors (Powers, Woodmen, Drennan) are included in the regional transportation plan because regional growth will increase traffic demand in these areas. Additionally, these major corridors would better serve regional trips than other lesser roadways in the region. Major improvements to the City's bus transit system are also reflected in these plans.

The City of Colorado Springs Comprehensive Plan adopted in 2001 examined a number of alternative land use scenarios (infill, activity centers, decentralization, etc.) and selected an overall approach that best meets the overall needs of the community.

The No-Action Alternative therefore would result in various mismatches of land use and planned infrastructure and services, because regional land use plans assume that major transportation corridors will be improved to provide needed mobility.

The No-Action Alternative would not stop regional growth, and would definitely not turn back the clock to the less congested days of a bygone era. On the whole, the rapid transition from natural land uses to urban land uses would continue in the region, even if the Proposed Action were not undertaken.



New homes displace natural prairie east of Powers Boulevard. These neighborhoods are too new to have mature trees.

Landscape Patterns: Impacts of Proposed Action

The Proposed Action involving capacity improvements on Interstate 25 would result in an intensification of impacts (traffic volumes, noise, air pollution emissions) in a corridor that long ago was disturbed from its earlier state of near west side residences and northern El Paso County ranchlands.

The 26-mile Proposed Action would require the acquisition of remarkably few homes and businesses, in part because previous safety projects in the corridor already did result in substantial acquisitions. Similarly, the Proposed Action will impact only about ten acres of wetlands, and these will be replaced in the corridor. The relatively small number of wetlands affected is due to both avoidance and minimization efforts in the design process, plus the fact that I-25 is an existing highway corridor, not a new alignment through undisturbed prairie.

Table 4-2 breaks down the land cover composition of the Fountain Creek and Chico Creek watersheds as examined in the regional cumulative effects study, as contrasted to the land cover types found in the I-25 corridor (within 300 feet from each side of the highway). The region in general is dominated by grassland, with smaller but substantial areas of forest and shrub land. By contrast, the setting of I-25 is predominantly urban development, followed by grassland. I-25's setting is more riparian (4.8%) than the region in general (2%) because I-25 closely parallels Fountain and Monument Creeks, and many of their tributaries cross under the highway.

TABLE 4-2
Land Cover Types Regionally
and in the Interstate 25 Study Area

Land Cover Types in the Region Studied (In Order of Prevalence)	Estimated Acres (From 1995 Satellite Imagery)	Acres as a Percentage of the Total Acres in the Region Studied
Grassland	514,304	55%
Forest	152,436	16%
Shrub	132,802	14%
Urban	48,374	5%
Other	43,951	5%
Agricultural	28,342	3%
Riparian	19,334	2%
Total	939,546	100%

Land Cover Types in the I-25 Study Area (In Order of Prevalence)	Estimated Acres (From 1995 Satellite Imagery)	Acres as a Percentage of the Total Acres in the I-25 Study Area
Urban	477.4	49.0%
Grassland	80.7	36.9%
Shrub	52.1	5.3%
Riparian	46.4	4.8%
Agricultural	18.2	1.9%
Other	17.8	1.8%
Forest	3.8	0.4%
Total	975.0	100%

Lands and wildlife habitat that will be disturbed temporarily or converted permanently to highway use are largely areas of disturbed grassland that do not constitute high-quality habitat. Despite the presence of Interstate 25 and daily traffic volumes in excess of 60,000 vehicles through less developed portions of the corridor, wildlife in the vicinity of the freeway does include the Preble’s meadow jumping mouse in riparian areas, prairie dog colonies, a known concentration of mule deer, and a heron rookery in treetops along Fountain Creek. Efforts to minimize impacts of the Proposed Action to Preble’s mouse habitat also have accomplished minimization of impacts to riparian areas that are important movement corridors for other animal species.

With regard to wetlands, metropolitan growth and development in the region between 2000 and 2025 will affect an estimated 450 acres of wetlands to some degree. Some of these wetlands may be preserved or replaced, while others are degraded or lost entirely. Particularly vulnerable will be

isolated wetlands on private property, not in the vicinity of drainages that are considered to be “waters of the United States.” The Interstate 25 Proposed Action will impact approximately 10.2 acres of wetlands, and will replace at least 10.2 acres, thereby resulting in no net loss. Table 4-3 compares the impacts of I-25 to the impacts of regional development.

TABLE 4-3
Wetland Impacts from I-25 Proposed Action and Reasonably Foreseeable Regional Development, 2000 to 2025

	Wetland acres affected	Wetland acres lost
Estimated impact of all regional development between 2000 and 2025	450	Up to 450
I-25 Proposed Action	10.2	0*
I-25 as a percent of total regional development	2.3%	0.0%

* (I-25 mitigation includes wetland replacement)

The Proposed Action, when added to other present and foreseeable actions (including potential capacity improvements to Powers Boulevard, Woodmen Road, and the Drennan Road Corridor), would consume important local resources as well as land. Use of construction materials including rock and sand would accelerate the depletion of existing quarries and pits, thereby accelerating the need to develop new sources. Construction wastes could also hasten the need for additional landfills.

Landscape Patterns: Mitigation Strategies

The Regional Cumulative Effects Analysis (*Sustaining Nature and Community in the Pikes Peak Region*) identifies both policy-level and project-level strategies intended to steer landscape development in a direction that would sustain quality of life and biodiversity.

A number of the policy-level strategies address land use planning decisions that are clearly within the legal jurisdiction of local governments and clearly not within CDOT’s authority. These include encouraging mixed-use zoning (done for the first time by the City of Colorado Springs in 2003), balancing distribution of employment and residential opportunities (i.e., jobs-housing balance), and ensuring that land use patterns are mutually supportive of an intermodal transportation system.

Other local policy-level land use decisions affect the location and subsequent impacts from resource development. Within the Colorado Springs urbanized area this is particularly relevant to new rock quarries and sand pits that may leave large visible scars, but also to new landfills that can have an important effect on adjacent human use. Local policy decisions can also indirectly affect these resources by encouraging—or discouraging—conservation and sustainable practices such as material recycling, waste minimization, and pollution prevention.

One of the policy-level decisions that CDOT has made is to set aside habitats and connect them to similar areas via riparian systems. In the I-25 corridor, CDOT has purchased land for Preble's mouse habitat southeast of the Baptist Road interchange, and this land is connected via Jackson Creek to similar habitat west of I-25. CDOT is taking similar steps in the Dirty Woman Creek drainage near Monument.

Among the project-level recommendations contained in the regional cumulative effects analysis are several that pertain to the Proposed Action. These include the following:

- Promote the use of native and locally adapted plants in urban areas where appropriate to promote water use reduction.
- Reduce sedimentation by following appropriate best management practices (BMPs) for controlling erosion and intercepting runoff.
- Protect and restore riparian areas because of their tremendous significance to biodiversity and water quality.
- Manage noxious weeds aggressively to reduce their spread and impacts. (This will be done as part of the Proposed Action).
- Avoid severing habitat connections with roads, trails, or other disruptions, to maintain the usefulness of these wildlife corridors. (Example: new trail connections across I-25 at Baptist Road and North Gate will follow these respective roadways rather than being constructed in Preble's mouse habitat).
- Carefully plan and implement a system of wildlife crossings to maximize the porosity of road corridors for wildlife movement.

(Example: A new underground crossing of I-25 designed for the Preble's mouse is one of the possible mitigation measures specified in the August 2003 Biological Opinion of the U.S. Fish And Wildlife Service).

- Authorize the contractor to bury concrete and other allowable demolition debris and construction waste in roadway fill to reduce the amount of waste deposited in landfills.
- To the extent possible, allow contractors to recycle and reuse materials, particularly concrete and rock products, and utilize recycled materials available on the local market if they meet the specifications and performance standards required by CDOT. (Example: the reuse of on-site materials for I-25 capacity improvements could not only save quarry and landfill use, but could also lessen the amount of truck traffic to and from the project site, thereby reducing noise, air pollution, and fuel use.)
- Encourage contractors to recycle and reuse salvaged project materials, such as steel bridge girders, sign supports, and guardrail, and aluminum from light poles and signs.

B. Water Quality and Quantity

Water is of paramount importance in the semi-arid environment of the Colorado Springs area, where there the annual average precipitation is 16.4 inches. Local, natural precipitation is not adequate to meet the needs of the more than 517,000 residents of the region, so more than 85% of the region's water is brought in from west of the Continental Divide. Citizens of the Colorado Springs area are fortunate to be first users of this Rocky Mountain water, and have a responsibility to ensure the cleanliness of the waters that leave the region flowing southward toward the Arkansas River in Pueblo.

The region also has more impervious surface than ever before (e.g. rooftops, driveways, sidewalks, parking lots and roads). Therefore an increasing percentage of local precipitation runs off into local drainages rather than being absorbed into the ground. Increased runoff means increased erosion and sedimentation finding its way into the local watershed, diminishing water quality.

Water quality as assessed by U.S. Geological Survey (USGS) monitoring data truly reflects the cumulative effects of all upstream influences, of which runoff from roadways is a very small part.

Water Quality and Quantity: Past

Previous actions contributing to the quantity of water entering the regional watershed were the development of trans-basin water delivery systems, and the increase in impervious surface related to development, including roadways.

Interstate 25 was constructed prior to development of the Clean Water Act and current riparian water quality standards and water quality best management practices. I-25 was engineered to drain water from the roadway for safety purposes, and does not achieve the goals of water quality detention and treatment that would apply if the same roadway were constructed today.

Even before the region developed and increased in impervious surface, natural conditions were such that major storm events could cause major damage. Major flooding in 1935 knocked out most of the City's bridges across Monument Creek, and major flooding in 1965 (14 inches of rain) damaged one of the region's north-south freight railroad lines, leading to its abandonment.

Water Quality Management Plans have been prepared for the region by the Pikes Peak Area Council of Governments for more than two decades.

Water Quality and Quantity: Present

More water is being used daily in the region than ever before. In 2001, Colorado Springs Utilities provided an annual average of 83 million gallons daily and treated an average of 44 million gallons of wastewater each day. It has been estimated that there are about 170 square miles of impervious surface in the 927 square-mile Fountain Creek Watershed.

Review of water flow from five USGS stream gauges for the years 1988 through 2001 indicated a clear trend toward increased flow in the Fountain Creek Watershed.

Prior to the lawn-watering restrictions imposed in response to the region's drought in 2002, Colorado Springs Utilities estimated that half of the water consumption by its customers was used for landscape irrigation.

New water quality rules have recently gone into effect for the region, as CDOT, the City of Colorado Springs and El Paso County all now have Municipal Separate Storm Water Systems ("MS4") Permits for their stormwater discharges. In other words, each entity is now responsible for controlling the discharge of water pollutants to the maximum extent possible. These tough requirements have not been in effect long enough to achieve their ultimate long-term benefits, but offer the potential to slow or reverse the trend toward increased water pollution from stormwater runoff caused by continued development in the region.

As currently classified by the Colorado Department of Public Health and Environment, Monument Creek and Fountain Creek (both upstream and downstream of its confluence with Monument Creek) are considered suitable for agricultural use and domestic water supplies. Fountain Creek above the confluence is fed in part by snowmelt and considered capable of sustaining cold-water biota including sensitive species. Monument Creek and Fountain Creek below the confluence are warm-water streams not capable of sustaining a wide variety of aquatic life

Water Quality and Quantity: Reasonably Foreseeable Future

A major drought in 2002 raised public consciousness of the need for water conservation, as well as elevating public demand for completion of the Southern Delivery System, a planned pipeline that will pump water north to Colorado Springs from the Pueblo Reservoir. Two new reservoirs in the Colorado Springs area will be part of this system. Additional wastewater treatment plants will be needed to meet the needs of the region's population growth (i.e., more than 200,000 new residents by the year 2025).

Assuming that impervious surface in the region will increase proportionally with population (i.e., approximately 40% by 2025), the estimated 170 square miles of impervious surface in the Fountain Creek Watershed could increase by 68 square miles in the foreseeable future. Of this amount, less than one square mile would be contributed from full buildout of four hypothetical roadway improvements including the I-25 Proposed Action plus Powers Boulevard,

Woodmen Road and a Drennan Road (South Metro) corridor. Table 4-4 provides additional perspective on this issue.

TABLE 4-4
I-25 and Regional Impervious Surface Area, 2000 and 2025

	Square miles of impervious surface, year 2000	Square miles of impervious surface, year 2025	Change, 2000 to 2025 (square miles)
I-25 roadway	0.4	0.6	+0.2
Regional total, all development	170	238	+68
I-25 as a percentage of regional total	0.0023%	0.0025%	

Water Quality and Quantity: Impacts of No-Action Alternative

With or without I-25 capacity improvements, continued development in the Fountain Creek Watershed (and to the east, the Chico Creek Watershed) would lead to additional water quality degradation both during construction of new developments and in the long term. Further water quality degradation would be anticipated also as the wetlands adjacent to these streams are overloaded by increased pollutant concentrations in runoff from increased impervious areas.

In the absence of additional I-25 roadway capacity, future traffic demand will be spread over a variety of alternate routes on the city and county roadway system. Some of these routes may have inadequate detention of stormwater, and most of these routes will not be improved prior to the year 2025. Therefore, vehicle-related water pollutants would not be reduced in a meaningful way, but would be redistributed elsewhere throughout the region.

Water Quality and Quantity: Impacts of Proposed Action

Water pollutants reaching the watershed from I-25 are a very small part of the overall regional pollutant loadings. Although pollutant loadings are estimated to increase by 57 percent, the contribution from I-25 will remain extremely small in comparison to all other sources. These pollutants include total suspended solids, nitrate,

phosphorous, copper, lead and zinc. Application of Best Management Practices (BMPs) will be needed to minimize the amounts of these pollutants reaching the watershed.

Application of BMPs in the I-25 corridor would be designed to capture stormwater drainage not only from the additional lanes constructed, but also from the existing roadway. In effect, the Proposed Action represents an opportunity to provide mitigation for the original highway that was built prior to the passage of the Clean Water Act.

Water Quality and Quantity: Mitigation Strategies

The Regional Cumulative Effects Analysis (*Sustaining Nature and Community in the Pikes Peak Region*) identifies both policy-level and project-level strategies regarding water quantity and quantity.

A number of the policy-level strategies address land use planning decisions that are clearly within the legal jurisdiction of local governments and clearly not within CDOT’s authority. These include controlling creation of new impervious cover; enhancing public knowledge of the importance of maintaining vegetative cover; and requiring streamside setbacks to control development such as parking lots and roadways adjacent to streams, to protect or enhance water quality.

Another policy-level recommendation would institute a requirement of no net loss of wetland for projects involving impacts to wetland habitat (even in cases where the affected wetlands are not regulated wetlands under the jurisdiction of the U.S. Army Corps of Engineers). CDOT follows such a policy, but there is no requirement for local governments to do the same.

The project-level mitigation strategies in the Regional Cumulative Effects report largely describe the types of actions that are now required of CDOT and local governments under the terms of the new Municipal Separate Stormwater Systems (“MS4”) Permits. CDOT cannot control the amount of water used in the region, but can take efforts to minimize the amount of post-construction stormwater pollutant runoff generated from CDOT-owned transportation facilities. Examples of these actions are:

- Avoid impacts to wetlands, floodplains, and riparian corridors when a practicable alternative exists.
- Ensure that both temporary and permanent best management practices (BMPs) are appropriately applied. A Best Management Practice is any program, process, citing criteria, operating method, measure or device, which controls, prevents, removes, or reduces pollution.
- Apply temporary BMPs during construction to target runoff associated with roads, highways and bridges to prevent highway-related nonpoint source water quality related issues.
- Provide regular maintenance of temporary BMPs during construction as required in CDOT's Erosion Control and Stormwater Quality Guide (2002).
- Provide an adequate level of construction monitoring and training to minimize waste, prevent pollution, and reduce the potential for accidental spills.

C. Air Quality

The Pikes Peak Region has long been known for its healthy environment, clean air and scenic views. In fact, clean air was one reason why several major tuberculosis sanatoria were built in Colorado Springs at the turn of the twentieth century (a century ago).

The region's economy – comprised notably of military-related employment, high-tech firms, service industries and tourism -- includes relatively minimal heavy industry and therefore produces relatively minimal pollution from industrial point sources. Not surprisingly, motor vehicle emissions are a major source of carbon monoxide pollution in the region. Woodburning and geologic material (re-entrained dust) are the region's predominant sources of fine particulate matter (PM₁₀).

Air Quality: Past

In the 1970's, rapid growth in the Colorado Springs area led to violations of the national ambient air quality standard for carbon monoxide. This pollutant is produced by the incomplete combustion of carbon-based fuels, for example in the internal combustion engine. Even in the

1980's, the catalytic converter was a fairly new addition to vehicle technology, and many older vehicles in use in were not equipped with them. Although carbon monoxide is a colorless gas, other motor vehicle exhaust components were also poorly controlled, and the overall result was a brown haze visible over the region, especially on winter mornings when weather conditions called thermal inversions trapped polluted air close to ground level.

Over the years, although the number of vehicle-miles traveled has increased tremendously, improvements in vehicle engine pollution control have been even more dramatic, with the result that the region has experienced no violations of the national carbon monoxide standard since 1989.

Federal requirements for cleaner motor vehicle technology, together with gradual fleet turnover, get much of the credit for the air quality improvement. Another key control measure has been the State-mandated motor vehicle emissions inspection program that has been operated in the region since 1981. This program includes checks of carbon monoxide and ozone precursor exhausts, as well as a visual anti-tampering inspection.

Air Quality: Present

Currently, the Pikes Peak Region is in maintenance status for carbon monoxide, and is an attainment area with respect to lead, sulfur dioxide, oxides of nitrogen, particulate matter and ozone. However, the region's designated air quality planning agency – the Pikes Peak Area Council of Government – has concern about a trend of increasing readings of ozone recorded since 1996. If the trend in ozone continues, a violation of the ozone standard could be expected within the next five years.

Air Quality: Reasonably Foreseeable Future

As noted above, PPACG is concerned about the upward trend in ozone concentrations since 1996, and the possibility that violations of the national ozone standard could occur within the next 5 years.

Additionally, PPACG's forecasts of carbon monoxide emissions through the year 2025 (an analysis required as part of the long-range transportation plan) have indicated that the region can expect a 77% increase in carbon monoxide emissions due to increased vehicle-miles of travel

(VMT). Now that most vehicles in the region have modern pollution control systems including oxygen sensors and automatic fuel injection, continued fleet turnover offers little further technological improvement, and the trend in CO emissions will be more directly related to the trend in increased VMT.

Another important factor in future emissions will be the continued proliferation of non-road mobile equipment, proportional to population growth. This includes not only construction equipment, but also gasoline-powered recreation or lawn and garden equipment. The types of engines in these equipment types have not experienced the same degree of technological improvement over time as has been accomplished in motor vehicles.

Air Quality: Impacts of No-Action Alternative

One factor contributing to PPACG's projection of increased carbon monoxide emissions by the year 2025 is increasing traffic congestion throughout the region. For example, the City of Colorado Springs Intermodal Transportation Plan notes that automobile travel (VMT) continues to increase faster than population growth and faster than roadway capacity. Accordingly, "traffic congestion will continue to worsen citywide, with many areas sure to experience severe congestion."

Traffic congestion is bad for air quality because vehicles operating in bumper-to-bumper traffic are not able to reach optimal fuel efficiency. Additionally, because of time lost to congestion, a vehicle is operating for a longer time to travel the same distance in congested conditions, compared to uncongested conditions.

In addition to causing increased emissions due to congestion, the No-Action Alternative also would bring more emissions into residential areas because there would be more cut-through traffic on residential streets such as North Nevada Avenue.

Air Quality: Impacts of Proposed Action

For carbon monoxide, the regional conformity analysis for the *PPACG Destination 2025 Long-Range Transportation Plan* is effectively a cumulative effects analysis. It provides an accounting of mobile source carbon monoxide

emissions from traffic on all modeled roadways in the region. The analysis indicate that accounting for all proposed transportation improvements in the plan, including the Proposed Action, motor vehicle use in the region would produce 266 daily tons of carbon monoxide, remaining under the allowable daily emission budget of 270 tons.

According to the carbon monoxide emission calculations in the conformity determination for the *Fiscal Year 2004 to 2009 Transportation Improvement Program*, freeway facilities in the year 2000 produced about 20% of the region's total mobile source emissions. By 2025, under the Proposed Action, the region's freeways (I-25 plus Powers Boulevard) would together produce only 17% of the region's mobile source emissions.

PPACG used MOBILE 5b emission factors endorsed by EPA and the Colorado Department of Public Health and Environment, and these factors are dependent on projected vehicle speeds. For example, from the analysis for 2025, freeway links with an average daily speed of 53.0 miles per hour were attributed an emission rate of 7.03 CO grams per mile, while links with an average daily speed of 46.7 miles per hour were attributed an emission rate of 7.45 grams per mile. More dramatically, expressway links at 42.8 mph are attributed an emission rate of 8.94 grams per mile, and principal arterial links at 30.8 miles per mile were attributed an emission rate of 13.36 CO grams per mile.

New and different emission rates will be produced with EPA's newest, more recent MOBILE 6.2 emission rates, but the point is that congested stop-and-go traffic produces excessive emissions. By improving traffic flow, the Proposed Action would reduce carbon monoxide emissions.

According to the carbon monoxide emission calculations in the conformity determination for the *Fiscal Year 2004 to 2009 Transportation Improvement Program*, freeway facilities in the year 2000 produced about 20 percent of the region's total mobile source emissions. By 2025, under the Proposed Action, the region's freeways (I-25 plus Powers Boulevard) would together produce only 17 percent of the region's mobile source emissions. These comparisons are presented in Table 4-5.

TABLE 4-5
Carbon Monoxide Emissions from Freeways and from All Mobile Sources, 2000 and 2025

Source	CO tons per day, year 2000	CO tons per day, year 2025
Freeways only	31	46
All mobile sources	150	266
Freeway emissions as a percentage of total mobile sources	20.7%*	17.1%**

* (I-25 is the only existing freeway)

** (I-25 plus Powers Boulevard)

Source: *Conformity Analysis for PPACG Fiscal Year 2004 to 2009 Transportation Improvement Program*

Air Quality: Mitigation Strategies

The Regional Cumulative Effects Analysis (*Sustaining Nature and Community in the Pikes Peak Region*) identifies both policy-level and project-level strategies regarding air quality.

A number of the policy-level strategies address land use planning decisions that are clearly within the legal jurisdiction of local governments and clearly not within CDOT's authority. These include encourage mixed-use land development along transportation corridors to reduce vehicle miles traveled (VMT); supporting higher density residential and mixed use development in growth areas; and encouraging intermodal transportation system development to reduce influence of automobile emissions.

With respect to increasing use of alternative transportation modes in the Pikes Peak region, the U.S. Department of Transportation and CDOT for years have made funding resources available under a variety of programs, including the Congestion Mitigation and Air Quality (CMAQ) funds available exclusively for areas trying to attain or maintain national ambient air quality standards.

The Proposed Action includes provision of lanes designated in peak periods for use by high-occupancy vehicles (carpools and buses) only. This in itself represents a major step forward in the direction of encouraging alternatives to solo commuting.

Among the project-level mitigation strategies identified in the Regional Cumulative Effects report, one in particular would be applicable to freeway operations:

- Improve street sanding techniques that produce less particulate matter (PM₁₀).

This strategy of course relates to wintertime de-icing operations. For safety and mobility reasons, Interstate highways and State highways in general are usually high-priority routes for de-icing after winter storms. Particulate matter pollution and related brown-cloud visibility issues have been very important in the Denver region for years, and as a result, CDOT has reduced its use of sand in favor of chemical de-icing agents such as magnesium chloride. No matter what treatment is used, de-icing is especially needed on bridges (which ice up easily), and thus the materials are particularly likely to impact riparian areas.

D. Transportation Patterns

The high level of mobility we enjoy as a society enables people to access a larger number of destinations and have more choices of places to live, work, shop and recreate, all of which are important components of quality of life.

Transportation Patterns: Past

Electric streetcars that served the City of Colorado Springs well in the early 1900's survived until 1932, giving way to privately-operated bus service as well as to increasing affordable automobiles. U.S. Highway 87 (Nevada Avenue) was the main motor route into Colorado Springs when a route study in 1947 identified the route for today's Interstate 25.

I-25 opened in 1960, carrying 8,500 vehicles per day through central Colorado Springs. That volume has increased steadily over the past four decades, slowing only a short while in response gasoline shortages and price hikes caused by the 1973-74 OPEC oil embargo.

Blocked to the west by military facilities and the Pike National Forest, urbanization in the region has spread primarily eastward from I-25 and northward along I-25. In both directions, ranchland gradually gave way to residential

subdivisions. Successive belt roads have been built to serve the eastward march of development: Circle Drive, Academy Boulevard, and Powers Boulevard. Ultimately, each of these roads carries traffic to Interstate 25, and its original two through-lanes in each direction. The need for I-25 capacity improvements has been highlighted in the region's long-range transportation plans since 1975.

In addition, in the past 20 years other improvements to the roadway network were construction, including the US 24 Bypass, I-25 safety improvements, and interchange reconstruction between Bijou Street and Fillmore.

Growth has occurred more to the north than to the south in part due to the proximity of the huge Denver job market sixty miles to the north. Over the years, commuters have been willing to drive longer and longer distances to work. Residents of Monument, for example, can choose to drive 20 miles into Colorado Springs or 45 miles into Denver. Commutes of either distance were quite rare 40 years ago. In search of rustic lifestyles at affordable prices, there has also been a migration of residents from Colorado Springs westward to Woodland Park and eastward to Falcon.

The respectably-sized transit fleet of 51 buses in 1960 has not grown appreciably since that time, even as the region's population has more than tripled. The region has clearly become more and more dependent on the use of personal automobiles over time. In 1999, the City's voters rejected ballot proposals to form a regional transit district and authorize a sales tax to pay for transit system expansion.

Transportation Patterns: Present

Much of Interstate 25 through Colorado Springs experiences routine weekday congestion, and the region in general fares no better. A 1999 national survey of 68 metropolitan areas declared the Colorado Springs metropolitan area to be the most congested area in its size category (under 500,000 residents).

The estimated number of vehicle-miles traveled per day in the Pikes Peak Region is more than 10.5 million, according to the PPACG transportation model (calibrated from actual ground counts). With 517,000 residents in El Paso County that year (U.S. Census count), the average vehicle-miles of travel per person has reached

approximately 20 miles per day. This represents a 50% increase over the comparable figure for 1980 (13.6 daily VMT per capita). Today, there are not only more people, but they also drive more miles per day.

Systemwide (all routes combined), public transit operations in the region today carried 13,600 average daily trips in the first quarter of 2003. This total ridership is equivalent to the number of vehicles per day carried on a typical minor arterial street in downtown Colorado Springs.

Transportation Patterns: Reasonably Foreseeable Future

The reasonably foreseeable future for transportation in the Pikes Peak Region is specified in the *PPACG Destination 2025 Regional Long-Range Transportation Plan*. This plan is fiscally constrained, meaning that it includes only projects for which funding can reasonably be expected. The plan indicates there are also numerous needed transportation improvements that are not funded.

The 2025 Plan includes the I-25 Proposed Action, as well as capacity improvements on Powers Boulevard, Woodmen Road, and others. The Plan includes a South Metro Area Study to determine appropriate east-west capacity improvements in the vicinity of Drennan Road.

The 2025 Plan assumes that there will be in the future a major source of transit funding that does not exist today. Estimated funding from the new source is estimated at \$15 million annually. With these funds, the City hopes to expand existing local service ("Tier 1"), augment it with express buses ("Tier 2"), and convert the exiting hub-and-spoke system configuration to a grid pattern. The third tier of the plan would provide Bus Rapid Transit (BRT) on four rapid transit lines.

Overall regional VMT in 2025 as projected by PPACG will be 19 million, representing an increase of 81% over the year 2000. This VMT increase corresponds to a population increase of roughly 40%. The average daily VMT per capita would increase from 20 miles per person in 2000 to about 26.5 miles per person in 2025, as depicted in Figure 4-1.

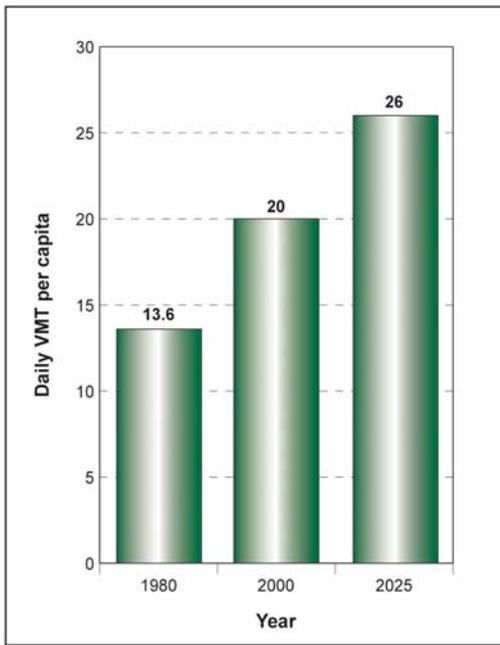


FIGURE 4-1
Average Daily Vehicle-Miles Traveled
per El Paso County Resident

A key factor behind the increasing VMT per capita is decentralized development. New residential areas will be on the periphery of the urbanized area, requiring longer-distance trips to access centralized services, amenities, and employment centers.

**Transportation Patterns:
Impacts of No-Action Alternative**

Continued population growth and increased traffic demand in the Pikes Peak Region will certainly place greater pressure on every aspect of the regional transportation system, whether capacity improvements occur on Interstate 25 or not. Under the No-Action Alternative, increased traffic demand in the I-25 corridor would have to find other routes through the area.

Finding other routes through the area will not be easy. The *City of Colorado Springs Intermodal Transportation Plan* (April 2001) indicates that even with all planned regional roadway improvements assumed to be made, most of the major roadways in central Colorado Springs would be congested (Level of Service E or F) by the year 2020.

Powers Boulevard, a north-south alternative route, will be improved under both the I-25 No-Action Alternative and the I-25 Proposed Action Alternative. Through central Colorado Springs,

Powers Boulevard is located about six miles east of I-25, with poor east-west roadway connections to the Interstate. Powers Boulevard traffic during rush hours is already becoming congested, and the Powers corridor is experiencing major commercial and residential growth. In short, capacity improvements to Powers are needed to address the north-south mobility needs of eastern Colorado Springs, but offer little in the way of potential relief for congestion on Interstate 25.

Moreover, Interstate 25 capacity improvements are reflected in both transportation plans and land use plans in the region. The No-Action Alternative would result in a mismatch of land uses and local infrastructure if development were to occur in various areas without the transportation capacity that was assumed to be available.

**Transportation Patterns:
Impacts of Proposed Action**

The capacity improvements in the Proposed Action would improve mobility on Interstate 25, which is the north-south backbone of the region’s transportation system. Mobility on I-25 is critical to the region’s military bases, civilian major employment centers, central business district and tourism industry.

The Proposed Action is projected to nearly eliminate Level of Service E and F congestion on I-25 in 2025, compared to 16 miles of congestion today and 26 miles under the No-Action Alternative.

Under the Proposed Action, I-25 in the study area would carry a total of roughly 3.5 million vehicle miles traveled (VMT) on an average weekday. This is about 17 percent of the projected regional total of 19 million daily VMT. I-25 today handles 24 percent of the region’s VMT, but this share will gradually decline because I-25 is a mature corridor and faster growth is occurring in other parts of the region. This information is presented in Table 4-6.

The Proposed Action also includes lanes that would be designated in peak periods for use by carpools and buses only. These High-Occupancy Vehicle (HOV) lanes represent a major step in the direction of encouraging the use of transportation alternatives to solo commuting. The PPACG *Destination 2025 Plan* and the City of Colorado Springs Comprehensive Plan both identify increased use of alternate modes as goals important to the future mobility of the region.

TABLE 4-6
Average Weekday Vehicle-Miles Travelled on I-25
and on the Regionwide Roadway Network

	Year 2000 Million VMT per Day	Year 2025 Million VMT per Day	Change
I-25 only	2.5	3.5	+40%
Regional roadway network	10.5	19.0	+81%
I-25 travel as a percentage of total regional VMT	24%	18%	-25%

Transportation Patterns: Mitigation Strategies

The Regional Cumulative Effects Analysis (*Sustaining Nature and Community in the Pikes Peak Region*) identifies both policy-level and project-level strategies regarding transportation.

As with respect to other issues in the report, most of the policy issues for transportation are applicable to local governments, and are not within the authority of the Colorado Department of transportation. For example, the study recommends incorporation of mixed-use land use concepts in future developments so that land use itself does not force new residents to commute to far-away employment centers. Another key recommendation is development of a dedicated funding mechanism for transit so that the region can accommodate the mobility needs of the aging Baby Boom generation.

Among the study’s recommended project-level mitigation strategies for transportation are the following:

- Provide all transportation facilities and services within a reasonable timeframe of development, to thereby improve concurrency between transportation facility supply and demand.
- Achieve advance right-of-way reservation and dedication for transportation through the land development process.
- Coordinate with appropriate local agencies to identify future alternate mode needs, and ensure that transportation project designs do not preclude future alternate mode options. (Note: CDOT has consulted with Colorado

Springs Transit representatives on this issue for the I-25 Proposed Action.)

- Situate new facilities in locations that minimize habitat or neighborhood fragmentation, as well as providing adequate crossings to minimize corridors’ “barrier” effects.
- Design all projects in full compliance with applicable environmental regulations, as well as to ensure designs that recognize the character of the facility’s natural and community character.
- Look for ways to use projects to bring new uses, such as roads and intersections, to brownfields or other degraded lands.

Regard to the “barrier” effect mentioned above, the I-25 Proposed Action includes new or improved crossings for bicycles and pedestrians, as well as drainage crossings designed to accommodate the threatened Preble’s meadow jumping mouse.

E. Noise Levels

The most effective noise mitigation strategy for roadways and aircraft is good planning: set back development at least 500 feet from major roadways —like I-25—and discourage development near airports. Unfortunately, there are far too many modern examples of new developments being approved in close proximity to I-25, Air Force Academy flight zones, and Fort Carson heavy weapon firing ranges.

Continued population growth is likely to result in additional demand for passenger and cargo air service. This will likely result in increased aircraft operations and increased aircraft noise.

Noise Levels: Past

The Pikes Peak Region in 1960, with only 144,000 residents and only 8,500 vehicles daily on I-25, was surely a quieter place than it is today. The City’s Municipal Airport offered fewer flights daily, with smaller aircraft, and was located far from most residential areas. Boom boxes and even gasoline-powered lawnmowers did not disturb neighborhood tranquility. That was 40 years ago.

Noise Levels: Present

Motor vehicles are the predominant source of noise in the Pikes Peak Region today, due to more than 10.5 million vehicle-miles traveled daily. Other sources of noise include freight trains (roughly 35 per day), aircraft operations (more than 1,600 civilian aircraft takeoffs in July 2003), military operations, construction equipment, and gasoline-powered lawn/garden equipment.

The increase in the number of noise generators and in residential densities have led to the result that the Colorado Springs metropolitan area has become a noisier place in which to live and work.

Noise Levels: Reasonably Foreseeable Future

As the total amount of vehicle travel in the region increases from 10.5 million miles daily in 2000 to 19 million by 2025, and the region's population increase by more than 200,000 new residents, community noise levels will continue to increase. The continued demand for additional housing will likely involve higher density residential areas, as well as development occurring ever closer to noise generators (airport, I-25, military bases).

Noise varies from place to place and hour by hour, but overall can be expected to increase in the region. Noise levels double with each increase of three decibels, and this is the approximate increase foreseen regionwide by 2025.

The possible increased use of electric vehicles in the future offers the potential to reduce vehicle engine noise somewhat, but engine noise is only one component of the noise generated by motor vehicles.

Noise Levels: Impacts of No-Action Alternative

Whether or not the I-25 Proposed Action is implemented, the Pikes Peak Region will become a noisier place in the future. In the absence of I-25 capacity improvements, more traffic would find its way onto other streets in the region, sometimes through residential neighborhoods.

Noise Levels: Impacts of Proposed Action

The Proposed Action would allow Interstate 25 to carry more vehicles than it does today. The I-25 corridor is already a noisy place. Past actions in the corridor have resulted in the construction of five noise barriers that exist today. CDOT has

committed to building a sixth barrier, located near the Pine Creek Estates neighborhood on the west side of I-25 north of Woodmen Road.

The I-25 Proposed Action would increase noise levels along the corridor. Since traffic on I-25 would increase by about 60 percent in central Colorado Springs and about 100 percent in northern El Paso County, traffic noise increases on the order of 2 to 3 decibels can be expected along the corridor. As part of the Proposed Action, eight additional noise barriers are proposed along the corridor to protect nearby neighborhoods and portions of Monument Valley Park. Additional locations along the corridor were considered for mitigation due to high noise levels, but in these cases it was found that mitigation would not be reasonable and feasible.

One of the factors normally considered by CDOT in assessing noise from roadway improvements is a determination of whether noise would increase by 10 decibels, even if the resulting noise level is below the otherwise applicable noise abatement threshold (e.g., 66 decibels for a residential neighborhood). This would normally be done by projecting noise from the present (e.g., 2003) to a future planning horizon year (2020). Due to past safety improvements in the I-25 corridor, however, CDOT elected to look back in time to 1990 as the base year of analysis for this I-25 EA. This approach thereby took into account the cumulative effects of past actions in the corridor.

The result of the 35-year noise analysis, covering 1990 to 2025, was that noise levels along I-25 through central Colorado Springs will have increased by as much as six decibels. This considered to be a noticeable increase, but does not meet the 10 decibel increase criterion contained in the State's noise abatement policies.

Noise Levels: Mitigation Strategies

The Regional Cumulative Effects Analysis (*Sustaining Nature and Community in the Pikes Peak Region*) identifies both policy-level and project-level strategies regarding transportation-related noise. Some noise-generation issues are national issues that local governments cannot readily influence (e.g. noise regulations applicable to interstate commerce via aircraft, trains and interstate trucking). Noise control measures available to local governments largely fall in the category of land use planning, such as minimizing

future development near freight rail corridors to reduce the impact of train noise, and using zoning to keep noise-producing industry and residences away from one another.

Applicable project-level noise mitigation strategies focus primarily on aspects of roadway design:

- Separate development from major roadways (principal arterials and above) by at least 500 feet.
- Install earthen berms where possible and use features within a development such as garages and commercial buildings as shields from roadways.

In the I-25 Proposed Action, noise mitigation includes one earthen berm and seven new sound barrier walls. CDOT does not have the option of purchasing 500 feet of land adjacent to a roadway, so it remains incumbent upon local governments to plan land uses that are compatible with the intensity of roadway use reflected in their regional plans.



On Pikes Peak Avenue downtown, a home built in 1900 has as its neighbor a 1960s office building.

F. Visual Character

Cumulative visual impacts occur over a period of time, via the continual visual changes in the

corridor. These visual changes are largely the result of increasing urbanization and changes to the landscape due to development of both residential and commercial communities.

Pikes Peak is the backdrop and the dominant visual feature of the region, in large part responsible for development of the urbanized area in its existing location. It is “America’s mountain,” the original purple mountain’s majesty that inspired the lyrics for the song America the Beautiful.

Eight thousand feet lower, there are other natural features (Garden of the Gods, Monument Creek, Pulpit Rock) that also contribute to scenic qualities

of the region, but manmade structures and features dominate the foreground. Here, roadways are a necessary part of the urban fabric. By their design, they can be made visually attractive (e.g. tree-lined boulevards), but often they are not.

Visual Character: Past

The street system of Colorado Springs was originally laid out by found General William Jackson Palmer in a grid pattern with wide streets and generous views of Pikes Peak. However, the area was also an expanse of prairie so treeless that a locomotive was once blown over sideways by the wind. Over time, water supplies were developed and trees were planted, transforming settled areas into an urban forest. General Palmer donated land for Colorado College, Monument Valley Park, and other parks, all of which remain important visual elements of the community.

Residents of Colorado Springs in 1960 still lived in a small city that had not yet disturbed vast expanses of prairie grassland. At that time, homes were not plentiful on the foothills in front of Pikes Peak, nor along the ridgelines of the bluffs and other topographical features of the city. Also, downtown offices buildings were fewer and not very tall, in comparison to downtown today, reflecting the less intense use and lower downtown land prices of the time.

When Interstate 25 was constructed, it was a mere two lanes in each direction (as much of it remains today) and its interchanges did not have to carry large volumes of traffic. I-25 through the U.S. Air Force Academy, in particular, was designed to be visually unobtrusive and to blend in with the surrounding landscape. However, rock products

used to build the Academy and I-25 did come from the Queen's Canyon Quarry, on the foothills just south of the Academy. That quarry had existed for decades, but its use intensified greatly to supply these major projects.

Visual Character: Present

The vast majority of the buildings in the Pikes Peak Region today did not exist 40 years ago. Explosive suburbanization has created tract housing and automobile-oriented development as epitomized by Academy Boulevard. Now even the strip malls of the 1970s have become passé in the age of big-box retail stores, chain restaurants and multiplex theaters.

More homes can be seen on the foothills and ridgelines than ever before, and at night, the resulting light pollution makes life difficult for stargazers.

Another sign of automobile influence is that today's homes do not have alleys, but instead have a driveway in their front yard, typically leading into a two or three-car garage.

Downtown Colorado Springs has been revitalized and spruced up with sidewalk art features, trees and pedestrian-friendly street crossings. A number of taller, more modern buildings have been built among the remaining older buildings with historic classic architecture. Of course, with taller buildings comes the need for more parking spaces, underground or in multi-level parking structures.

Historic neighborhoods and homes with special porches built 100 years ago for tuberculosis patients can still be found near downtown, although some homes have been lost to redevelopment or converted to business use.

As traffic volumes have increased, more and wider roadways have been needed. Recent safety improvement projects in the I-25 corridor have been built to carry more lanes and turn bays over or under the freeway, and designed to allow more freeway lanes to pass over or under. Continuous acceleration/deceleration lanes were constructed between Bijou and Fillmore Streets. As noted in the noise discussion, five noise walls have been built in the I-25 corridor in El Paso County. The overall impact of these improvements is that I-25 has become more massive in appearance, if not from the views toward it, at least from the viewpoint of the motorists on the highway itself.

Visual Character: Reasonably Foreseeable Future

Continued growth in El Paso County to accommodate more than 200,000 additional residents by 2025 will continue to change the visual character of the region. Much of this focus will be in eastern and northeastern Colorado Springs, including the Banning-Lewis Ranch (more than 20,000 acres) and the vicinity of the northern extension of Powers Boulevard. The new developments may have a drier, less forested look, if water restrictions imposed in 2002 have a lasting impact on the community.

Other reasonably foreseeable developments include downtown redevelopment in the vicinity of Confluence Park. Parts of lower downtown have been designated as an official redevelopment area. Downtown boosters envision a future downtown convention center and the possibility of a new baseball stadium for the city's Pacific Coast League baseball team, the Colorado Springs Sky Sox.

Major development is happening now at the junction of Woodmen Road and Powers Boulevard, where a grade-separated interchange will soon be constructed. Besides Powers Boulevard itself, another growth area will be the City-owned property immediately south of the Colorado Springs Municipal Airport. This will affect the visual character of Powers Boulevard and Drennan Road.

Important viewsheds may receive more formal protection in the future, as the City of Colorado Springs has been grappling with that issue in 2003, in response to a County proposal to build major addition to its downtown law enforcement facilities.

One favorable trend will be the continued acquisition of scenic land for trails and open space. While regularly rejecting most proposed tax increases in the region, Colorado Springs voters in 1996 approved a dedicated sales tax for trails and open space development, and approved an extension of the tax in 2003. Since tax proceeds have been bonded in order to purchase large parcels in imminent danger of being developed, most of the actual acquisitions tend to be early in the lifespan of the tax. Additionally, developers are normally required by the City of Colorado Springs to provide small neighborhood parks and

to set aside a portion of their developments for open space.

Visual Character: Impacts of No-Action Alternative

All of the growth impacts described above for the reasonably foreseeable future would apply in the case of the No-Action Alternative. Additionally, however, the No-Action Alternative would leave in place the Interstate 25 roadway corridor with its inconsistent appearance, reflecting sections that have and have not been modernized.

Visual Character: Impacts of Proposed Action

The Proposed Action would occur in a long-existing travel corridor, around which development has occurred. While there are some areas in northern El Paso County still with vacant land along the corridor, much of what will be seen from I-25 through central Colorado Springs exists today. Confluence Park and proposed redevelopment in lower downtown offer potential to enliven the viewscape from the highway.

Widening I-25 and constructing seven new noise walls would add to the engineered look of the corridor, intensifying the perception that Colorado Springs has grown into a large city. The same effect will occur along Powers Boulevard, Woodmen Road and other major roadways in the region. In the case of I-25, hundreds of mature trees will be impacted, although some are undesired species and tree replanting will take place where feasible. Fewer trees will be impacted in other roadway corridors (e.g. Powers Boulevard) since they are in drier areas not as closely paralleling a major creek.

Design guidelines have been established for I-25 to ensure a consistent visual experience in the corridor. From a design standpoint, this offers potential improvement compared to the original construction and subsequent interchange additions. Landscaping templates have been developed, and CDOT is seeking to work through public-private partnerships to develop a long-term approach to landscape maintenance.

Interstate 25 on the property of the U.S. Air Force Academy would be visually impacted by the Proposed Action by the addition of through-lanes, Powers Boulevard connections, and even stoplights being installed for the first time at the North Gate Interchange. Rapid suburban

development on the Academy's northern and eastern flanks has already altered the original rustic character of this important national institution.

Visual Character: Mitigation Strategies

The Regional Cumulative Effects Analysis (*Sustaining Nature and Community in the Pikes Peak Region*) identifies one policy-level and a number of project-level strategies regarding visual character. The policy-level recommendation is that the community should protect significant viewsheds and view corridors. The project-level strategies include:

- Provide and maintain visual access to important community features [Example: I-25 improvements will maintain views into the new Confluence Park, now under construction].
- Provide significant xeriscape corridor planting in public view [For reasons of water conservation and maintenance costs, I-25 will have low-maintenance landscaping].
- Provide well-designed and detailed bridges and other structures.
- Buffer transportation corridor improvements from culturally and historically significant areas.
- Reveal views to streams and other natural areas, through the sides of bridges.
- Plant medians, when possible, with native and locally adapted plants [This is important for maintaining biodiversity].
- Add public art to appropriate corridor and community locations [Example: I-25 noise walls have thematic design].
- Provide entryway features in road corridors approaching cultural districts [Example: the pedestrian bridge over I-25 at Monument Valley Park].
- Keep highway improvements from blocking public vistas.
- Trees should be planted in ways and places that don't restrict all-important mountain views.

Overall Conclusion

Colorado Springs and its surrounding communities have been growing rapidly and transforming semi-arid prairie into an urban ecosystem, displacing native species of plants and animals. At the same time, the change from a small city to a medium-sized metropolitan area has come with growing pains including traffic congestion and impacts to the region's water, air and visual character.

Landscape Patterns

The general pattern of development in the Colorado Springs Urbanized Area has been strongly influenced by Interstate 25 since 1960, after having been based on north-south railroad lines and the Old Denver Highway (SH 85). Much of the I-25 corridor has become developed, and the highway has become the region's Main Street. The projected population growth of more than 200,000 additional residents by 2025 will cause continued consumption of undeveloped land, primarily prairie grasslands, as the urbanized area grows eastward. In addition, plans for redevelopment in lower (southern) downtown will intensify land use in the center of the urbanized area.

The Proposed Action would relieve congestion in a maturing corridor, supporting the region's adopted land use plans. The Proposed Action, together with other nearby CDOT transportation projects, would not cause jeopardy to the threatened Preble's meadow jumping mouse that inhabits riparian areas in northern El Paso County

Water Quality and Quantity

Importation of water from Colorado's western slope made possible the growth of the Colorado Springs Urbanized Area, and has resulted in increased discharges of used water into the region's watershed. Additionally, the increase of impervious surfaces in the region (from rooftops, driveways, parking lots, roads, etc.) has led to increased stormwater runoff, erosion, sedimentation, and flooding. The Proposed Action would increase the amount of impervious surface, but only by a negligible amount in comparison with the result of overall development (200,000 additional residents) in the region. CDOT will implement best management practices in compliance with recently strengthened State stormwater management requirements, and the local governments will do the same. The Streamside Overlay ordinance recently adopted by

the City of Colorado Springs should also help to slow the pace of degradation in the area's drainages. The Proposed Action and other transportation projects in the region would impact existing wetlands but would replace them for a net loss outcome.

Air Quality

Improved vehicle technologies have enabled the Pikes Peak Region to come into compliance with the national air quality standard for carbon monoxide in the past decade, despite rapid population growth and rapidly increasing congestion. Continued growth in population and congestion are expected to result in increased pollutant emissions. By relieving congestion on region's most heavily traveled roadway, the Proposed Action will reduce the excess emissions that occur under stop-and-go driving conditions. Under the Proposed Action, provision of high-occupancy vehicle lanes on I-25 would represent an important step in regional efforts to encourage carpooling and transit use, which may become increasingly important strategies for reducing air pollution.

Transportation

Provision of transportation capacity (both roadways and transit services) has not kept pace with population growth in the Pikes Peak Region, resulting in rapidly increasing traffic congestion. The region has been identified by a Texas Transportation Institute national study as the most congested urbanized area in its size category. The City's Intermodal Transportation Plan predicts further traffic deterioration, resulting in Level of Service E or F congestion on most major city streets by the year 2020. The Proposed Action would relieve congestion on I-25 that today lasts four hours daily and extends for 16 miles, but threatens to spread to ten hours daily for 26 miles under the No-Action Alternative. Because Interstate 25 is and will remain the region's most heavily traveled roadway, providing a reasonable level of mobility on I-25 is critical to the operation of the regional transportation network.

Noise

Increased noise from "trains, planes and automobiles" (but mostly automobiles) has made the Pikes Peak Region a noisier place over time. Generally, noise receptors close to the most heavily traveled roadways have experience the

highest noise levels. Where noise levels exceed Federal and State Noise Abatement Criteria, and where mitigation is both reasonable and feasible, CDOT implements noise mitigation techniques. For example, there are five existing noise barriers along the I-25 corridor, an additional noise barrier is committed, and eight more locations would receive mitigation under the Proposed Action. The region's transportation corridors are noisy places that will get noisier in the future.

Visual Character

The Colorado Springs Urbanized Area has rapidly evolved from a compact small city in 1960 to a medium-sized metropolitan area today, and is still growing rapidly. Views of open prairie are being replaced with rows of rooftops, streets, schools and shopping centers. Important aesthetic improvements at the pedestrian scale have been made in the now revitalized downtown area, and gradually older buildings are giving way to redevelopment.

As traffic demands have increased, some roads have been widened, and others, including I-25, Powers Boulevard and Woodmen Road, are planned to undergo capacity improvements. Roads with more lanes are inherently more visually intrusive, especially in areas such as the U.S. Air Force Academy where the landscape has remained relatively natural and open.

It is important that major roadways be designed with good aesthetics to mitigate the fact that they will be wider. Design standards have been established and followed in the I-25 safety improvements so that when the Proposed Action is implemented, the entire corridor will have a consistent aesthetic feel. Thus the Proposed Action will represent an aesthetic improvement over the

hodgepodge of various bridge types and design elements that have accumulated in the corridor over time.

At a cumulative level, the Proposed Action is critical for maintaining regional mobility and important for air quality reasons. I-25's expansion will contribute to a noisier city with an increasingly big-city look. The addition of 200,000 new residents in the region by 2025 will result in continued consumption of prairie land and displacement of wildlife. The amount of impervious surface area will increase, and improved stormwater management practices will be implemented to slow further degradation of the water quality and health of riparian habitats in the region. The Proposed Action is part of the much larger environmental trends in the region, but has been developed to avoid, minimize and mitigate adverse impacts as much as possible.

Comments and Coordination

Public Involvement

The public involvement process for the I-25 Improvements Project is part of an ongoing communication program that began with a focus on CDOT's safety improvement projects and later expanded to incorporate the EA. The program includes not only public involvement, but also community relations, media relations, and public relations. The process typically involves targeting specific audiences, as well as all citizens of El Paso County, and communicating to those audiences by varied means—media tools such as advertising and direct mail, as well as personal communication at public open house meetings, small group meetings, and one-on-one meetings with business owners and residents. In addition to open house meetings, small group presentations were made to Colorado Springs' City Council, the Pikes Peak Area Council of Governments, the City of Colorado Springs Parks and Recreation Board, the Greater Colorado Springs Chamber of Commerce, and service and member organizations. Other public involvement forums are described below.

Public Meetings and Workshops

A total of 47 public open house meetings have taken place from 1999 through January 2003 to introduce the I-25 Improvements Project, explain the proposed designs, and change plans as needed to accommodate the needs of the citizens. Meetings were scheduled to occur at milestones such as the start of a project or phase, development of concepts, after refinement of designs, and at the conclusion of a phase or project.

The meetings attracted 2,094 members of the public (this number includes multiple counting of repeat attendees) who have provided 501 written comments and questions. Those comments and questions covered such topics as the NEPA process, including preparation of an EA versus an Environmental Impact Statement; the credentials of those preparing the EA; the communication methods used; the approving agencies; the proposed improvements on I-25, including safety and capacity improvements; interchange designs;

public transit and multi-modal options; bypasses; North American Fair Trade Agreement routes; and the routing of hazardous wastes on I-25.

Comments also addressed impacts of the Proposed Action, including cumulative effects, noise and noise mitigation methods, landscaping and vegetation, pavement types, historical and visual impacts, air quality, water quality, affects on park lands, impacts to low-income neighborhoods, and right of way.

Newsletters

Newsletters were used to explain projects and update the public regarding project status. Public open house meetings, prior to being held, were promoted in the newsletters (as well as postcards and media notices). Following the public meetings, a reporting of the event was included in the newsletter.

Web Site

The I-25 Web site details projects both in design and in construction, provides project information, and links to related sites including the EA Web site. The I-25 site maintains a schedule of open house meetings and posts exhibits of the meetings. The EA Web site provides an overview of the EA process where visitors may examine the *I-25 Mode Feasibility Alternatives Analysis* (MFAA) report and learn about the elements being investigated in the EA. The possible outcomes of the analysis are presented, along with checks and balances designed to make the process fair. The EA site also provides a schedule of open house meetings and exhibits from open house meetings. Visitors to either Web site have the opportunity to sign up to receive mailings about I-25 projects, including meeting notifications and project updates, and to ask for and receive information about the process and projects.

Advertisements and Flyers

- Advertising – Both print and broadcast advertising placements inform members of the public about the EA, the interchange improvement projects, and the safety improvement projects.

- Several brochures were created to educate and inform the public about the EA process, noise, right of way, and acquisitions for use at the public open house meetings, at speakers' bureau events, and other appropriate opportunities.
- SpringSpree – An I-25 booth has been staffed at this festival in downtown Colorado Springs each year since 1999. Visitors to the booth are offered public opinion surveys regarding I-25. This outreach effort has been one of the most successful components of all public involvement techniques used for the I-25 Improvements Project. Thousands of people attend this street festival each year and many stop by the CDOT/I-25 booth. Over the last 4 years, a total of 1,441 surveys have been completed at this event, helping designers gauge public awareness and public opinion on current and future transportation improvement projects.
- A project information booth was set up at the Chapel Hills mall.

Media Contacts

- Members of the media are regularly updated on projects via press releases and notebook articles that detail project status and upcoming meetings.
- Interviews were conducted and various topics discussed on local radio stations.

Mailings

- Post cards announcing public meetings were mailed to targeted groups along the I-25 corridor and citizens who requested to be on the mailing list.
- Project information was sent to elected officials.

Agency Involvement

Throughout the EA process, CDOT and the EA project team have worked closely with other agencies, including:

- U.S. Air Force Academy
- Pikes Peak Area Council of Governments
- City of Colorado Springs
- El Paso County
- Colorado Department of Public Health and Environment
- U.S. Army Corps of Engineers
- U.S. Fish and Wildlife Service
- Colorado Division of Wildlife
- Federal Emergency Management Agency
- State Historic Preservation Office
- State Advisory Council on Historic Preservation
- Fort Carson

Draft Section 4(f) Evaluation

Introduction

Section 4(f) has been part of Federal law in some form since 1966. It was enacted in an effort to set forth guidelines by which to preserve the natural beauty of the countryside, public parks and recreation lands, wildlife and waterfowl refuges, and historic sites.

In January 1983, Section 4(f) of the U.S. Department of Transportation Act (49 USC 303) was amended as part of an overall recodification of the Act. The wording in Section 303 reads as follows:

It is the policy of the United States Government that special effort be made to preserve the natural beauty of the countryside and public park and recreation lands, wildlife and waterfowl refuges, and historic sites.

The Secretary of Transportation shall cooperate and consult with the Secretaries of the Interior, Housing and Urban Development, and Agriculture, and with the States in developing transportation plans and programs that include measures to maintain or enhance the natural beauty of lands crossed by transportation activities or facilities.

The Secretary may approve a transportation program or project requiring the use of land from a significant publicly owned public park, recreation area, or wildlife and waterfowl refuge, or a significant historic site of national, State, or local significance (as determined by the Federal, State, or local officials having jurisdiction over the park, recreation area, refuge, or site) unless a determination is made that:

1. There is no prudent and feasible alternative to using of land from the property; and
2. The action includes all possible planning to minimize harm to the property resulting from such use.

Section 4(f) applies to both publicly and privately owned historic sites, but only to publicly owned parks, recreational areas, and wildlife/waterfowl refuges.

Section 4(f) applies to historic properties that have been officially determined to be eligible for listing or are listed on the National Register of Historic Places (NRHP) or contribute to a historic district that is eligible for or listed on the NRHP.

NRHP eligible and listed sites also are protected by Section 106 of the National Historic Preservation Act, as set forth in the Advisory Council on Historic Preservation regulations 36 CFR 800. Federal agencies must consult with the State Historic Preservation Office (SHPO) and the Advisory Council regarding the effect of their undertaking on historic properties. Section 4(f) is related to Section 106 in that the determinations of the SHPO regarding eligibility and effect are taken into account when determining impacts to Section 4(f) properties.

Section 4(f) Properties Evaluation and Summary

The Proposed Action would have potential impacts to three historic properties. These impacts are described in detail below, and are the subject of this Draft Section 4(f) Evaluation. Although there are impacts to other park and recreation resources, these impacts do not constitute Section 4(f) “takings.”

The reconstruction of the Bijou interchange will require temporary encroachment into Monument Valley Park at the Bijou Street Rock Entrance Gate. This temporary impact is not a Section 4(f) “taking” or “use” in accordance with the criteria in 23 CFR 771.135(p)(7). Similarly, there will be minor, temporary construction impacts to recreational trail crossings of I-25. These impacts also would not result in a Section 4(f) taking or use.

There will be noise impacts to recreational trails and three parks, and visual impacts to Monument Valley Park (resulting from new noise barriers on CDOT right-of-way). However, these proximity impacts are not so severe that the protected activities, features, or attributes that qualify these resources for protection under Section 4(f) are substantially impaired [23 CFR 771.135(p)(2)].

Potential impacts were identified for the three Section 4(f) properties listed in Table 6-1, which are all historic properties. These properties were determined to be individually eligible for or listed on the NRHP. The location of the three sites with Section 4(f) impacts is depicted in Figure 6-1.

Historic Properties

In this effects analysis, the term “historic properties” is used to describe those structures, sites, or linear features (i.e., railroads, ditches, or roads) that have been determined to be eligible to the NRHP as part of this survey or were previously determined by the SHPO to be eligible for or listed on the NRHP, and are therefore protected by Section 4(f).

The remainder of this section describes impacts, avoidance alternatives, and measures to minimize harm for each property. Section 4(f) properties are described further in the “Historical Resources” subsection in Section 3 of this EA. The eligibility or listed status on the NRHP will not change as a result of the Proposed Action, avoidance, minimization, or mitigation. The effects determinations described below received concurrence by the SHPO in February 2004.

U.S. Air Force Academy (5EP595)

Construction of the Air Force Academy began in 1955 and was completed in 1962. The facility is considered eligible for listing on the National

Register of Historic Places, and is also being evaluated by the National Park Service for possible designation as a National Landmark. The 18,455-acre installation is situated against the Rampart Range, and remains very open and natural in character.

The Air Force Academy meets NRHP Criteria (a) and (c) for its national significance and association with U.S. military history, and for association with the local history of earlier ranching and the rural residential uses of the land.

The Air Force Academy also meets Criterion (c) for the exceptional significance of the architectural design of the Academy buildings in the Academic and Cadet areas. The outstanding site planning and the International Style buildings at the Academic and Cadet areas, including the nationally renowned Cadet Chapel, meet Criterion (c) for exceptional national significance of the Modernist buildings, designed by the prominent architectural firm of Skidmore Owings & Merrill.

In addition, the Air Force Academy is eligible under the NRHP as an historic cultural landscape district. The term historic cultural landscape was used by the Air Force Academy district to encompass the wide range of cultural resource types that exemplify the evolution of human occupation and use of the land. The historic district includes the mid-nineteenth and early twentieth century historic cultural resources in addition to the 1950s Academy and the natural setting.

Because the Academy was constructed less than 50 years ago, it must meet the NRHP registration requirements under Criterion Consideration (g) for properties that have achieved significance within the past fifty years.

TABLE 6-1
Historic Properties Potentially Impacted by Proposed Action

Site number	Property Name	Location	Eligibility Determination	Impact	Determination of Effect
5EP595	U.S. Air Force Academy	Baptist Road to Academy South Entrance	Officially eligible	Direct	Adverse Effect
5EP3856	WPA Flood Wall at Monument Creek	South of Bijou to Midland Railroad	Officially eligible	Direct	Adverse Effect
5EP208	St. Mary's Church	26 W. Kiowa	Listed NRHP	Direct	No Adverse Effect

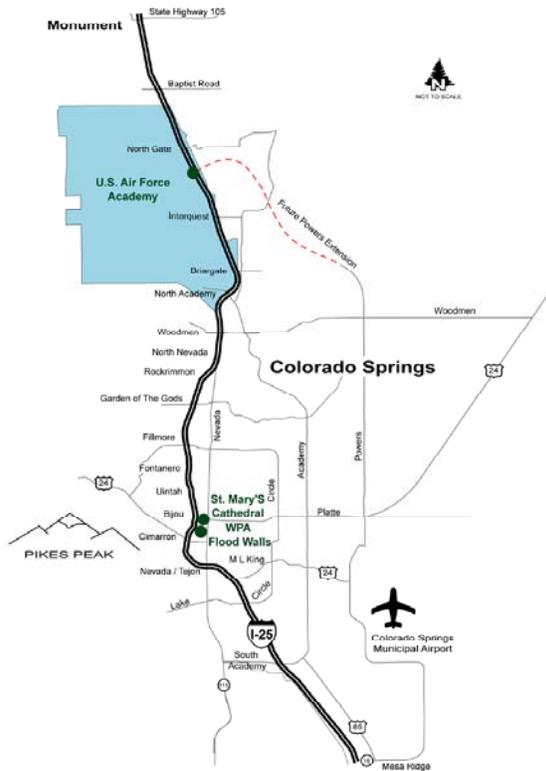


FIGURE 6-1
Location of Potential Section 4(f) Impacts

Impacts to Property

There are impacts to the Air Force Academy from the No-Action as well as the Proposed Action alternative. The following provides a description of the impacts associated with these two alternatives.

No-Action Alternative

The No-Action Alternative would not require any physical taking of property on the Air Force Academy land. Although the interstate is on an existing easement of Air Force Academy property, this alternative would also not require any alteration to the easement. The No-Action Alternative would also keep intact the existing North Gate Interchange, which would not accommodate projected future travel demand. The Ackerman Overlook would be left in place where safety is an issue due to weaving near the southbound off-ramp to the Briargate Interchange.

Interstate 25 traffic demands would exceed the capacity of the current two through-lanes in each direction, resulting in bumper-to-bumper traffic throughout much of the day. Therefore, the No-Action Alternative would result in delays for all

who use Interstate 25 for access to the Air Force Academy, including employees, visitors, suppliers, high school students (civilians attend school on the base) and attendees of special events. Congested traffic conditions would change the entry experience of visitors to the Academy, would be visually intrusive, and would increase air pollutant emissions. These conditions would have an impact to the historic cultural landscape of the Academy.

Proposed Action Alternative

Discussed below for the Proposed Action are the anticipated impacts to the property. These are discussed for three elements of the Proposed Action, which are:

- Widening of I-25 to eight lanes for two miles and six lanes for five miles
- Construction of the North Gate/Powers Boulevard Interchange
- Relocation of the Ackerman Overlook

Of these three elements, the construction of the North Gate/Powers Interchange and the relocation of Ackerman Overlook require a modification to the existing I-25 easement through Academy property resulting in a taking of Section 4(f) property.

The Proposed Action includes construction of two additional lanes in each direction for the southern two miles of the Academy (between the southern boundary and Briargate interchange) and the construction one additional lane in each direction from Briargate interchange to the north boundary of the Academy (a distance of 5 miles). The additional lanes would change the appearance of the historic landscape along the eastern edge of the Academy boundary. This element would not require an expansion of the existing interstate easement.

The construction of the new North Gate/Powers Boulevard Interchange would require an additional 48.4 acres of USAFA property. The new interchange would introduce new acceleration and deceleration lanes resulting in wider pavement, would require new overhead signs, and lighting.

The relocation of the Ackerman Overlook would convert 5.2 acres of predominately short-grass prairie land that is part of a significant historic property to a roadway use. The relocation would require wider pavement for entrance and exit

ramps and signing. The new location would not be visually intrusive but would use land that has historic significance.

Since only construction of the North Gate /Powers Interchange and the relocation of the Ackerman Overlook result in a permanent taking of land from a property eligible for the NRHP, only these two elements are discussed in detail below.

Construction of North Gate/Powers Boulevard Interchange. This concept consists of a diamond interchange on I-25 at North Gate/Powers Boulevard, as shown in Section 3 of the EA. It best meets the identified objectives and addresses the constraints of the project area and was initially identified as Concept 4b. The proposed North Gate/Powers Boulevard Interchange will have a direct adverse effect on the Air Force Academy property because it will change or alter some of the qualities of significance of the historic landscape. The North Gate/Powers Boulevard Interchange will require expansion of the existing Air Force Academy easement for I-25. The existing easement is shown in Figure 6-2.

The existing North Gate Interchange has a rural feel because traffic movements are separated from each other using the existing terrain. Users of any exit or entrance ramp see little of each other, and there are no traffic signals. Motorists on I-25 pass over North Gate and can easily fail to notice that there was an interchange. Introduction of new ramps connecting Powers Boulevard to Interstate 25 necessitates weaving movements on frontage roads, as well as the need for traffic signals on North Gate Boulevard. Although the connections have been thoughtfully designed to minimize visual impacts, the addition of so many new roadway ramps together in this area will not be able to maintain the relaxed rural feel of the existing configuration, and will thus alter the character of the historic cultural landscape.

Relocation of Ackerman Overlook. The existing Ackerman Overlook will be relocated due to safety concerns. It will still provide an area for motorists to stop and view the scenery of the mountains and the Air Force Academy site. CDOT and Air Force Academy personnel are coordinating efforts to move the overlook

approximately 2,300 feet north of its existing location north of the Briargate Interchange. The new overlook will be located on Air Force Academy property, with an additional permanent easement of 5.2 acres needed from the Air Force Academy by CDOT. While the Ackerman Overlook itself is not an eligible historic resource, the relocation of the overlook to a new location will require the use of additional land from the Air Force Academy, which is a significant historic property.

The 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. A pedestrian plaza will be located below the planned parking. The plaza will have a 3-½ foot high retaining wall on the west edge and expansive views of Cheyenne Mountain, the Air Force Academy air control towers, Pikes Peak, the Cadet Chapel, and Falcon Stadium. Interpretive messages can be displayed on this wall, presenting information on the Air Force Academy, Mr. Jasper D. Ackerman, and the natural and cultural history of the area.

Landscaping will help revegetate the area into a natural prairie. A natural stand of deciduous trees across the old highway will be enhanced with native plants to better frame the view. A short segment of the old highway grade, which is not eligible for NRHP listing because it has been destroyed to the north by a landing strip, will probably be removed to create a more natural setting.

Based on consultation with SHPO, the relocation of the Ackerman Overlook will have no adverse effect on the Air Force Academy. Motorists on I-25 or at the Cadet Area, Falcon Stadium, or elsewhere on the Air Force Academy property will not be able to see the pull off because it will be below the existing grade of the highway. The design uses existing topography and provides a safe pedestrian overlook in a shallow depression, which lessens the negative impact of the overlook to the landscape. It also provides a safe and fully accessible location for motorists to stop and view the scenery.

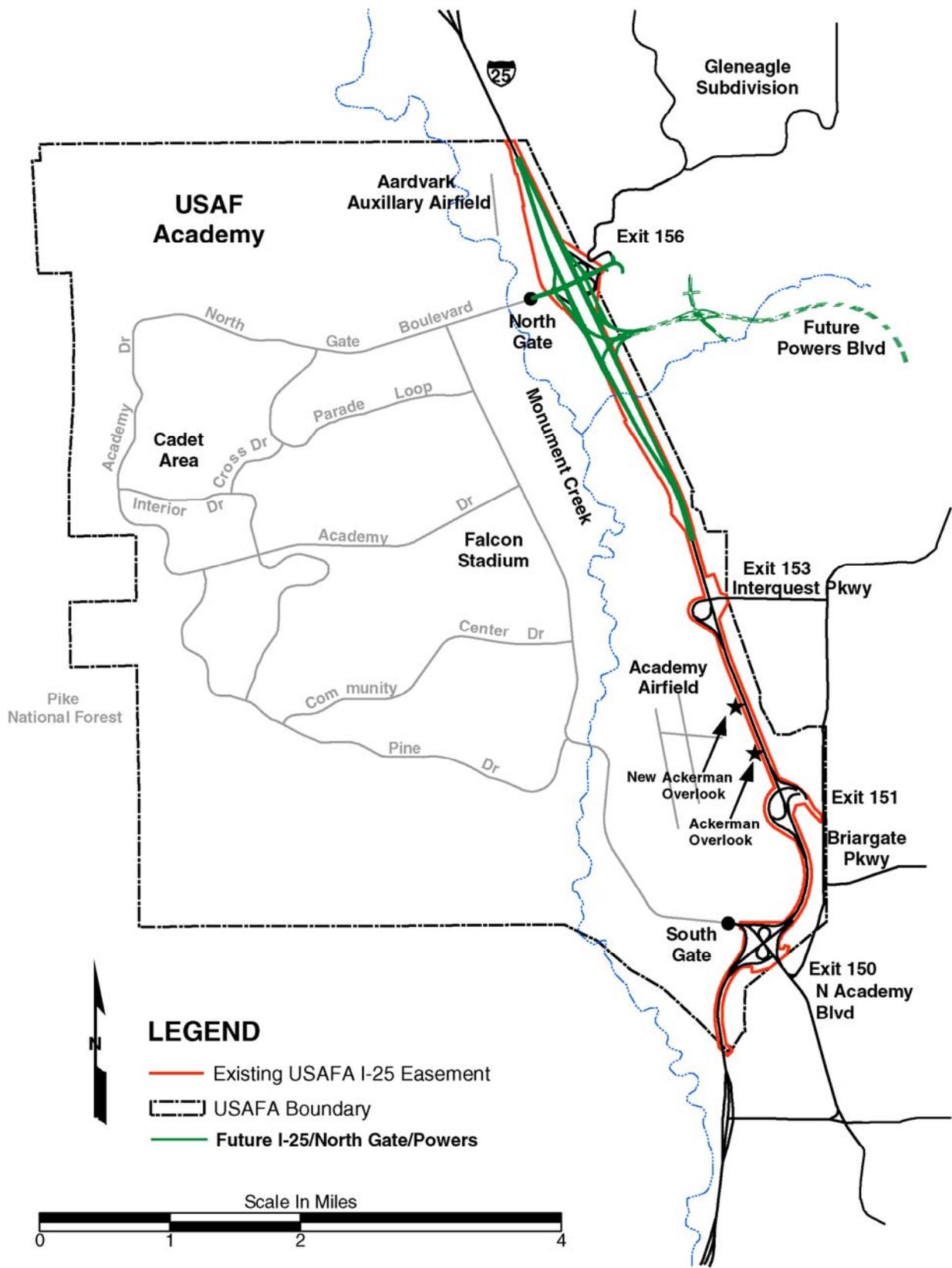


FIGURE 6-2
 Location of Interstate 25 Easement on U.S. Air Force Academy Property

Avoidance Alternatives

Avoidance Alternatives for North Gate/Powers Boulevard Interchange Complex. A design charrette process by CDOT and the Air Force Academy identified issues and constraints for this interchange complex, developed alternatives, and resulted in a fatal flaw screening that identified whether alternatives were prudent and feasible. Issues and constraints identified during the design charrette included:

- Managing traffic at the interchange to handle Powers/I-25 and North Gate/I-25 traffic and special event traffic at the Air Force Academy
- Maintaining safety and design standards
- Maintaining access for the Air Force Academy and local residential areas on North Gate
- Remaining sensitive to existing visual conditions
- Avoiding environmental impacts, including impacts to the Preble's meadow jumping mouse
- Providing adequate security for Air Force Academy
- Minimizing impacts to local development and the Air Force Academy.

For schematic drawings of the eliminated concepts, see the figure associated with each concept. A brief description of each alternative is provided below:

Concept 1: Realign Powers Along North Gate Boulevard to Improved North Gate Interchange (Figure 6-3)

This freeway-to-freeway interchange realigns Powers Boulevard along North Gate Boulevard. An east-west local road north of North Gate would provide access to Gleneagle Subdivision. This concept is not feasible or prudent because it would impact properties along North Gate, including the Reynolds Ranch; would bring freeway traffic to the front door of the Air Force Academy; and would require relocation of the Air Force Academy gatehouse and Santa Fe Trail (portions of which are on historic railroad grade). Multiple structures required for the construction of the interchange also would result in a visual impact.

Concept 2: Realign Air Force Academy Entrance to Meet Powers South at a New Interchange (Figure 6-4)

This is a stretched version of the interchange in Concept 1. Powers Boulevard would be constructed south of North Gate and under I-25 in a northwesterly direction, providing free-flowing movement from Powers to North Gate at the Air Force Academy. This concept is not feasible or prudent for the same reasons described for Concept 1, except that it would not impact properties along North Gate.

Concept 3: Collector/Distributor Roads with Diamond Interchange at North Gate and New Powers Connection (Figure 6-5)

This concept utilizes a collector/distributor road to access North Gate and Powers. It includes two interchanges: North Gate with a diamond configuration and a new freeway-to-freeway interchange at Powers. Access to the Gleneagle subdivision would be provided by the collector/distributor road. This concept is not feasible or prudent because it has a longer footprint that causes increased visual concerns, and the collector/distributor system was questionable in terms of driver expectancy.

Concept 4: Diamond Interchange at North Gate with New Powers Connection and Limited Air Force Academy Access (Figure 6-6)

This concept consists of a split-diamond interchange at North Gate with braided ramps to the Powers Boulevard freeway-to-freeway interchange. This concept consists of four access points and is not fully directional. It is not feasible or prudent because it has access restrictions from the Air Force Academy onto southbound Powers and from north-bound Powers to the Air Force Academy.

Concept 5: New Powers Interchange and No Interchange at North Gate (Figure 6-7)

This concept removes the ramps at North Gate and constructs a freeway-to-freeway interchange at Powers. This concept is not feasible or prudent because it negatively impacts access to and from the Air Force Academy, Gleneagle, and the surrounding area. Multiple structures required for the construction of this interchange concept would result in visual impacts.

Concept 6: Powers Alignment East of I-25 with North Connection at Diamond Interchange at North Gate (Figure 6-8)

This concept consists of a diamond interchange at North Gate, with the Powers alignment running parallel to I-25 on the east side to an alignment north of existing North Gate. The connection to Powers from I-25 is handled with ramps north of the existing North Gate Interchange. A northbound exit ramp to Powers Boulevard and a southbound entrance ramp to I-25 are still provided south of North Gate. This concept is not feasible or prudent because it negatively impacts driver expectancy and the ability to use the natural terrain. It also negatively impacts wetlands and the historic Reynolds Ranch.

Additional alternatives that were also considered include:

1. No-Action Alternative

The No-Action Alternative will result in increased travel times, longer periods of congestion on I-25 and connecting roads, air pollution, and continued deterioration of the interstate, which wasn't designed to handle increased loads. The 7 miles of I-25 through the Air Force Academy, which is an officially eligible Historic Cultural Landscape, also would experience congestion and decreased travel speeds. The No-Action Alternative does not meet the Project Purpose and Need described in Section 1 and is considered not feasible or prudent.

2. Improve the Highway Facility without Using Land from Significant Historic Site

This alternative is considered not feasible or prudent because the North Gate Interchange is within the Air Force Academy property. It is not possible to build the improved interchange without using the historic site.

3. Build an Improved Facility on a New Location without Using the Historic Site

This alternative is considered not feasible or prudent. Other locations were considered for the interchange but were rejected because they did not meet the Project Purpose and Need.

Avoidance Alternatives for Widening the Highway. This portion of the Proposed Action does not use or take any of the Section 4(f) property.

Avoidance alternatives are not required for this part of the action.

Avoidance Alternatives for a New Ackerman Overlook. Because there are safety concerns associated with the existing Ackerman Overlook, FHWA has determined that the overlook must either be relocated or permanently closed. Since the existing overlook is heavily used by motorists to view the scenery of the mountains and the Air Force Academy site, FHWA, in consultation with the Air Force Academy, determined that the overlook should be relocated rather than closed. Relocation of the overlook will require the use of additional property from the Air Force Academy, which is a significant historic property.

CDOT and the Air Force Academy consulted on the best possible location for the relocation of the Ackerman Overlook. Issues and constraints were developed as part of a visual and landscape design process. These included:

- Providing a safe and accessible overlook for motorists
- Discouraging use of the overlook for pass-through motorists
- Providing interpretation of the Air Force Academy in an area accessible to pedestrians (this area also must be Americans with Disabilities Act accessible)
- Ensuring that no structures at the overlook, such as restrooms or above-grade signs, are visible to passing motorists. The area chosen for the relocated overlook helps meet several of the issues and constraints identified above, while also providing a safe overlook for motorists who wish to view the scenery and Air Force Academy property.

1. No-Action Alternative

The No-Action Alternative does not meet the Project Purpose and Need and is considered not feasible or prudent because the current location of the Ackerman Overlook has severe safety and accessibility issues. At the same time, providing an overlook for motorists is a primary concern of both the Air Force Academy and CDOT, and eliminating the overlook entirely is not an option.

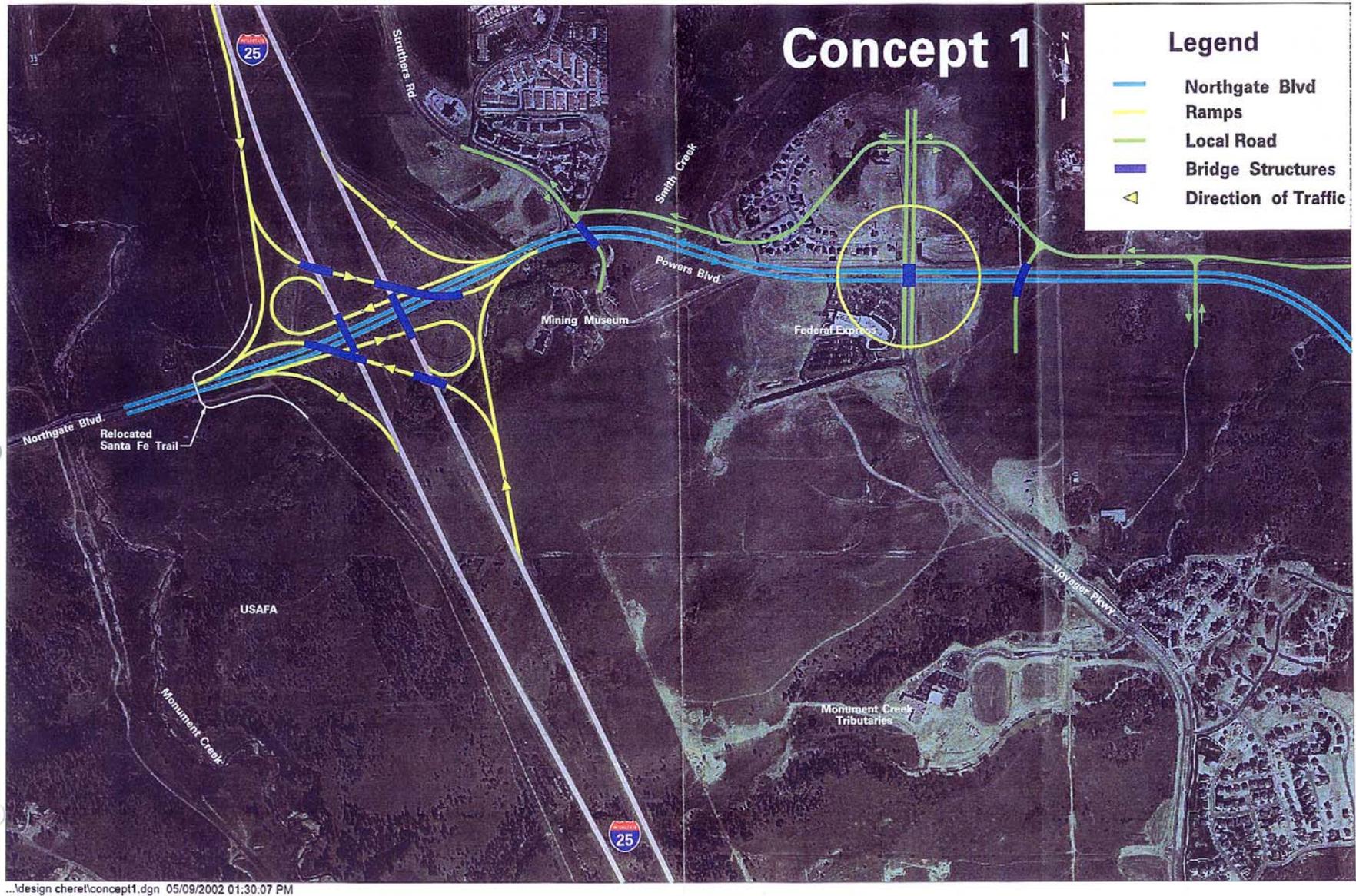


FIGURE 6-3
 Concept 1: Realign Powers Along North Gate Boulevard to Improved North Gate Interchange

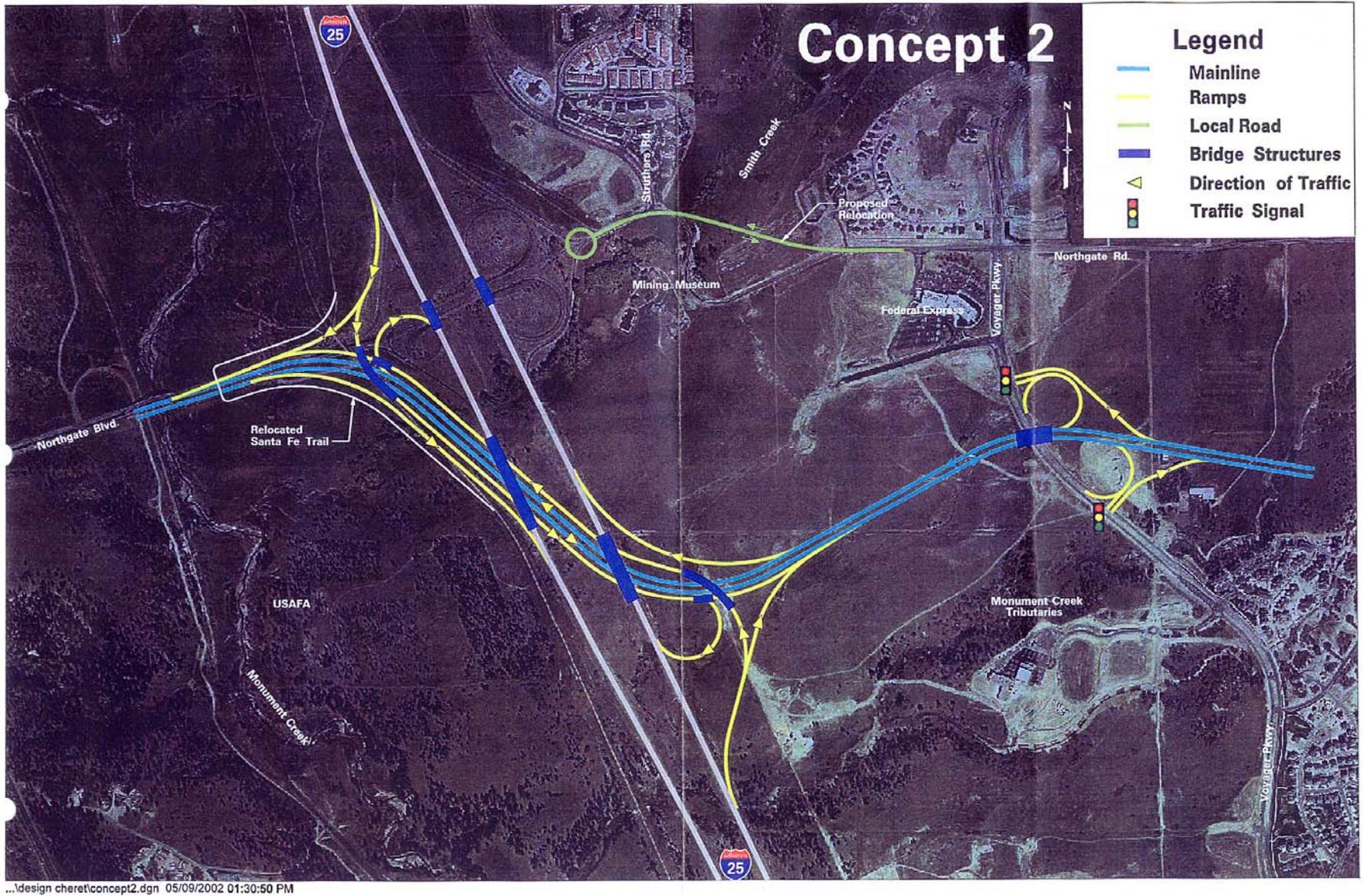


FIGURE 6-4
 Concept 2: Realign Air Force Academy Entrance to Meet Powers South at a New Interchange

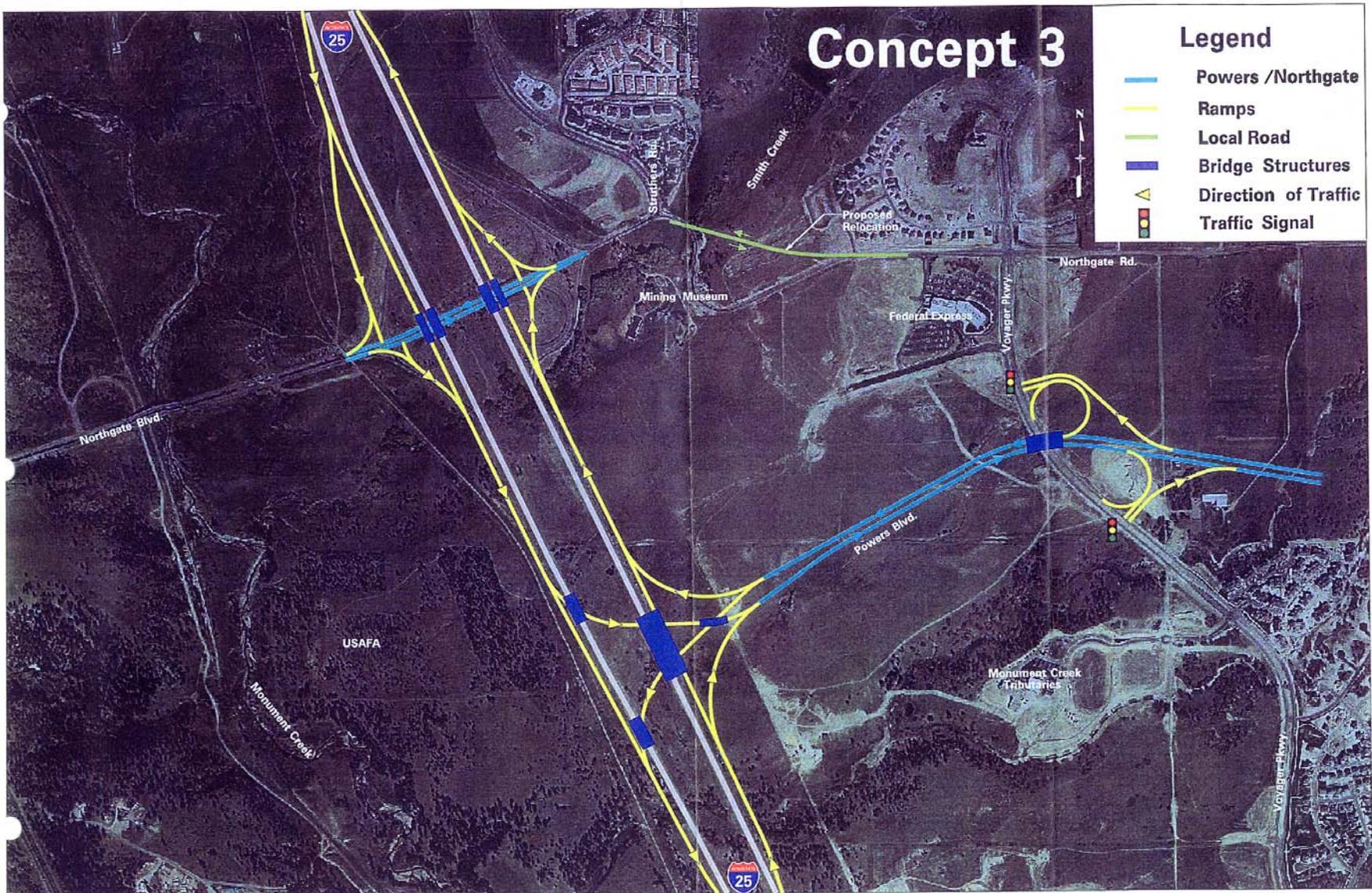


FIGURE 6-5
 Concept 3: Collector/Distributor Roads with Diamond Interchange at North Gate and New Powers Connection

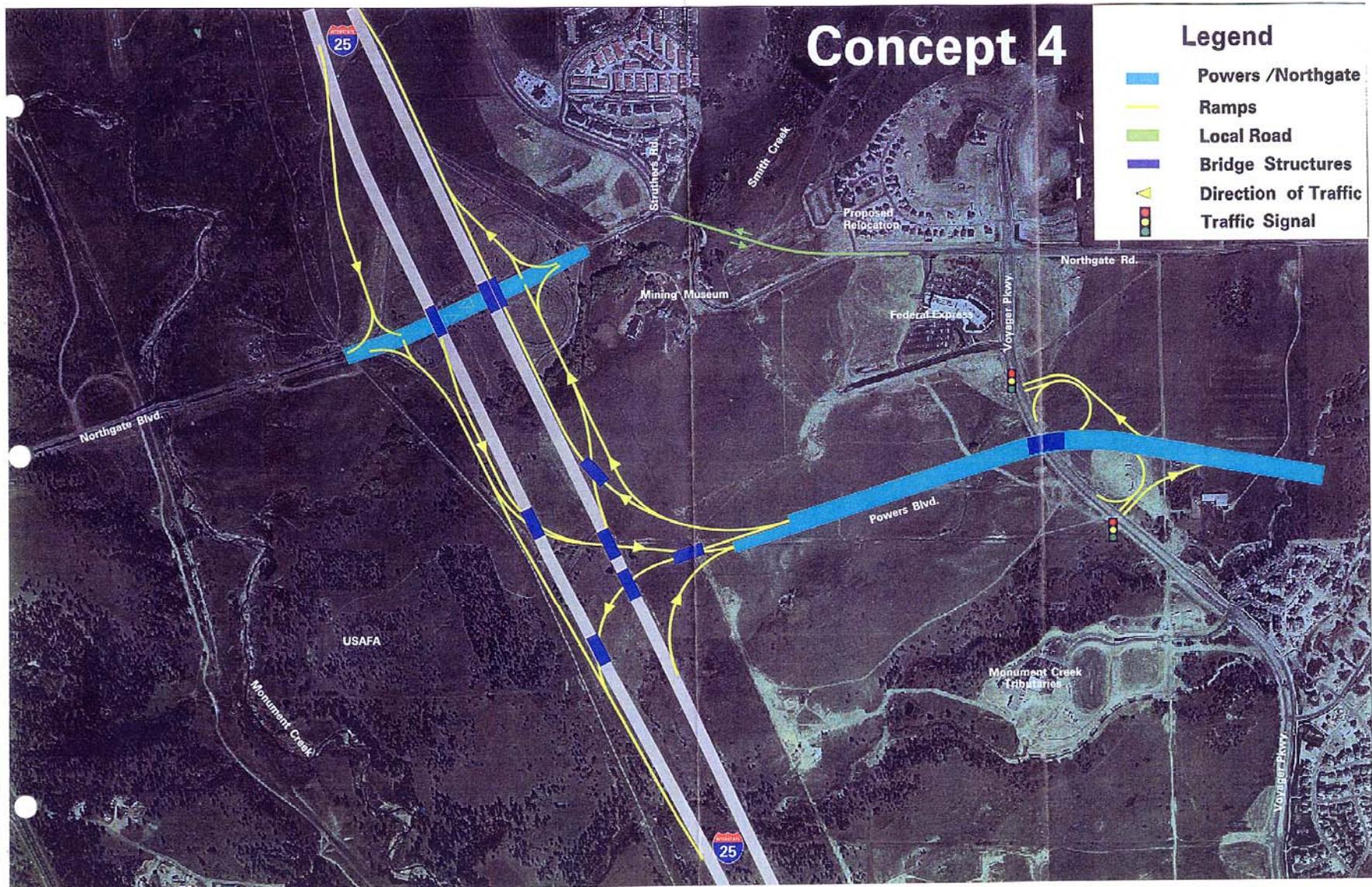


FIGURE 6-6
 Concept 4: Diamond Interchange at North Gate with New Powers Connection and Limited Air Force Academy Access

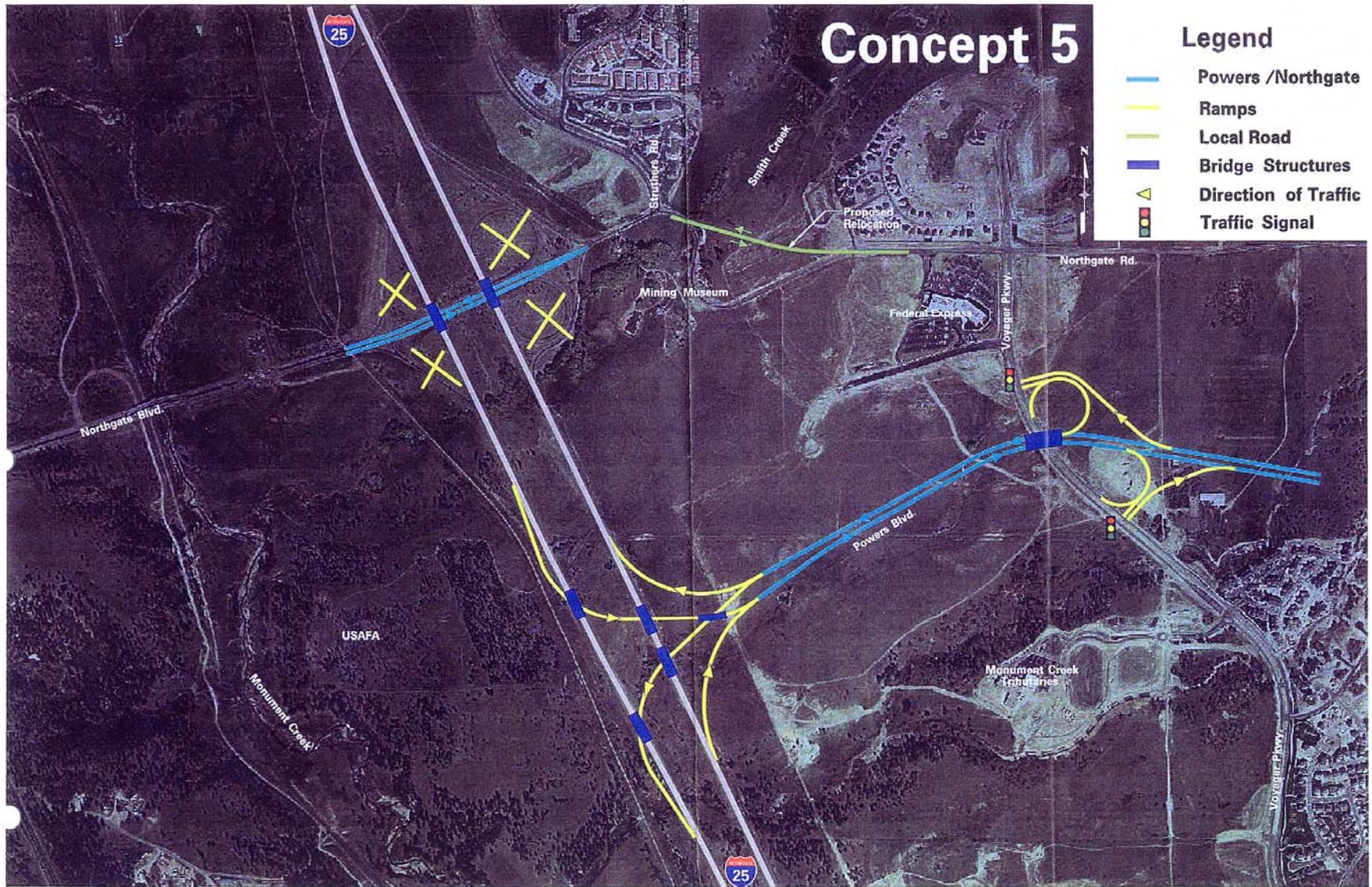


FIGURE 6-7
 Concept 5: New Powers Interchange and No Interchange at North Gate

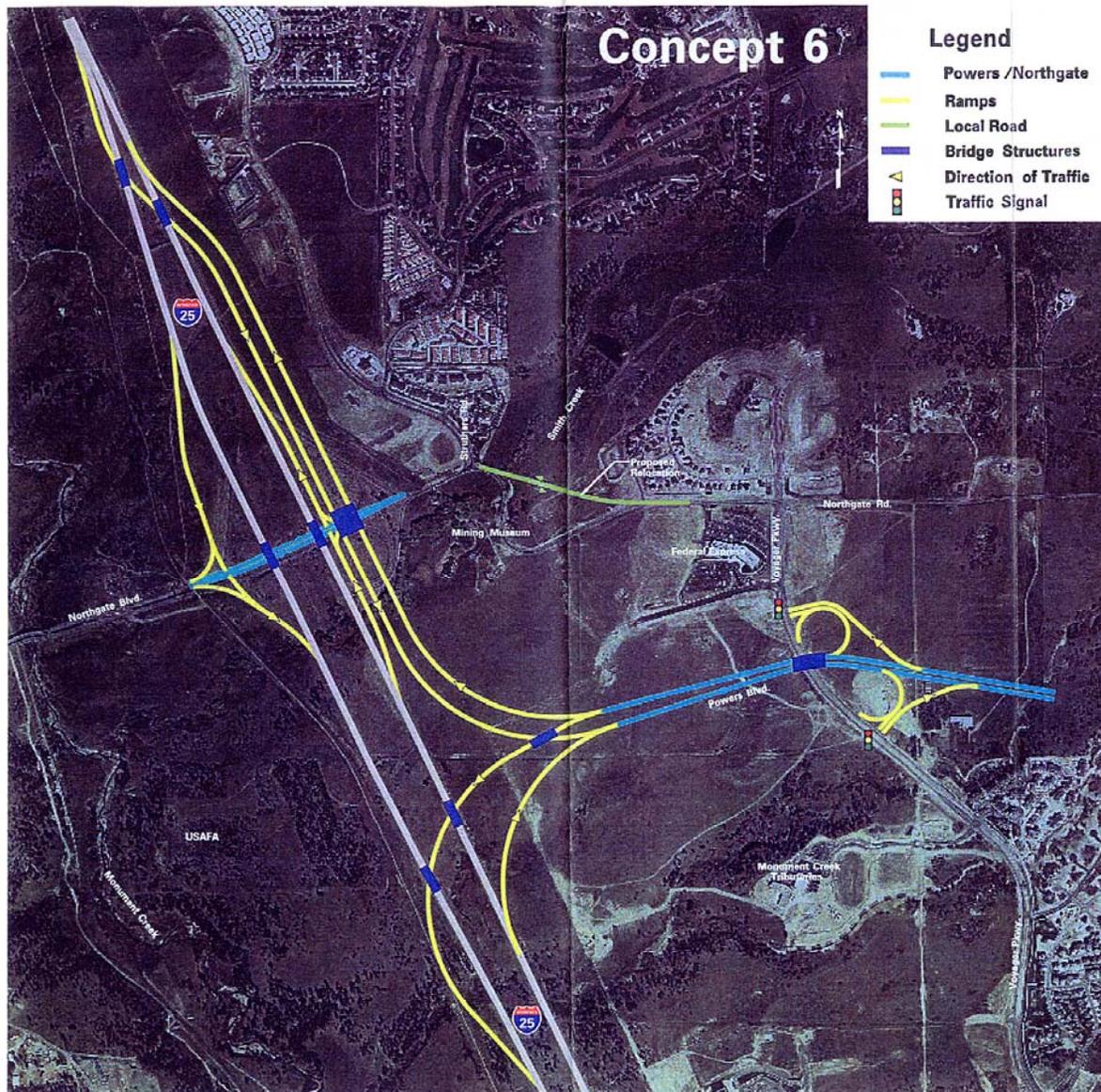


FIGURE 6-8
 Concept 6: Powers Alignment East of I-25 with North Connection at Diamond Interchange at North Gate

2. Improve the Highway Facility Without Using Adjacent Historic Site

This alternative is considered not feasible or prudent because the Ackerman Overlook must be located west of I-25, which is Air Force Academy property, in order to provide a good view of the Academy and not a view of the highway.

3. Build an Improved Facility on a New Location Without Using the Historic Site

This alternative is considered not feasible or prudent because if the Ackerman Overlook were located outside of Air Force Academy property, it would not provide an overlook of the installation.

Measures to Minimize Harm

North Gate/Powers Boulevard Complex. During the design charrette process for the I-25 Interchange with North Gate and Powers Boulevard, participants developed strategies to minimize the impact of the Proposed Alternative through the Air Force Academy. These strategies include keeping the widened interstate at or below the existing centerline grade to lessen the possibility of seeing it from high vantage points within the Air Force Academy, including the Cadet and Academic areas. The North Gate/Powers Interchange 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, will be replaced with similar species after construction. Final designs will be developed as part of the plans prior to construction. When final drawings of the interchanges and plans for the surrounding landscape are prepared, they will be forwarded to SHPO and Air Force Academy for comment.

As mitigation, a detailed narrative history of the Air Force Academy and archival photographs of the present appearance of the six miles of I-25 through Air Force Academy property will be provided to the SHPO in the form of Level II documentation. It is recommended that the National Register of Historic Places (NRHP) Nomination currently being prepared by the National Park

Service to recognize the Air Force Academy as a National Register Historic Landmark will satisfy the requirements of Level II Documentation for a detailed narrative history of the Air Force Academy.

Ackerman Overlook. Motorists on I-25 or at the Cadet Area, Falcon Stadium, or elsewhere on the Air Force Academy property will not be able to see the pull off because it will be below the existing grade of the highway. The design uses existing topography and provides a safe pedestrian overlook in a shallow depression, which minimizes the negative impact of the overlook to the landscape.

Widening of I-25. This portion of the Proposed Action does not use or acquire any of the Section 4(f) property. Measures to minimize harm are not required for this part of the action.

WPA Flood Wall (5EP3856)

A major flood occurred in Colorado Springs in 1935, during America's economic Great Depression. The flooding caused four deaths and destroyed five of the city's six bridges across Monument Creek, and also caused property damage in Monument Valley Park. Subsequently, stone flood walls were built along both sides of the creek, as a public works project under the Roosevelt Administration's Works Progress Administration (WPA).

The WPA Flood Wall on Monument Creek, eligible under Criteria (a) and (c) for association with the Works Progress Administration and for WPA construction techniques, is found on the east and west sides of the creek from north of Uintah Street to south of Colorado Avenue. Over the years, segments of the WPA wall have been determined eligible for the NRHP.

The wall system is not entirely intact as originally constructed due to prior infrastructure projects including the reconstruction of the City's Colorado Avenue bridge.

Impacts to wall on the west side of the creek between Cimarron and Bijou

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 square feet of potential 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 square feet of permanent impact).
- A new retaining wall adjacent to the NB off-ramp at Bijou (1,370 square feet of potential impact).

When the final design and contractor selection for the retaining walls have been completed the extent of potential impact will be submitted to SHPO. See the attached cross-section of three alternatives for the retaining walls in relation to the WPA wall.

Storm Sewer. A storm sewer outfall pipe south of Bijou will be installed through the wall by removing stones and then replacing them after the storm sewer is installed (400 square feet of 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 square feet of 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.

As the result of consultation with SHPO regarding Section 106, the resulting determination of effect is adverse effect 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. (See Figure 6-9 for the location of the impacted areas.)

Avoidance Alternatives

Engineers investigated several alternatives to determine if a prudent and feasible alternative existed to impacting the WPA wall. The alignments of the alternatives are described below.

1. No-Action Alternative

The No-Action Alternative 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.

2. Improve Highway Without Using WPA Wall

This alternative has several variations:

a. 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 2,100 feet to 1,400 and 1,600 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 feet.

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 difficult and expensive to construct and cause maintenance problems, particularly with icing.

b. 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 acquisitions including the Veteran's Administration-El Paso County property, City Glass, and SoCal Auto Detailing, a cost of approximately \$25 million.

3. 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 do extensive commercial and residential development on the west.

Measures to Minimize Harm

Approximately 400 square feet of the WPA Wall will be permanently impacted with the installation of a new storm sewer structure south of Bijou. The original stones will be removed for construction

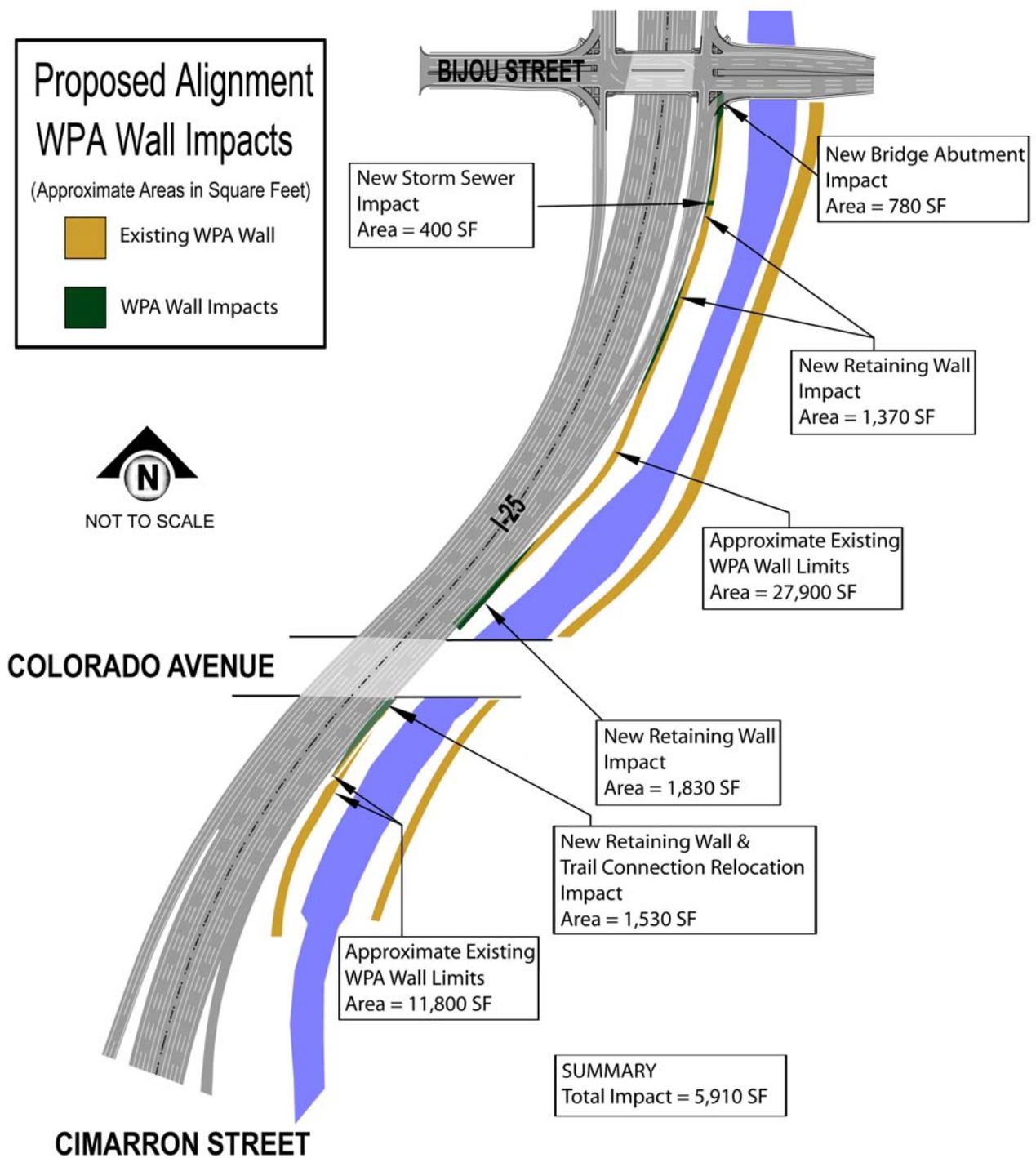


FIGURE 6-9
WPA Flood Wall Impacted Areas

and replaced after the structure is installed. It is recommended that qualified stonemasons reconstruct the impacted portions of the wall at the drainage structure. Detailed plans and photographs must be prepared to show the present condition of the wall and the stones numbered so the stonemasons can rebuild the wall to match its present appearance. Any stones that are not used in rebuilding the wall can be used to replace the riprap underneath the Colorado Avenue Bridge.

The new abutment for the Bijou Bridge will remove 780 square feet of the WPA wall resulting in a permanent impact to the wall. Care should be taken to avoid breakage when removing the stones in any location. Stones not reused in reconstruction could be used to replace the riprap at 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 matching mortar be used to repair and stabilize the wall. This vegetation is weakening the mortar and stones and causing the wall to deteriorate.

The potential for the retaining walls to adversely impact the WPA wall is dependent on the preferred alternative that appears to be Partial Avoidance at this time.

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

St. Mary's Church (5EP208)

St. Mary's Cathedral (formerly, St. Mary's Church) is located east of the I-25/Bijou Interchange (Exit 142), just across the street from the Monument Valley Park Entrance Gate. St. Mary's Church was completed in 1898 and listed on the NRHP in 1982, based on NRHP Criterion (c), for its neo-Gothic design and its architectural presence in downtown Colorado Springs. With the

establishment of the Colorado Springs Catholic Diocese in 1984, the building was subsequently renamed St. Mary's Cathedral.

Impacts to Property

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 (see Figure 6-10). In addition, pavement will be removed and Bijou and Kiowa streets will be slightly realigned in front of the church. This work will not negatively impact the historic significance of the church and the determination of effect is no adverse effect.



FIGURE 6-10
St. Mary's Cathedral Right-of-Way Impact

The area of the St. Mary's Church site is approximately 88,000 square feet, and the impact of the Proposed Action is a taking of approximately 3,000 square feet, primarily from a parking lot.

Avoidance Alternatives

1. No-Action Alternative

The No-Action Alternative is considered not prudent or feasible because it does not meet the project purpose and need. It would not allow for the elevation change for the new bridge or correct the curve from Bijou Street eastbound to Kiowa Street. The bridge elevation change is necessary for flood control and to meet minimum vertical standards of the railroad. The correction of the curve is needed because of safety concerns and to improve driver expectancy at this intersection.

2. Improve Highway without Using St. Mary's Church Parking Lot

This alternative is not feasible or prudent because no right-of-way can be acquired from Monument Valley Park on the west, which is protected by a 1907 deed made by General William Jackson Palmer. This deed stipulates that, if land from Monument Valley Park (5EP613) is converted to another purpose, the park would revert to the heirs of the estate and could potentially result in a permanent loss or change in park land. The park is currently protected under Section 4(f). To the south of St. Mary's Cathedral are three other historic properties: St. Mary's School (5EP3854), the Knights of Columbus building (5EP634), and the Carnegie Library (5EP646), which preclude shifting Bijou Street in that direction.

3. Improve Highway on New Location

The proximity of the church parking lot to the intersection makes this alternative not feasible or prudent.

Measures to Minimize Harm

A vibration analysis was conducted for the church due to its proximity to construction activities. The analysis 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 15 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: Pavement removal and earthwork activities using a large bulldozer will occur no closer than 20.5 feet to the building.

Recommendations

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.

In addition, the amount of parking spaces in the property was minimized to the greatest extent possible. Along with the removal of 20 parking spaces, CDOT consulted with the St. Mary's administration to reconfigure their parking lot to allow enough room for parking during services and meetings at the church. St. Mary's completed the reconstruction of the parking lot in July 2003.

Coordination

The development of this EA has occurred over several years and has involved input and guidance from a variety of governmental agencies and citizens.

CDOT has coordinated with agencies and entities having jurisdiction over the Section 4(f) properties. These include the Air Force Academy (which is a Cooperating Agency for this EA); St. Mary's Church Administration; and the City of Colorado Springs, including the Landmark Advisory Board. In addition, CDOT and FHWA coordinated the eligibility and effects determinations with the Colorado SHPO. Concurrence from the SHPO was received in February 2004.

An ongoing public participation process has been implemented throughout project and is described in Section 5 of this EA document. A series of public meetings and community workshops have provided opportunities for interested citizens to participate in the study process and comment on the Proposed Action.

Please see Section 12 for the appropriate correspondence from the coordinating agencies.

Summary of Section 4(f) Documentation

The Proposed Action includes all possible planning to minimize harm to these properties resulting from the I-25 Improvements Project.

SECTION 7

Wetland Finding

The following is a wetland finding for Project 0252-316, I-25 Improvements Through the Colorado Springs Urbanized Area, and has been written in compliance with Executive Order 11990, “Protection of Wetlands,” and is in accordance with 23 CFR 771, 23 CFR 777, and Technical Advisory T6640.8A.

Project Location

The study area that was investigated for highway improvements is located along an approximate 26-mile stretch of the Interstate 25 (I-25) corridor in El Paso County between the State Highway 105 and State Highway 16 exits (Exit 161 and Exit 132 respectively). Due to the linear composition of the project, the assessed areas span five USGS quadrangle maps (Monument, Pikeview, Colorado Springs, Cheyenne Mountain and Fountain). The areas containing wetlands are listed below in Table 7-1 sequentially from north to south according to the quadrangle on which they appear.

TABLE 7-1
Areas Containing Wetlands

USGS Quadrangle	Sections	Township	Range
Monument, CO	1, 12, 13, 14, 23, 25, 26, 35, 36,	11 South	67 West
	6, 7, 17, 18*	12 South	66 West
	1, 12	12 South	67 West
Pikeview, CO	18*, 19, 20, 29, 30, 32	12 South	66 West
	5, 6, 7, 8, 17, 18, 19, 30, 31*	13 South	66 West
	24, 25, 36*	13 South	67 West
Colorado Springs, CO	36*	13 South	67 West
	31*	13 South	66 West
	1, 12, 13, 24	14 South	67 West
	6, 7, 18, 19, 20, 29, 32, 33	14 South	66 West
	3, 4, 9, 10, 14*, 15*	15 South	66 West
Cheyenne Mountain	14*, 15*	15 South	66 West
(note: study area restricted to NE corner of quad) Fountain	13, 14*	15 South	66 West

*Section overlaps onto two quads

Project Description

The I-25 Improvement Project was initiated to relieve existing traffic congestion and address projected future congestion within the corridor. The project will widen I-25 over a 26-mile stretch between State Highway 105 (Exit 161) and South Academy Boulevard (Exit 135). A six-lane travel corridor consisting of three through-lanes in each direction is planned south of the US 24 Bypass to South Academy (4 miles), and north of Briargate to SH 105 (12 miles). An eight-lane travel corridor of four through-lanes in each direction is planned for the 12-mile stretch between the US 24 Bypass (Exit 139) and Briargate Parkway (Exit 151). No widening activities are planned south of South Academy Boulevard.

Reconstruction of the interchanges at several locations will be implemented to improve traffic flow on the interstate. The major interchanges that will be redesigned to accommodate increases in future capacity include the following interchanges: Baptist Road (Exit 158); Northgate Road, plus freeway-to-freeway ramps for Powers Boulevard (Exit 156); North Nevada Avenue and Rockrimmon Boulevard (Exit 147/148 consolidated); Fillmore Street (Exit 145); and Cimarron/Bijou Streets (Exit 141/Exit 142 – US 24).

Attached are plan-view GIS maps illustrating areas where wetland impacts will occur. The maps run sequentially from north to south and include the locations of all pre-existing wetland areas as documented during the GPS survey that was conducted concurrently with the delineation. A separate GIS layer indicates the extent of proposed impacts within the wetland areas.

Project Alternatives

Project Need

Interstate 25 is El Paso County's only freeway, and is the region's most heavily traveled roadway, serving more than 517,000 County residents. Peak-hour congestion on I-25 during normal workdays in central Colorado Springs has been increasing annually and reached unacceptable service levels in 1998. Regional population is continuing to grow and is projected to increase by an additional 200,000 people by 2025, which will contribute significantly to the already overburdened congestion on the highway. Mobility on the interstate is critical to the region's economy including the military sector, civilian employment centers, residential mobility, and tourism. The need for capacity improvement has been a top priority in the region's long-range transportation plan, and ranks as the public's foremost transportation priority. The need for improvements has become critical within the last few years, as usage has increased to the point where the facility's capacity limits have been surpassed.

During the development of the Proposed Action, a number of alternatives were considered but were not recommended as they did not fulfill the project's purpose and need for reasons pertaining to excessive cost, insufficient operating speed, or were inadequate to provide congestion relief at a meaningful level. These alternatives included transit alternatives, alternate roadway routes, and land widening options with and without the use of HOV lanes. The Proposed Action will widen the existing roadway and reconstruct five interchanges.

Impact Avoidance and Minimization

In general, the proposed improvements on the existing facility would result in fewer wetland impacts than construction of a new transportation facility on a new alignment, due to the smaller impact required to widen an existing roadway versus construction of a new facility on a new alignment. Avoidance of all wetland impacts through making minor shifts in the I-25 alignment is not possible, since at most locations the wetlands are present on both sides of the roadway, and to shift the roadway would result in unacceptable right-of-way impacts.

In anticipation of unavoidable impacts to wetlands, CDOT has endeavored to minimize impacts to the fullest extent possible throughout the project's initial design phases. Roughly half of the wetland impacts in the corridor are associated with construction of the redesigned interchanges at Baptist and Northgate Roads. Early in the design process, workshops were held for the design engineers and environmental staff to discuss sensitive areas (including wetlands), and general techniques for minimizing habitat impact. Efforts to avoid and minimize impacts to wetlands during the project planning and design phases included: 1) widening the highway to the inside (median area) whenever possible to avoid impacts to wetlands on road edges; 2) raising bridge structures to obtain higher clearance and provide a better environment for revegetation success; 3) realignment or modification of roadway geometry and/or steepening of slopes; and 4) the extensive use of Best Management Practices (BMPs).

For the North Gate/Powers Interchange, initial fill slopes were specified at 6:1. Subsequent design iterations resulted in a reduction of the fill slopes to 4:1, and ultimately to 3:1 to maximize wetland avoidance. It is likely that bridge rails and guardrails will be installed to accommodate these slopes. Highway shoulders in the vicinity of the interchanges were narrowed from 12 feet down to 8 feet to minimize impacts to sensitive habitat adjacent to the highway and satisfy U.S. Air Force Academy restrictions.

CDOT will continue to work with the design team and environmental staff through the final design phases to ensure that the maximum avoidance and minimization techniques continue are used to further reduce impacts wherever possible.

Wetlands

Wetland Delineation

Jurisdictional and non-jurisdictional wetlands and waters of the U.S. within the I-25 study area were delineated and surveyed using GPS technology. The delineation was conducted by Celine Pliessnig and Janetta Shepard of Aquatic and Wetland Company (AWC), of Boulder, Colorado, over an 18-month period from September 2000 through March 2002. The surveys were incorporated into Geographic Information System (GIS) maps of the I-25 corridor and each wetland was assigned an alphabetic designation for reference. Wetlands associated with

the redesigned North Nevada/Rockrimmon Interchange that are situated outside of the study area limits where all other impacts are expected to occur were delineated by Global Wetlands (a Denver-based environmental consulting company), in 2000.

Verification of the wetland boundaries delineated by AWC was issued by Mr. Van Truan of the U.S. Army Corps of Engineers (Corps) on May 9, 2002. Corps verification for the wetlands delineated by Global Wetlands was issued on July 24, 2002. The Corps has assigned Action No. 2002 00318 to this project.

The specific study area was focused along a 150 to 200-foot wide linear corridor, which extended to the east from the outer edge of the northbound traffic lanes, and to the west from the outer edge of the southbound traffic lanes. A minimum width of 150 feet of wetland was delineated in all areas containing drainages, wetlands, and roadside ditches. The wetland survey line was extended an additional 50 feet outside of the 150-foot corridor wherever possible, except in those areas where access was obstructed by topography or private property fences. Vegetated medians and all potential footprints for interchange expansions that extended beyond the study corridor and contained wetlands were included in the delineation.

Wetland habitat was identified at a total of 106 separate locations by AWC. Four of the Global Wetlands Group wetlands along Monument Creek that may be impacted by construction of the North Nevada/Rockrimmon Interchange were included in the wetland impact summary table (refer to Table 7-2 at the end of this section).

The study area corridor is located at elevations generally ranging between 5,400 and 6,900 feet above mean sea level. In the northern segment of the highway the landscape is relatively undeveloped and dominated by a series of rolling hills, drainages with narrow floodplains, steep ravines, upland meadows, short- to mid-grass range and pasture land. Due to the large number of sites that were investigated, the wetland areas along the I-25 study corridor were cataloged into the following eight groups during the delineation for clarification and reference: natural perennial drainage, natural ephemeral drainage, stormwater channel, wet meadow,

isolated wetland (characterized by a dominance of herbaceous or woody vegetation), and roadside swale. Habitat classification of each individual area within each group was determined according to the Cowardin System.

Ecoregions within the project corridor include the Southwestern Tablelands (26) and Grasslands (26-1) Subregions (EPA Ecological Subregions of Colorado). These are characterized by semi-arid climate with less than 300mm precipitation, irregular plains and tablelands of moderate local relief (between 15-30m) and suited for use as rangeland. Typical vegetation found in these ecozones consists of blue grama, often occurring with western wheatgrass, galleta, alkali sacaton, four-wing saltbush, sand dropseed, three-awn, sand reed, bluestem, sideoats grama, and yucca interspersed.

Wetland Acreage

The total acreage of jurisdictional waters of the United States, including wetlands, within the study area is 96.029 acres. There are a total of 51 jurisdictional wetlands that consist of natural drainages, ephemeral drainages, wet meadows and isolated wetlands associated with or situated in close proximity to, navigable waterways. The remaining 55 wetlands within the study area exhibit wetland characteristics but are classified as non-jurisdictional as they are either isolated wetlands with no connection or proximity to navigable waters, man-made stormwater conduits (some of which are concrete-lined), or roadside ditches.

Classification

Classification of wetlands is in accordance with the U.S. Fish and Wildlife Service, *Classification System for Wetlands and Deepwater Habitats* (Cowardin et. al., 1979). The wetland plant communities present within the study corridor are characterized as palustrine emergent, palustrine scrub-shrub, forested needle-leaf or broad-leaf deciduous wetlands that are either periodically or permanently flooded.

Vegetation

The *National List of Plant Species That Occur in Wetlands, Regions 4, 5 and 8* (USFWS., 1994) was referenced to determine the wetland indicator status for each plant in Region 5 (Central Plains region).

In general, herbaceous vegetation in the riparian and wetland areas is dominated by cattails (*Typha*

latifolia – OBL), sedges (*Carex aquatilis* – OBL, *C. nebraskensis* – OBL), alkali muhly (*Muhlenbergia asperifolia* – FACW, teasel (*Dipsacus fullonum* – NI) Baltic rush (*Juncus balticus* – OBL), three-square bulrush (*Schoenoplectus pungens* – OBL), reed canary grass (*Phalaris arundinacea* – FACW+), willow herb (*Epilobium palustre* – OBL), Canada thistle (*Breca arvense* -FACU), and showy milkweed (*Asclepias speciosa* – FAC).

Woody vegetation is dominated by willows shrubs (*Salix exigua* – OBL), and peach-leaf and crack willow trees (*Salix amygdaloides* – FACW, *S. fragilis* – FAC), plains cottonwood (*Populus deltoides* – FAC), narrow-leaf cottonwood (*Populus angustifolia* – FACW), alder (*Alnus incana* – NO), and river birch (*Betula fontinalis* – OBL).

South of the downtown area, a few occurrences of saltcedar (*Tamarix ramosissima* – FACW) have established in the drainages. Populations of this invasive species begin to increase noticeably in the drainages closest to the Fountain exit at the southern extent of the study area.

Soils

Soil hue, value, and chroma at each wetland area were compared to the *Munsell Soil Color Charts* (Kollmorgen, 1990) to determine the presence of hydric soils. Soils sampled in the riparian and wetland areas consisted predominately of sand and loam, which contained varying concentrations of gravel or cobbles, depending upon the test site's proximity to the highway or to drainages with eroding banks. Soils in the riparian areas are primarily alluvial and are highly susceptible to erosion due to the structure of the banks, which contain a high proportion of sandstone.

The major soil types occurring within the study areas were mapped by the U.S. Soil Conservation Service (SCS), *Soil Survey of the El Paso County Area, Colorado*, Sheet Nos. 1, 8 and 16, (Soil Conservation Service, June 1981). Of the 14 soil types listed in the study area (SCS, 1981), none appear on the Colorado List of Hydric Soils (SCS, 1990). Hydric soils found within the study area primarily occur adjacent to stream channels and consisted of alluvial, sandy soils with heavy cobble loads. Sampled soils

exhibited a broad range of matrix colors consisting of 10YR 2/1, 10YR 3/1 and 10YR 4/1 with and without mottling, and 10YR 2/2, 3/2, 4/2 and 5/2 with mottles ranging from slight to abundant.

Hydrology

Groundwater, runoff, stormwater, snowmelt and precipitation all contribute to the hydrologic regime of the natural major drainages and their tributaries. Ephemeral drainages are periodically dry and generally conduct water during high flow periods (i.e., following spring runoff, heavy snowfall and storm events). Wet meadows and isolated wetlands are situated in depressional basins or are in close proximity to natural water bodies, but with no visible surface connection. Hydrology is primarily supported by groundwater, seeps, and slope or highway runoff, and supplemented by snowfall and precipitation. Roadside swales are situated in close proximity to paved surfaces (i.e., roads and parking lots) and are usually backed by steep slopes. The swales collect and hold runoff from the pavement or from the adjacent steep sided slopes.

Functions and Values

The extent to which the wetlands perform their functions and values varies widely within the study area. In general, wetland areas are larger and of higher quality at the north end (e.g., Air Force Academy). As development increases to the south, wetlands are generally smaller, more isolated, and have low species diversity. Influences on the level of functions and values include overall size and proximity to ongoing highway impacts (e.g., low water quality runoff, excessive sediments, noise), stream channel instability and prior channel treatments (e.g., rock gabions), and the extent of invasive species.

Functions performed by the wetlands within the study area include the provision of aquatic, avian and wildlife habitat, flood attenuation and storage, retention and removal of sediment, nutrients, and toxicants from upstream flows, bank stabilization, and groundwater recharge/discharge. Although of low quality, roadside wetlands provide important water quality functions in some instances. Values provided by the wetlands include recreational opportunities and societal significance.

Wetland Impacts

Permanent Wetland Impacts

Permanent wetland impacts associated with construction of the project total 10.22 acres (4.13 hectares) consisting of 6.79 acres (2.75 hectares) of jurisdictional habitat and 3.43 acres (1.39 hectares) of non-jurisdictional habitat (refer to Table 7-2 at the end of this section). The greatest wetland impacts occur at the north end of the project area along an approximate 12-mile stretch of I-25 between the Monument Interchange and North Academy Boulevard. Most of these impacts are associated with the reconstruction of the interchanges and associated infrastructures. Highway widening and shoulder improvements will account for a smaller portion of the proposed wetland impacts.

Temporary and Indirect Impacts

Indirect or secondary impacts to wetlands include: a minor loss and fragmentation of wetland and wildlife habitat; changes in or loss of hydrology; interference with wildlife movement; an increase in human/wildlife conflicts; impacts to water quality from construction runoff and stormwater, the introduction of a seedbank of invasive exotic or weedy vegetation, and damage to established native plant communities. Indirect and secondary impacts can be minimized or eliminated by appropriate design considerations, proper construction scheduling, and comprehensive use of best management practices (BMPs). A comprehensive list of the specific BMPs that have been identified for use during construction of the project to minimize wetland impacts and protect adjacent wetlands are detailed in the Mitigation portion of the “Wetlands” subsection in Section 3 of this report.

Permits

At this time, the type of Section 404 permit that will be required has not been determined. CDOT will be coordinating with the U.S. Army Corps of Engineers, Albuquerque District, to discuss specific permit requirements. The project may be constructed over a number of years with project components initiated in phases.

Wetland Mitigation

Unavoidable impacts to wetlands and waters of the U.S. will be compensated in-kind with on-site mitigation to the extent practicable. CDOT policy requires that all wetlands, both jurisdictional and non-jurisdictional, be mitigated.

CDOT and its consultants reviewed a wide variety of mitigation opportunities located within the I-25 corridor to compensate for wetland losses. (For a list of wetland mitigation opportunities, see Table 7-3 at the end of this section. For photographs of some of the potential wetland mitigation sites, see Figures 7-1 through 7-7.) Mitigation plans are conceptual at this point as there are a number of factors that need to be resolved prior to final decisions regarding mitigation sites and approaches (e.g., land acquisition, analysis of site hydrology, completion of design plans, and coordination with Air Force Academy representatives). However, the general approach is expected to involve the expansion of existing wetlands and riparian areas. In most instances, this should result in on-site, in-kind replacement of wetland resources. Each mitigation effort will consider what is best for the aquatic resource and the possible inclusion of vegetative buffers to protect wetlands from surrounding landscapes.

Because many of the wetland impact areas overlap with critical habitat of the Preble’s meadow jumping mouse, every effort will be made to mitigate wetland impacts through creation, restoration or preservation efforts in conjunction with Preble’s mitigation. The following areas have been identified as ideal locations for potential wetland mitigation sites (refer to the attached Wetland Mitigation Location Maps, Figures 7-8 through 7-41 at the end of this section for the specific locations of these areas).

Dirty Woman Creek

The Dirty Woman Creek channel flows through the property CDOT recently purchased from Pastimes/JR Homes. Existing vegetative conditions along this reach of the creek consists of a fringe of herbaceous wetland plants along the stream banks that is dominated by sedges and rushes, with a few intermittent wetland areas that extend up to 40 feet back from the channel’s edge. The floodplain is relatively flat and there are ample opportunities to expand and improve wetland habitat at this site. As a conservative estimate, an additional 0.25 acres of wetland could be created in this area through the

addition of willow shrubs and supplemental herbaceous species to enhance vegetative diversity along the creek.

Teachout Creek

In the reach of Teachout Creek that is located downstream from a historic homestead to the Monument Creek confluence, there are opportunities to create up to 2 acres of new wetland habitat within the riparian corridors. This area has been extensively grazed and many of the banks exhibit signs of instability (i.e., downcutting, bank material eroding into the channel, and damaged or sparse vegetative cover). Current vegetation consists primarily of herbaceous fringe wetlands adjacent to the channel with a few wider areas extending up to 50 feet out from the channel, scattered shrubs, and a few

patches of crack willow trees. Mitigation along Teachout Creek would consist of the installation of native shrub clusters to stabilize the stream banks, and extensive planting of wetland grasses and forbs to expand and enhance wet meadow habitat.

Jackson Creek

At the southeast corner of I-25 and Baptist Road, a 65-acre parcel has been acquired by CDOT for protection of Preble's mouse habitat. Reconstruction of the Baptist Road Interchange will result in replacement of the undersized culvert under Baptist Road and removal of the existing I-25 frontage road, which currently divides wetland habitats within the land parcel. Through minor grading and the addition of woody plants, a combination of wetland creation and enhancement is planned over approximately 0.30 acre of the former frontage road in conjunction with Preble's mouse habitat improvements.

Smith Creek

The Smith Creek drainage contains an abundance of high quality wetland and wildlife habitat and has also been designated as critical habitat for the Preble's mouse. The majority of the habitat is confined to the existing channel and narrow riparian corridors.

Numerous opportunities exist for the expansion and enhancement of both wetland and Preble's

mouse habitat development, but the best opportunities fall within property owned by others (i.e., the Smith Creek floodplain in the highway median and to the west of I-25 which are owned by the Air Force Academy, and the expansive cottonwood gallery and sedge field to the east of I-25 which are owned by the Museum of Mining and Industry). Potential mitigation acreage in these areas includes 0.85 acre of wetland creation, and 0.50 acre of enhancement to existing degraded wetlands. Final mitigation ratios have not yet been determined at this drainage due to the ownership issues.

Upper Monument Creek

This area consists primarily of an herbaceous wetland with a much reduced shrub component that has been heavily grazed. Degraded conditions persist for almost a mile along the creek and mitigation opportunities are projected to include 2 acres of wetland creation and enhancement of 3 acres of degraded wetland habitat. CDOT is currently working with landowners to develop a restoration plan for many of these degraded areas.

Lower Monument Creek

The majority of the riparian corridor immediately upstream of the confluence of Jackson and Monument Creeks consists of a mixed tree/shrub riparian vegetation community with a patchy understory of herbaceous wetland grasses and forbs. Large expanses of the corridor are degraded and the majority of the existing vegetation occurs within a narrow fringe along the tops of the stream banks. Mitigation would occur along the riparian corridor and consist of 1.25 acre of wetland creation and 0.25 acre of wetland enhancement.

Additionally, within a 35-acre land parcel in the Jackson Creek floodplain on the west side of I-25, the creek is constricted by a historic railroad grade. At this location there is an opportunity to expand wetland habitat around the perimeter of a sediment-laden, sparsely vegetated pond located adjacent to the old railroad trestle and in the direct vicinity of the creek. The land around the pond is actively grazed and existing vegetation is patchy and damaged. Based on these site conditions, approximately 0.25-acre of the pond's perimeter would be available to create a diverse wetland habitat through the addition of a shrub layer and seeding with an indigenous, native herbaceous wetland mixture in the area extending out from the shoreline.

Monument Branch North/South Median

Two separate mitigation opportunities have been identified within the Monument Branch median. One of the sites is located on a linear bench above the southern riparian corridor of the North Branch and may provide up to 0.20 acre for wetland expansion. To the north of the drainage, a second opportunity exists through the expansion of two pre-existing wetlands situated on a side slope adjacent to the northbound traffic lanes. These wetlands originate from an ephemeral drainage on the Northgate property, which appears to go underground before surfacing in a series of slope seeps just east of I-25. Up to 0.50 acre of wetland may be created around the outer edges of these slope wetlands. An active seep above a bench on the northern side of the north-lying wet meadow flows perpetually and may provide additional opportunities for wetland creation.

Pine Creek

Downstream from the confluence of Pine and Monument Creeks is a small, cattail-choked pond that is extremely degraded and structurally unsound. In conjunction with the installation of major structures to control the integrity of the pond, this area provides an opportunity to create approximately 0.50 acre of perimeter wetlands and to increase species diversity beyond the existing cattail monoculture.

Un-named Drainage at North Nevada/Rockrimmon Interchange

An unnamed drainage flows under I-25 near the Nevada ramp and then parallels to I-25 on the north side. This drainage will be realigned to flow along the south side of I-25. There will be an opportunity to create approximately 0.25 acres of wetland along the new channel.

Monument Creek at North Nevada/Rockrimmon Interchange

Improvements proposed in the floodway fringe and floodway of Monument Creek in the vicinity of this interchange were initiated because the 100-year discharge passes below the existing I-25 mainline bridges. Plans include replacement of these bridges with two new ramp bridges that will span Monument Creek. In conjunction with these activities, there is an opportunity to create

0.25 acre of wetland habitat along a degraded and sparsely vegetated reach of Monument Creek.

Corporate Drive

Lateral encroachment onto Monument Creek will occur during construction of the new Corporate Drive/Nevada Avenue roadway connection. Scour protection will be required in the vicinity of the new bridges and the new roadway embankment. Specific impacts are unknown since the design and detailed hydraulic analysis for this reach are ongoing. However, the existing floodplain in this reach must be re-contoured due to channel degradation. This may provide an opportunity to improve wetland conditions on the west side of I-25 through the creation of a scrub/shrub component in an approximate 0.25 acre area at the toe of the new embankment that is currently devoid of woody vegetation.

Bear Creek

On the east side of I-25 this reach of Bear Creek has been filled in with concrete debris in an attempt to stabilize banks and control erosion. As a result, riparian vegetation is almost non-existent and occurs only intermittently and in segregated pockets. The upstream channel on the west side of the highway is cement-lined with sparse vegetation consisting of willows and cattails with a few pockets of sedges in the understory. Removal of the channel debris on the east side of I-25 and restoration of the stream banks and riparian corridor on both sides of the highway would result in the creation of 0.25 acre of wetland habitat.

Bear Creek Regional Park

The park contains a relatively flat, sparsely vegetated 40-acre meadow consisting of a mixture of upland and wetland grasses and forbs, randomly situated trees and a large population of teasel. The meadow exhibits a high ground water table as evidenced by the intermittent swaths of rushes and sedges, and the presence of standing water in low-lying areas. The County has expressed interest in developing the wetland potential of the meadow, and the installation of a boardwalk and interpretive signage to encourage the educational aspects of the park as well as to attract more wildlife and waterfowl to the area. Wetland development of the park would provide a minimum of 15 acres of wetland creation and 4 acres of enhancement to currently degraded wetland habitat. Off-site wetland

mitigation credit would result in a net benefit of 15 acres of wetland creation and 4 acres of enhancement for the project.

Fishers Canyon

In this drainage, the canyon walls are steep and the channel is deeply incised. Riparian vegetation in the vicinity of the highway is limited. However, the current road crossing has created a backwater area and a 600-foot-wide floodplain that may provide opportunities to create approximately 0.50 acre of wetland habitat to increase bank stability.

Limon Wetland Bank

Jurisdictional (non-jurisdictional impacts are not eligible for credit at the Limon bank) wetland impacts occurring south of South Academy Boulevard (Exit 138) fall within the primary service area of the CDOT-owned Limon Wetland Bank and are eligible for mitigation credits. Available bank credits total 5.36 acres consisting of the following vegetation community types: 2.85 acres palustrine emergent persistent, and 2.51 acres of aquatic rooted vascular bed.

The areas discussed above were selected because they provide opportunities to mitigate for wetland impacts in conjunction with Preble's mouse mitigation or because they are either currently owned by CDOT or provide strong possibilities for viable partnerships with the property owners. Each site will be examined in more detail, especially site hydrology, in order to insure mitigation. All of these areas currently exhibit hydrologic regimes that provide sufficient hydrology to support hydrophytic vegetation. The majority of the proposed construction activities will result in impacts in the direct vicinity of the existing highway and are not expected to significantly alter the hydrologic regime. However, the specific sustaining hydrologic source for each proposed mitigation area will be examined following the completion of construction impacts.

Other Potential Mitigation Areas

Additional sites that have been identified for possible wetland mitigation include the following areas: Kettle Creek on the west side of the highway (Air Force Academy property); the perimeter of a degraded pond, adjacent meadow

and riparian corridor of Pine Creek just south of the Briargate Interchange that lies upstream from the cement lined segment of the creek; and the Monument Creek riparian corridor (between the pedestrian trail and the creek) from just north of the Bijou Street exit (Exit 142) and the Cimarron Street exit (Exit 141).

In combination with these activities, restoration and enhancement of the major degraded channels that flow under the highway corridor may provide opportunities for wetland or riparian mitigation, Preble's mouse habitat enhancements, and water quality improvements. This is an effective mitigation strategy if conducted in areas where improvements are already planned, such as the Cimarron Interchange; and in drainages that will be directly impacted by highway expansion or that have a major effect on downstream reaches, such as Monument Creek.

Alternative mitigation sites that meet the criteria for the establishment of in-kind wetland replacement will be identified if the areas discussed above do not provide sufficient acreage to fulfill mitigation requirements, or if any of these areas are unavailable or unsuitable as wetland mitigation. Additional information regarding mitigation techniques, water sources and contingencies will be addressed as detailed mitigation plans are developed.

Monitoring

Monitoring and documenting the success of mitigation efforts is an integral part of the mitigation process. As mitigation sites are finalized, mitigation plans and formal monitoring program will be developed based on the "Special Conditions" in the project 404 permit. In addition, the plan will provide viable contingencies that can be implemented in the event that any of the mitigation areas fail.

Best Management Practices

Avoidance and minimization of impacts were addressed during site plan development via the advanced identification of wetlands and waters in all areas in which impacts are proposed. An initial natural resources inventory and evaluation of all wetland areas was completed to provide a basis for planning to avoid impacts to wetlands. During the refinement of design plans this identification provided the opportunity for avoidance and minimization of wetlands and waters of the U.S. and ensured compliance with the Section 404(b)(1) "best

management practices” guidance of the Clean Water Act, which provides for the structural and non-structural methods, measures or practices implemented to prevent, reduce or mitigate adverse water quality impacts resulting from construction and operation of a project.

CDOT shall require use of the following best management practices (BMPs), as applicable, and requirements of Section 107.25 of the Standard Specifications for Road and Bridge Construction (1999) to limit temporary project impacts to wetlands and other aquatic systems:

- Construction staging, including construction and waste material, fill material, equipment, fuel, etc. areas shall be located outside of the area adjacent to streams, including wetlands and riparian areas. At a minimum, such staging areas and materials shall not be located within 15 meters (50 horizontal feet) of the ordinary high water mark of any watercourse.
- Equipment refueling and servicing shall occur only within approved designated areas.
- All construction equipment shall be maintained in good working order to avoid unnecessary discharge of harmful materials used in the operation of that equipment, including petroleum products, radiator fluid, hydraulic fluid, etc.
- All practicable efforts shall be expended to avoid and minimize in-stream work. Where practical, equipment shall be operated from banks or shoulders above riparian and wetland areas. In those instances where in-stream work is required, such work shall be performed during low flows, and the use of heavy equipment in streambeds, especially in live or flowing water, shall be minimized. The equipment used shall be of such a type that will produce minimal environmental damage, including damage to the stream bottom.
- All reasonable measures shall be taken to avoid excess application and introduction of chemicals into aquatic ecosystems and adjacent riparian areas, including wetlands. The use of chemicals such as soil stabilizers, dust palliatives, herbicides, sterilants, growth inhibitors, fertilizers, deicing salts, etc., during construction and maintenance operations shall be in accordance with the manufacturer’s recommended application rates, frequency, and instructions. These chemicals shall not be used, stored, or stockpiled within 15 meters (50 horizontal feet) of the ordinary high water mark of any state waters, including wetlands, except when otherwise specified in the project contract.
- Geotextile fabric shall be placed over existing wetland areas located within work areas. The fabric shall be covered with straw and topsoil for the duration of the work and then removed.
- Temporary fencing (orange) shall be installed in areas outside the project but which require additional protection from encroachment of personnel and equipment, such as wetlands, streams, etc.
- Silt fence, erosion logs, or similar erosion control products shall be installed wherever the toe of fill meets the water’s edge, riparian areas, and wetlands in the work area. Temporary and permanent erosion and sediment control measures shall be installed at the earliest practicable time consistent with good construction practices. Such measures shall be properly monitored and maintained throughout the operation of the project.
- No wet concrete from placement of forms, washing of trucks or equipment, or concrete saw water will be allowed in aquatic ecosystems and riparian areas, including wetlands. Concrete washout areas shall occur only within approved designated areas.
- The stream channel bottom shall be returned to the elevation and configuration existing prior to construction. Work in live water systems shall be conducted in accordance with all applicable permits and contract conditions.
- Riprap above the ordinary high water line shall be covered with topsoil and revegetated as specified by the CDOT landscape architect. Areas under bridges do not need topsoil treatment. Where appropriate, streamside areas at the ordinary high water line should be revegetated with brush layer cuttings of native riparian shrub species.

- All practicable measures shall be taken to avoid disturbance to existing vegetation. The length of time that disturbed areas are left exposed shall be as short as practicable and the extent of such disturbed areas shall be as small as practicable. Particular attention shall be paid to protecting aquatic ecosystems, riparian areas, wetlands, and habitats for threatened and endangered species from such impacts and unnecessary disturbance. Once earthwork has begun on a section, it shall be pursued until complete. Within seven days, completed areas should be stabilized, that is, seeded and mulched according to the plans. In some situations, temporary stabilization may be appropriate.
- All disturbed areas above the ordinary high water mark shall be revegetated with appropriate native plant species to provide bank stabilization, erosion control, and habitat replacement. These activities shall be conducted according to specifications approved by the CDOT landscape architect. Temporary seeding shall be done where necessary. Only certified weed-free hay and straw shall be used.
- All practicable effort shall be expended to avoid destruction of trees and shrubs in the vicinity of streams and in riparian areas. Existing trees within the project area that are not scheduled for removal shall be cordoned off from construction activity with temporary construction fencing (orange).
- Highway runoff shall be diverted away from the stream channel to avoid siltation and other pollution problems. Where it is necessary to divert runoff directly into the stream channel, intervening water holding or siltation-filtration basins of adequate size shall be constructed
- Discharge of water directly into the stream from cofferdams or new channel construction is prohibited. Such water shall be treated prior to discharge according to the project's Clean Water Act Section 401 or 404 permit.
- Under current CDOT policies, in-stream work is limited to specific periods in order to avoid disruption of fish migration and spawning seasons. Under extraordinary circumstances, in-stream work during such periods may be allowed. Special techniques are required during such situations and shall be pursued in consultation with staff of the CDOW. The timing of such activities will be determined in consultation with CDOW.

Based on the above considerations, it is determined that there is no practicable alternative to the proposed new construction in wetlands, and the Proposed Action includes all practical measures to minimize harm to wetlands that may result from such use.

List of Attachments

1. Table 7-2 – Wetland Impacts Table
2. Table 7-3 – I-25 Expansion Project Wetland Mitigation Opportunities
3. Figures 7-1 through 7-7 – Photographs identifying potential wetland mitigation sites (note that photos are not available for all proposed mitigation areas)
4. Figures 7-8 through 7-41 – Plan-view GIS maps illustrating areas where wetland impacts may occur

Miscellaneous BMPs

- Temporary fills, such as cofferdams and temporary road crossings, using imported material shall utilize clean, chemical-free fill to avoid increasing suspended solids or pollution. Fill material shall not be obtained from the live water area in the stream unless approved by Colorado Division of Wildlife (CDOW).

**Table 7-2
Wetland Impacts**

Wetland Reference	Wetland Classification	Impact Activity	Jurisdictional Wetland Impacts	Non-Jurisdictional Wetland Impacts	Wetland Acreage	Drainage Association
B	Perennial	Road Widening	0.1300		0.7847	Teachout
C	Perennial	Road Widening		0.1710	0.2557	No Name
AZ & D	Perennial	Baptist	2.4400		15.2917	Jackson
BB, CC, E	Swale/Isolated	Interchange		0.0820		Jackson
BO, J, K	Isolated/Perennial	Northgate	1.6660		2.4421	Smith
I, U/AA, V W, X	Isolated/Swale & Stormwater	Interchange		1.3770		Smith
11, 16, 31 23	Perennial/Ephemeral Roadside Swale	Nevada/Rockrim. Interchange	0.0421		0.1620	Fountain
AW	Isolated			0.0400	0.0400	
QQ	Roadside Swale	Fillmore Interchg		0.1030	0.1149	N/A
AD	Perennial	Bijou Rd Widen	0.0860	0.2630	0.2630	N/A
AD, RR	Perennial	Cimarron Intrchg	0.9910		9.8678	Monument
AE	Perennial	Road Widening	0.0250		5.0148	Fountain
AF	Roadside Swale	Road Widening		0.0830	0.0669	No Name
AQ	Ephemeral	Road Widening	0.0040		0.0827	N/A
AT	Roadside Swale	Interchange		0.0000	0.0365	No Name
E	Isolated Wetland	Road Widening		0.0730	0.0432	N/A
EE	Perennial	Interchange	0.0010		0.1298	Jackson
F	Isolated Wetland	Road Widening		0.1420	0.0035	Jackson
FF	Roadside Swale	Road Widening		0.1420	0.2748	N/A
Fa	Isolated Wetland	Road Widening		0.0200	0.0200	N/A
G	Perennial	Road Widening		0.0020	0.0022	N/A
GG	Roadside Swale	Road Widening		0.1660	0.1717	No Name
H	Perennial	Road Widening		0.0670	0.0670	N/A
Ha	Isolated Wetland	Road Widening		0.3870	1.9622	Black Forest
II	Perennial	Road Widening	0.0910	0.0340	0.0340	Black Forest
JJ	Perennial	Interchange	0.2230		1.5030	Cottonwood
KK	Perennial	Interchange	0.1430		3.3175	Monument
L	Ephemeral	Road Widening	0.1480		0.1427	No Name
L100	Ephemeral	Road Widening	0.0440		0.4051	No Name
L200	Ephemeral	Road Widening	0.0400		0.0837	No Name
LL	Isolated Wetland	Interchange		0.0360	0.1103	No Name
M	Perennial	Road Widening	0.3100		0.0359	N/A
MM	Perennial	Interchange	0.0360		0.0359	N/A
N	Isolated Wetland	Interchange		0.0760	0.0359	N/A
NN	Perennial	Road Widening	0.0220		1.9880	Black Squirrel
OO	Perennial	Road Widening	0.2390		0.1928	No Name
PP	Perennial	Road Widening	0.1980		0.4817	N/A
S	Perennial	Road Widening	0.1810		0.4817	N/A
T	Ephemeral	Road Widening		0.0140	0.0495	No Name
U/AA	Wet Meadow	Interchange		0.5140	1.4982	Monument
V	Wet Meadow	Interchange		0.1190	0.8186	Monument
VV	Stormwater	Interchange		0.1190	0.7818	No Name
W	Roadside Swale	Interchange		0.1480	0.1483	No Name
WW	Stormwater	Road Widening		0.2130	0.4534	No Name
X	Stormwater	Interchange		0.0160	0.2223	Smith
XX	Roadside Swale	Road Widening		0.1270	0.1271	N/A
YY	Wet Meadow	Interchange		0.1740	0.2856	No Name

TABLE 7-3
I-25 IMPROVEMENTS THROUGH THE COLORADO SPRINGS URBANIZED AREA PROJECT
WETLAND MITIGATION OPPORTUNITIES

Creek Name/Location	Vegetation Type*	Wetland Creation (acres)	Wetland Enhancement (acres)	Enhancement Credits (2:1)	Total Wetland Credits (acres)
ON-SITE AREAS					
Dirty Woman Creek					
Pastimes/JR Homes	PEP/PENP	0.25			0.25
Teachout Creek					
Willow Springs Ranch (includes: historic homestead, riparian restoration at Teachout/Monument confluence & area just west of RR line)	PEP/PENP	2.00			2.0
Jackson Creek					
Remove frontage road	PENP	0.30			0.30
Smith Creek					
Median wetland expansion	PEP/PSS/PF	0.60			0.60
Mining museum property		0.25	0.50	0.25	0.50
Upper Monument Creek					
Riparian restoration at Beaver, Hay and Monument Creeks	PEP/PSS	2.00	3.00	1.50	3.50
Lower Monument Creek					
Riparian corridors along Monument & Jackson Creeks	PSS/PF	1.25	0.25	0.12	1.37
Degraded pond vicinity of RR trestle		0.25			0.25
Monument Branch (North and South)					
Expansion of two existing wetlands w/i highway median	PEP/PENP/PSS	0.50			0.50
South bank bench above North Monument Branch		0.20			0.20
Pine Creek					
Degraded pond downstream from confluence of Pine & Monument Creeks	PEP	0.50	0.20	0.10	0.60
Un-named Drainage at N. Nevada					
Rockrimmon Interchange					
Monument Creek stream corridor	PENP/PSS	0.25			0.25
Corporate Drive					
E. side of I-25	PENP	0.25			0.25
Bear Creek					
Riparian corridor east and west sides of I-25	PENP/PSS	0.25			0.25
Fishers Canyon					
Approx. ½ mile north of South Academy	PEP/PSS	0.50			0.50

Creek Name/Location	Vegetation Type*	Wetland Creation (acres)	Wetland Enhancement (acres)	Enhancement Credits (2:1)	Total Wetland Credits (acres)
OFF-SITE AREAS					
Limon Wetland Bank	PEP/AVB (credits available for these vegetation types)				5.36
Bear Creek Regional Park					
Wetland development within expansive park meadows	PENP	15.0	4.00	7.5 + 2.0	9.5
Total On-Site Mitigation Acres					11.32
Total Off-Site Mitigation Acres					9.5 + bank

*Vegetation Types (per Cowardin, 1979): PEP – Palustrine emergent persistent, PENP – Palustrine emergent non-persistent, PSS – Palustrine scrub/shrub, PF – Palustrine forested, AVB – aquatic, rooted vascular bed

Notes:

1. The Proposed Action would have 10.22 acres of wetland impacts. CDOT has identified available mitigation sites to mitigate for 20.82 acres.
2. Wetland impacts occurring south of Cottonwood Creek fall within the Limon Wetland Banks primary service area and will be eligible for the use of mitigation credits from the bank.
3. The project study area encompasses over 600 acres, and there are numerous opportunities within the corridor that can be explored for mitigation potential. Given the wide range of opportunities available, CDOT will mitigate for all wetland losses.

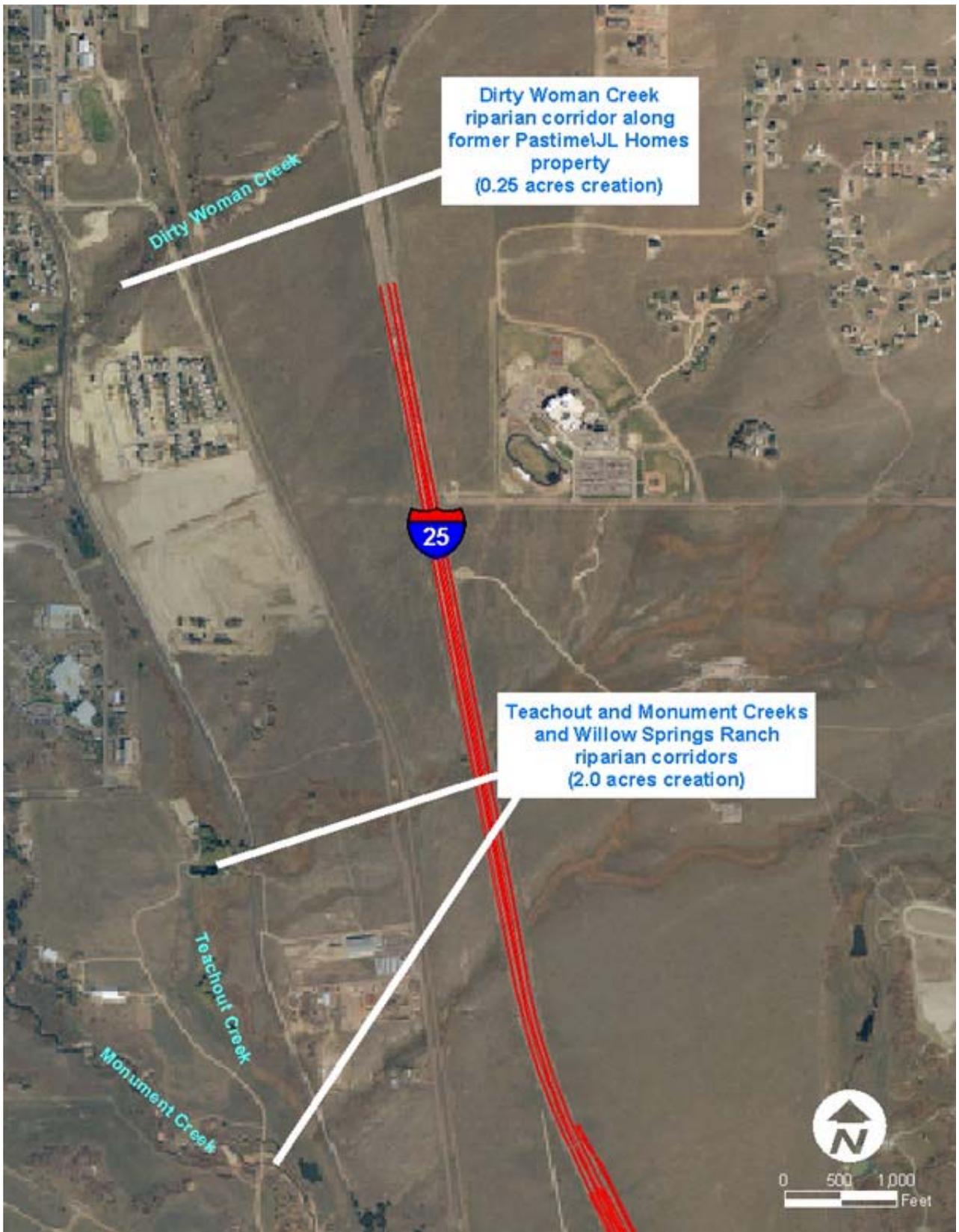


FIGURE 7-1
Wetland Mitigation Opportunity Areas: Dirty Woman, Teachout, and Monument Creeks between I-25 exits 161 and 158

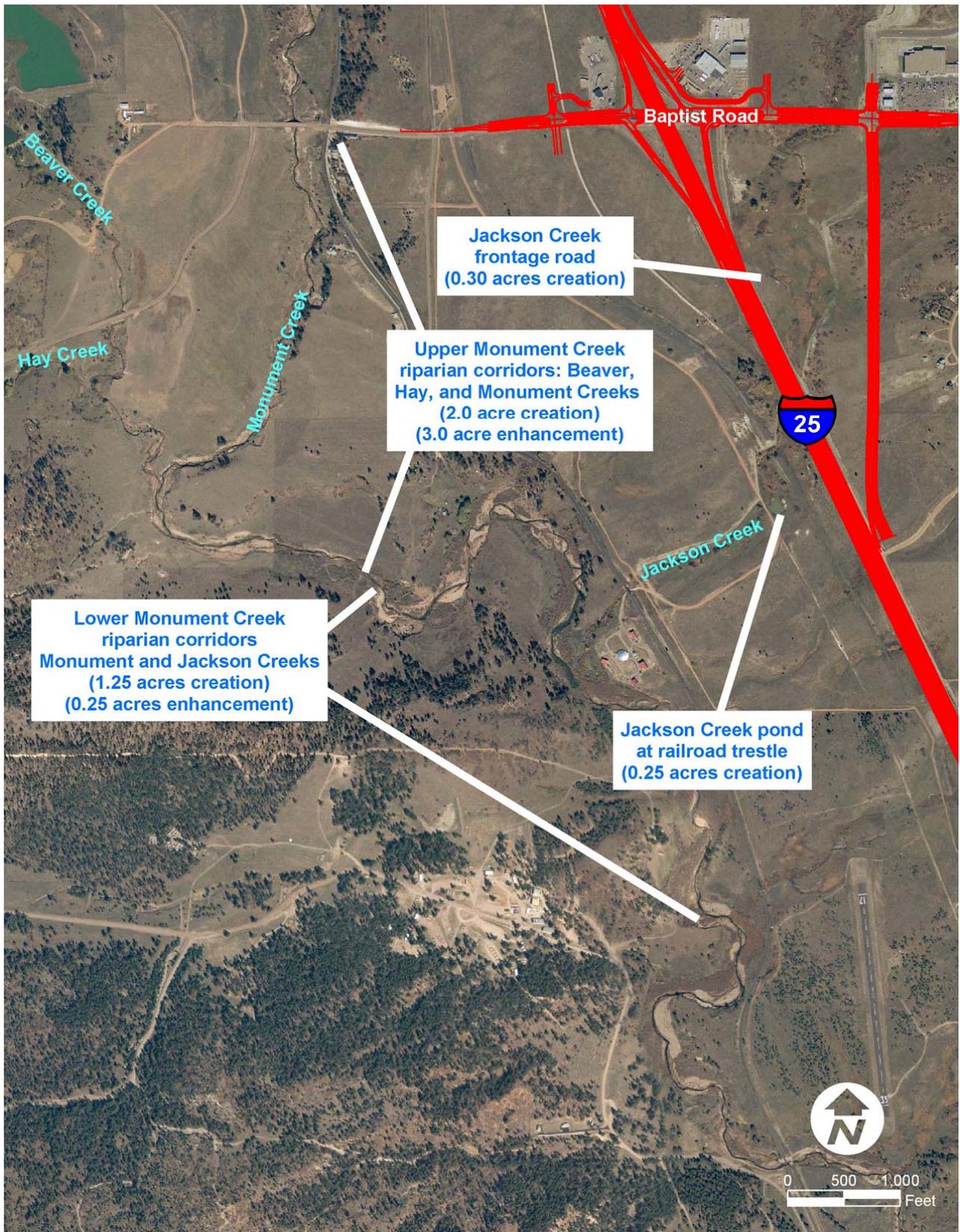


FIGURE 7-2
Wetland Mitigation Opportunity Areas: Jackson and Monument Creeks south of I-25 exit 158 (Baptist Road)



FIGURE 7-3
Wetland Mitigation Opportunity Areas: Smith Creek and Monument Branch south of I-25 exit 156 (North Gate Boulevard)



FIGURE 7-4
Wetland Mitigation Opportunity Areas: Pine Creek north of I-25 exit 149 (Woodmen Road)

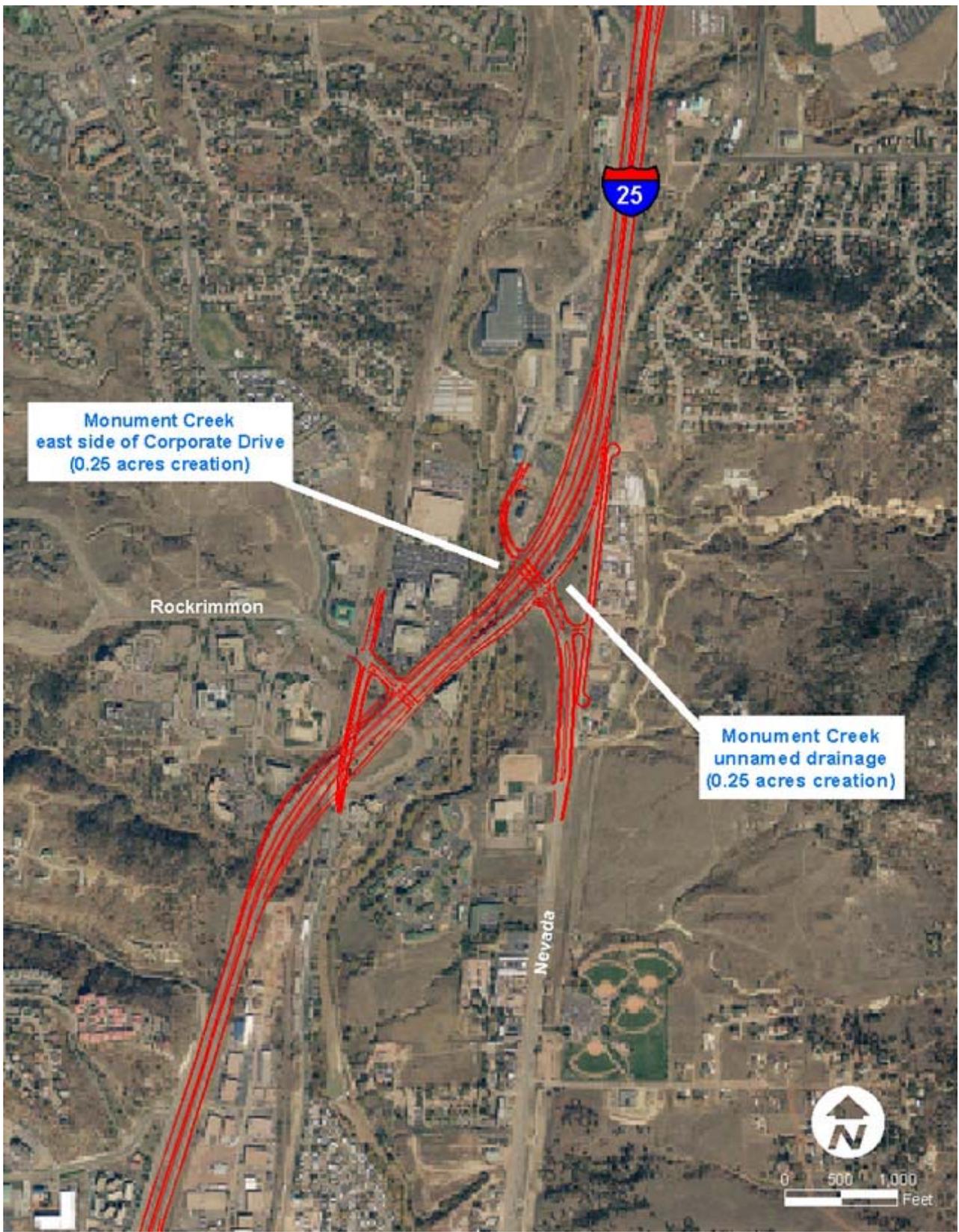


FIGURE 7-5
Wetland Mitigation Opportunity Areas: Monument Creek at I-25 exit 148 (North Nevada Avenue)

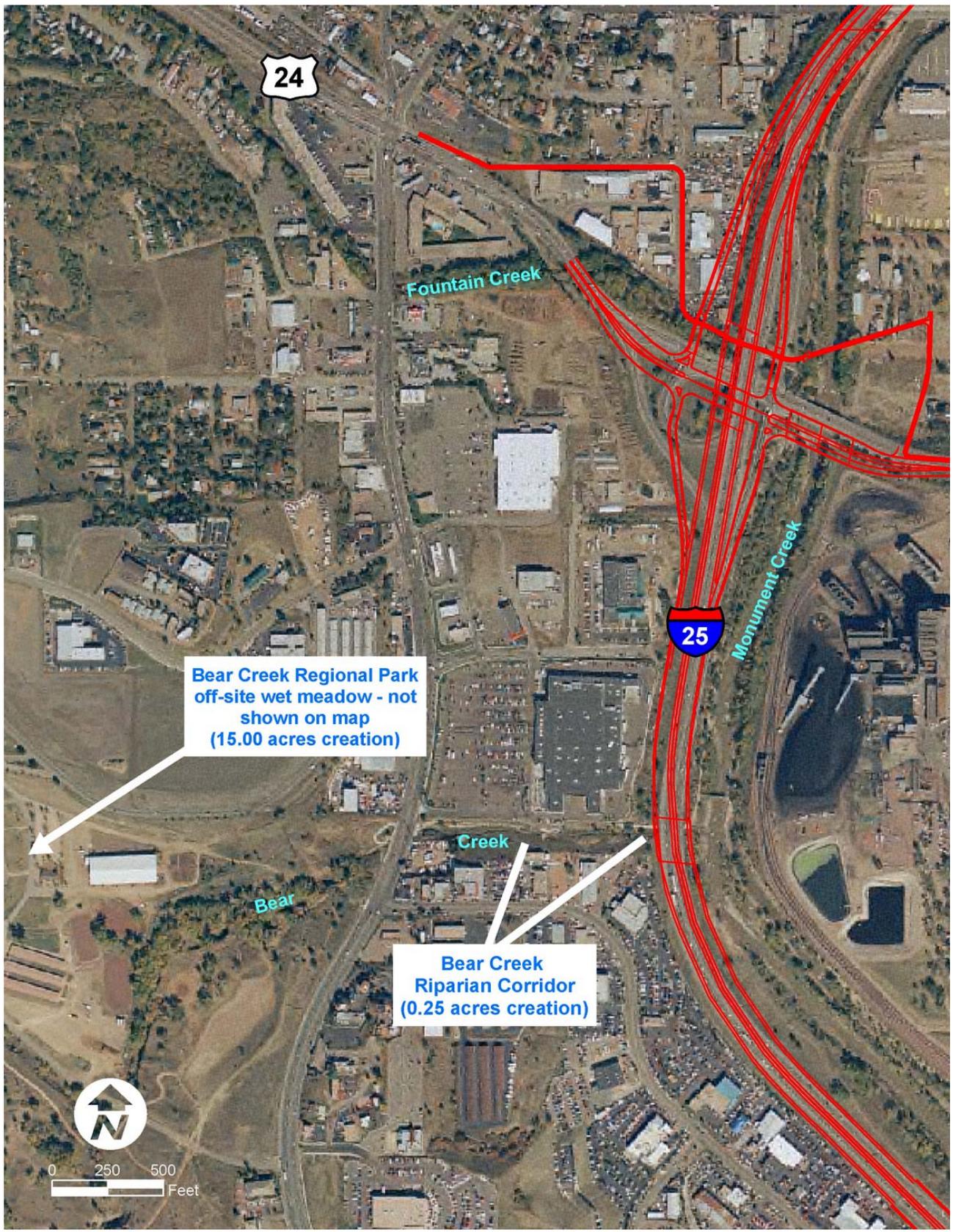


FIGURE 7-6
 Wetland Mitigation Opportunity Areas: Bear Creek south of I-25 exit 141 (Cimarron/US Highway 24)



FIGURE 7-7
Wetland Mitigation Opportunity Areas: Fishers Canyon south of I-25 exit 135 (South Academy Boulevard)

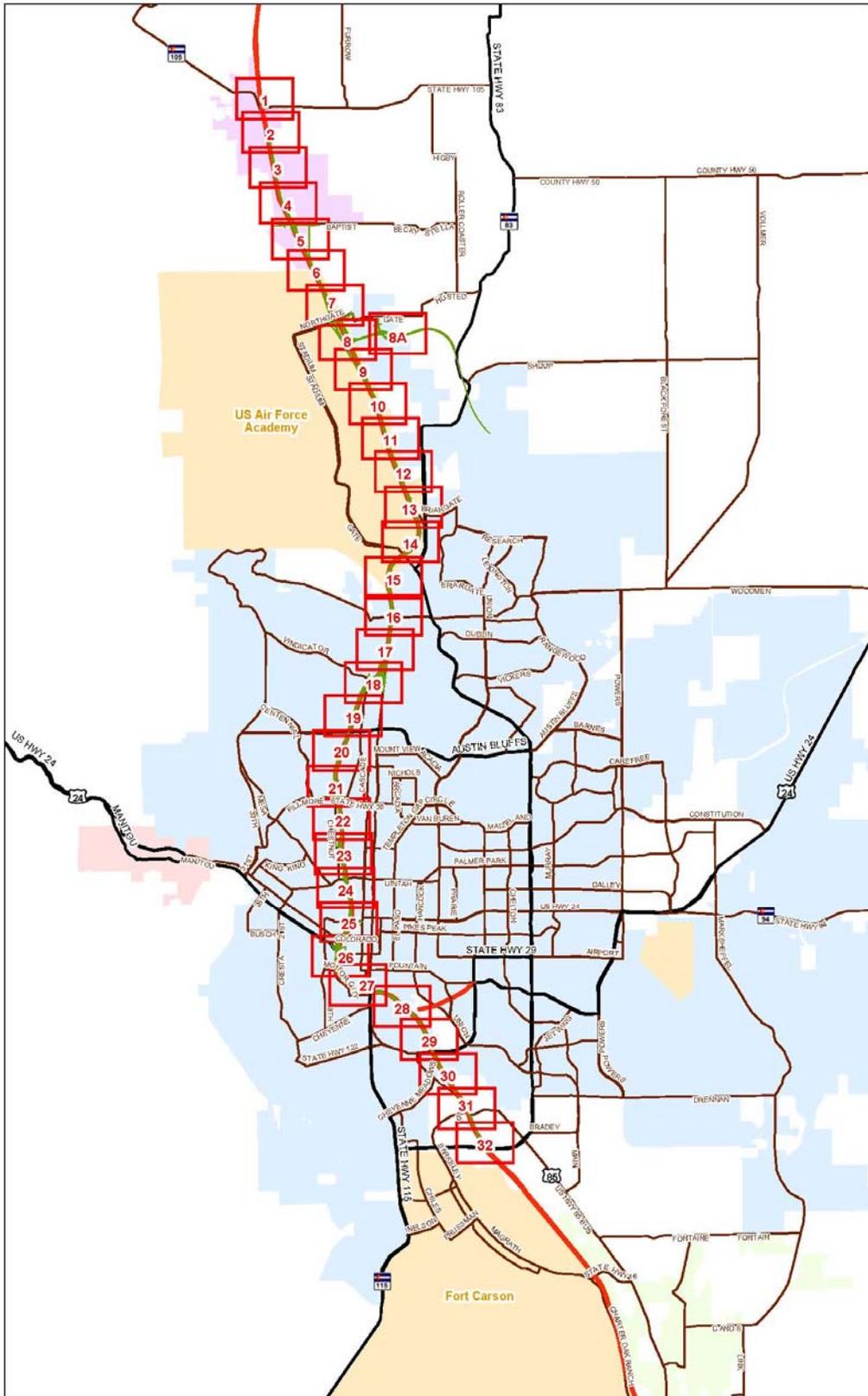


FIGURE 7-8
Key for Wetlands Vicinity Maps

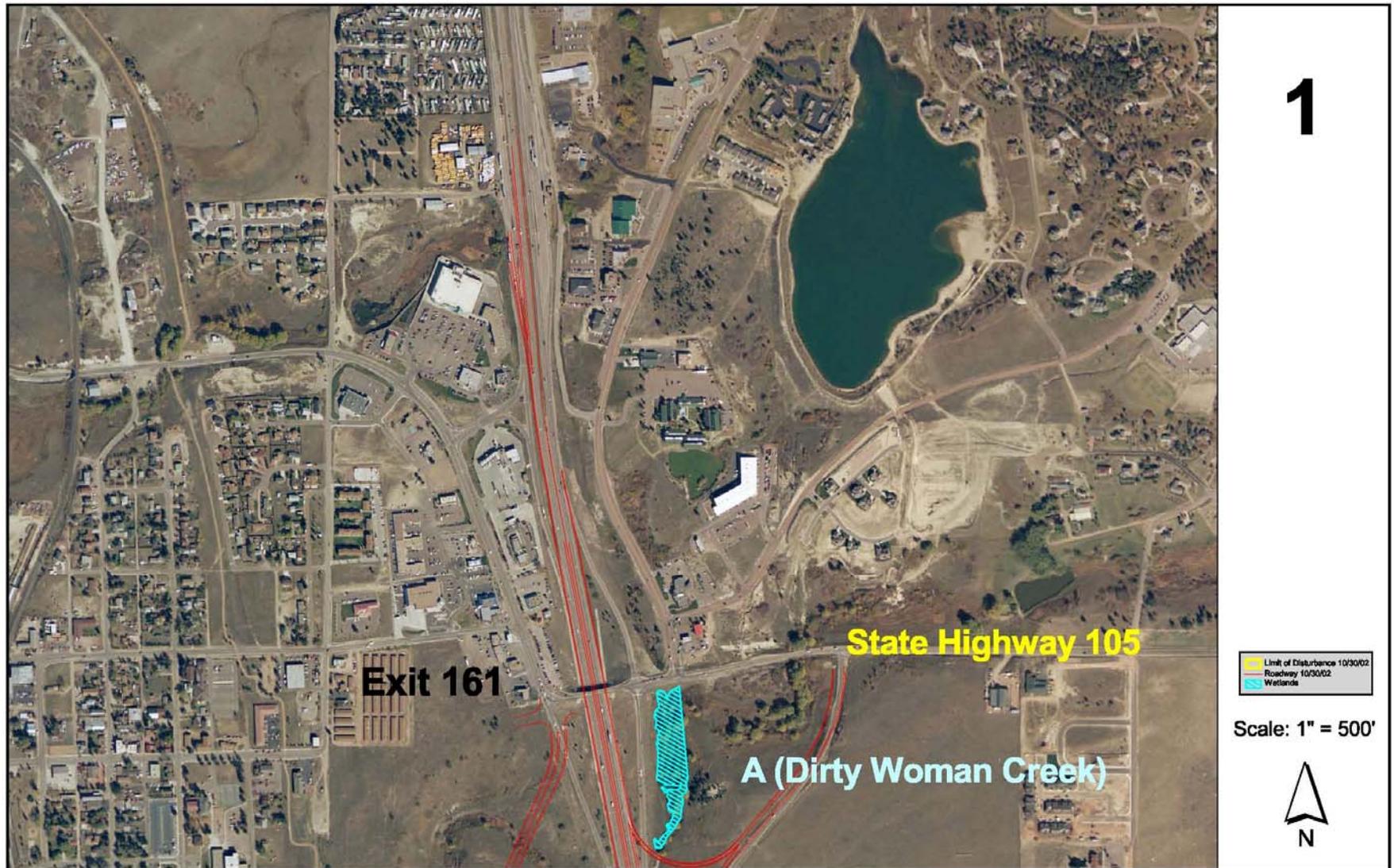


FIGURE 7-9
Wetlands in the Vicinity of I-25 Milepost 161 (State Highway 105/Monument Interchange)

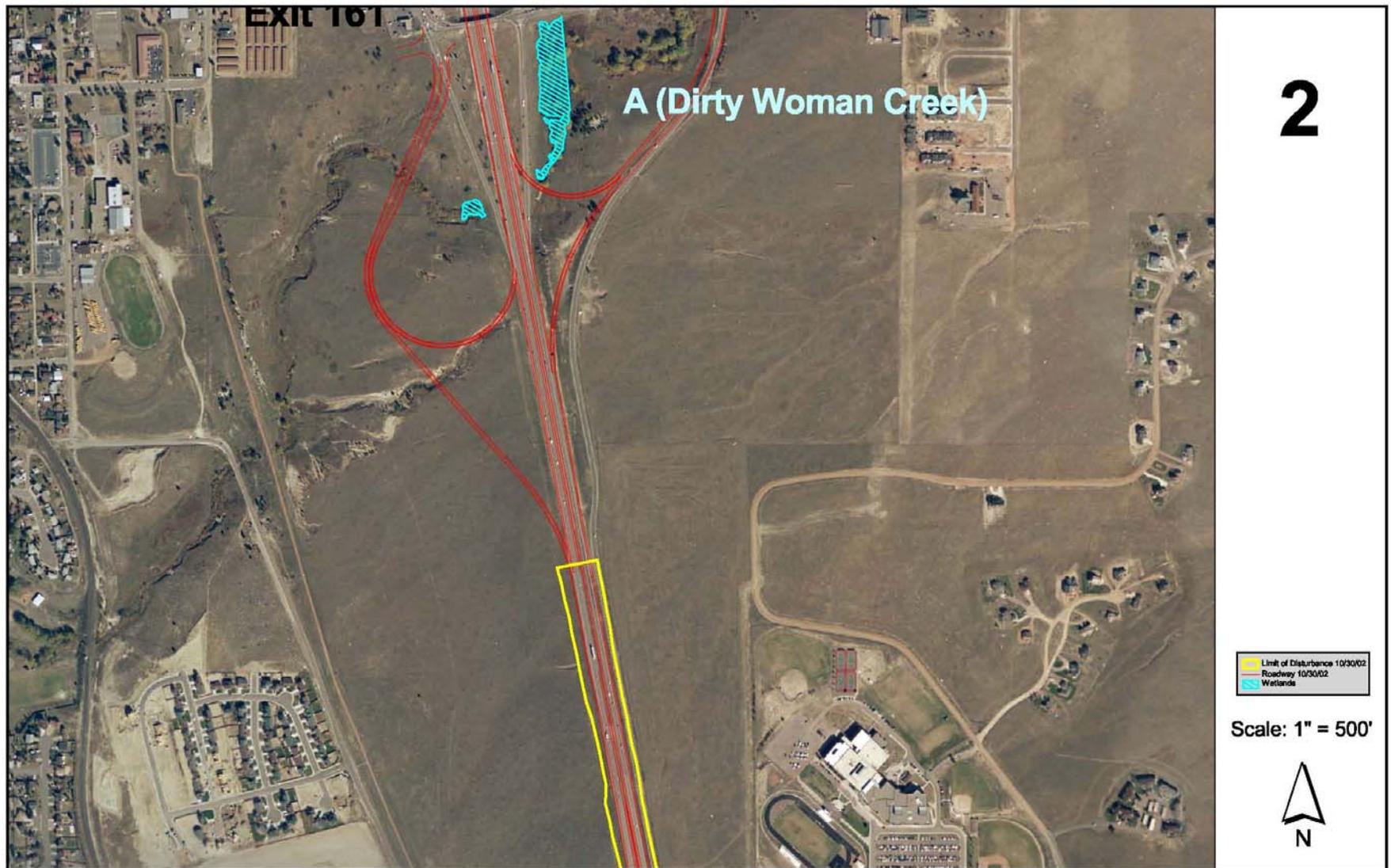


FIGURE 7-10
Wetlands in the Vicinity of I-25 Milepost 161 (Dirty Woman Creek)

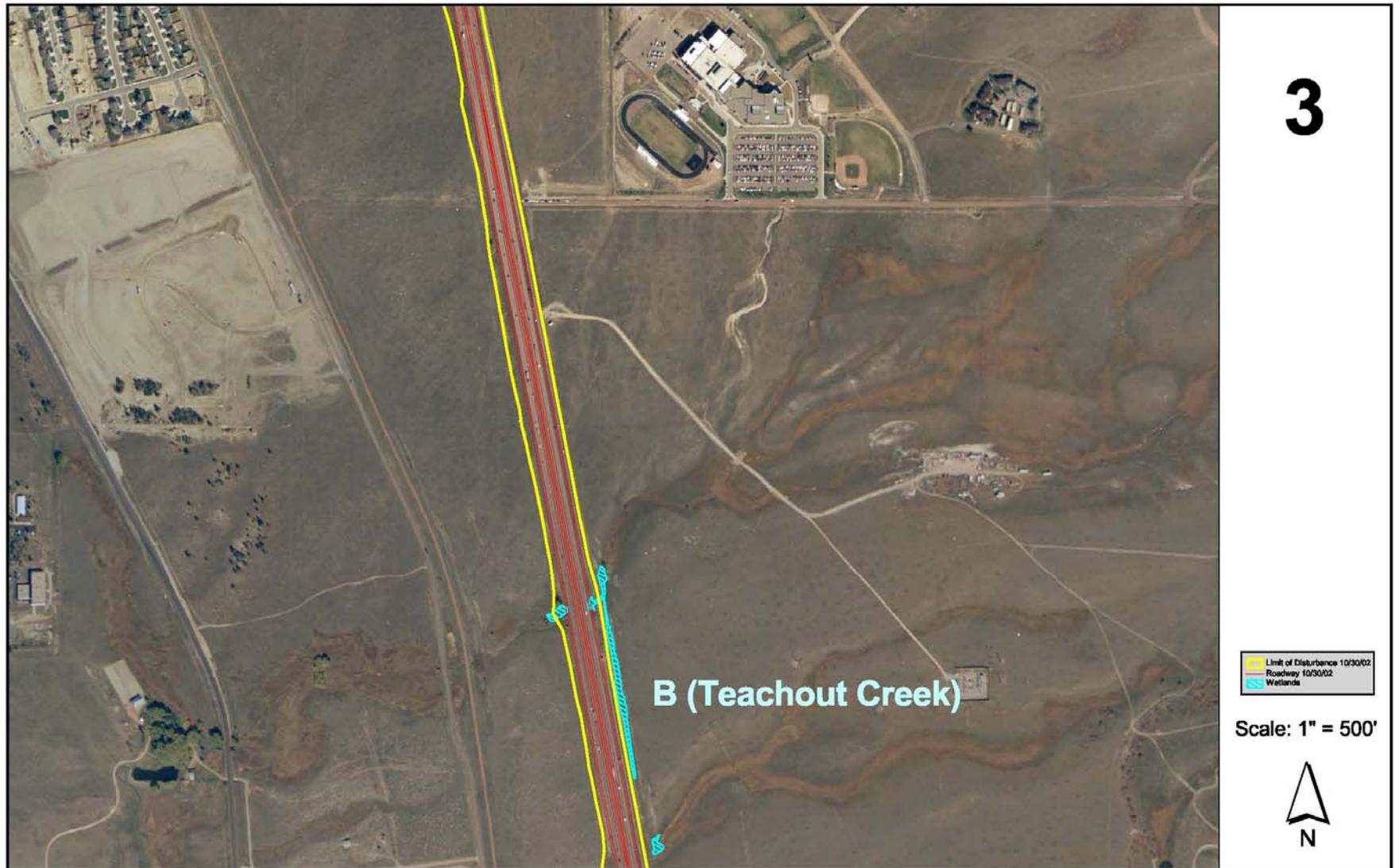


FIGURE 7-11
Wetlands in the Vicinity of I-25 Milepost 160 (Teachout Creek)



FIGURE 7-12
Wetlands in the Vicinity of I-25 Milepost 159 (north of Baptist Road)

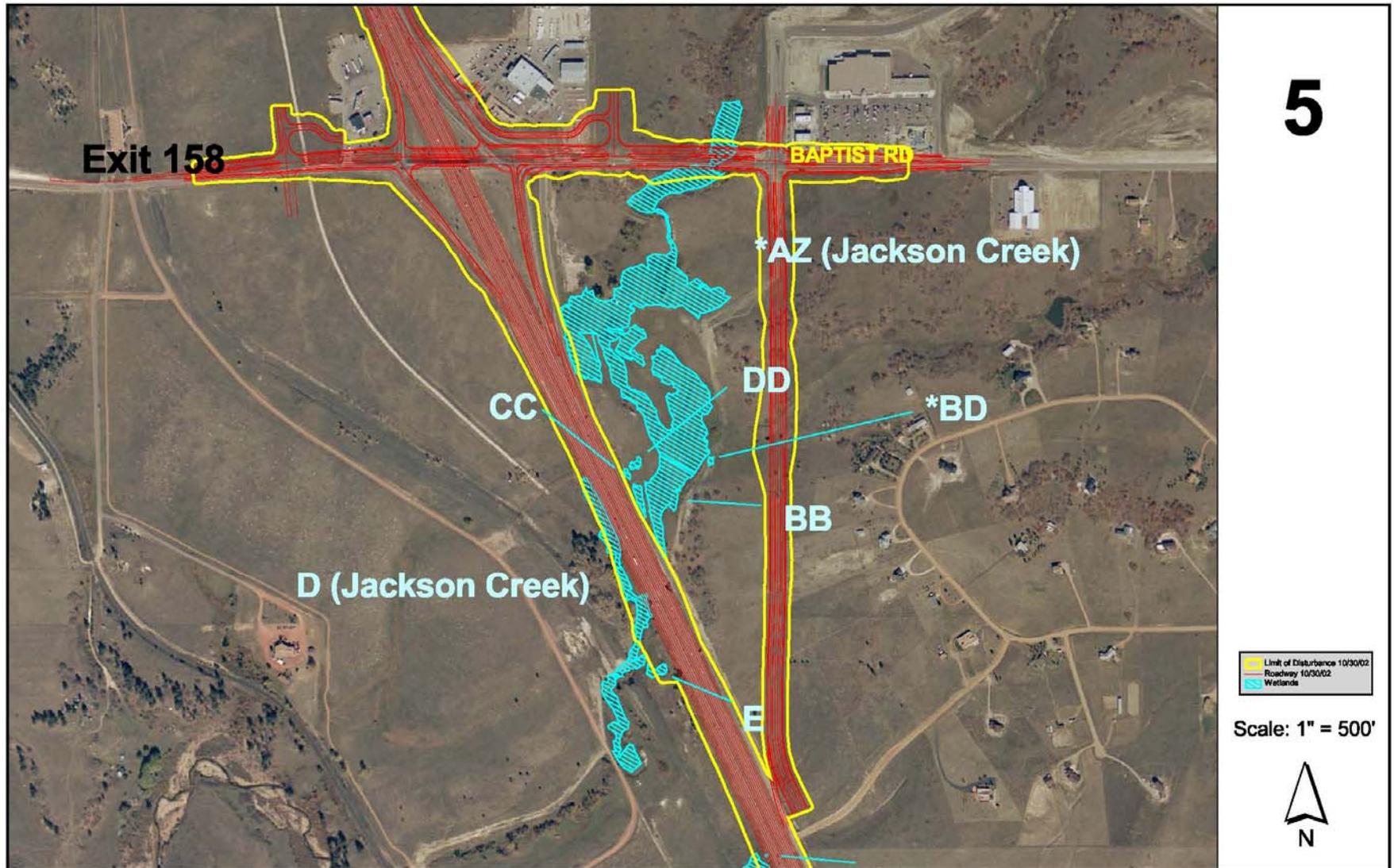


FIGURE 7-13
Wetlands in the Vicinity of I-25 Milepost 158 (Baptist Road Interchange)

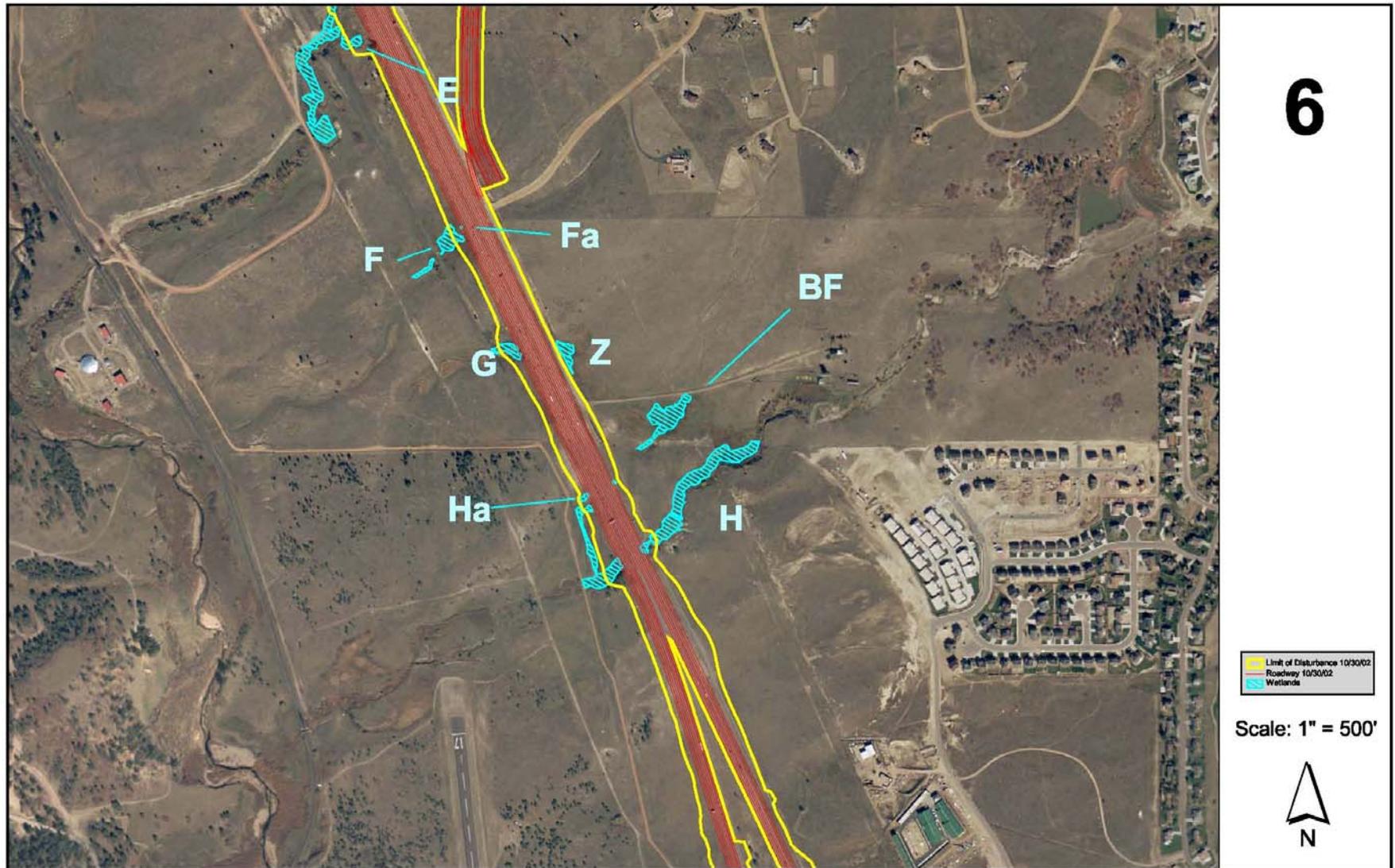


FIGURE 7-14
Wetlands in the Vicinity of I-25 Milepost 157 (South of Baptist Road)

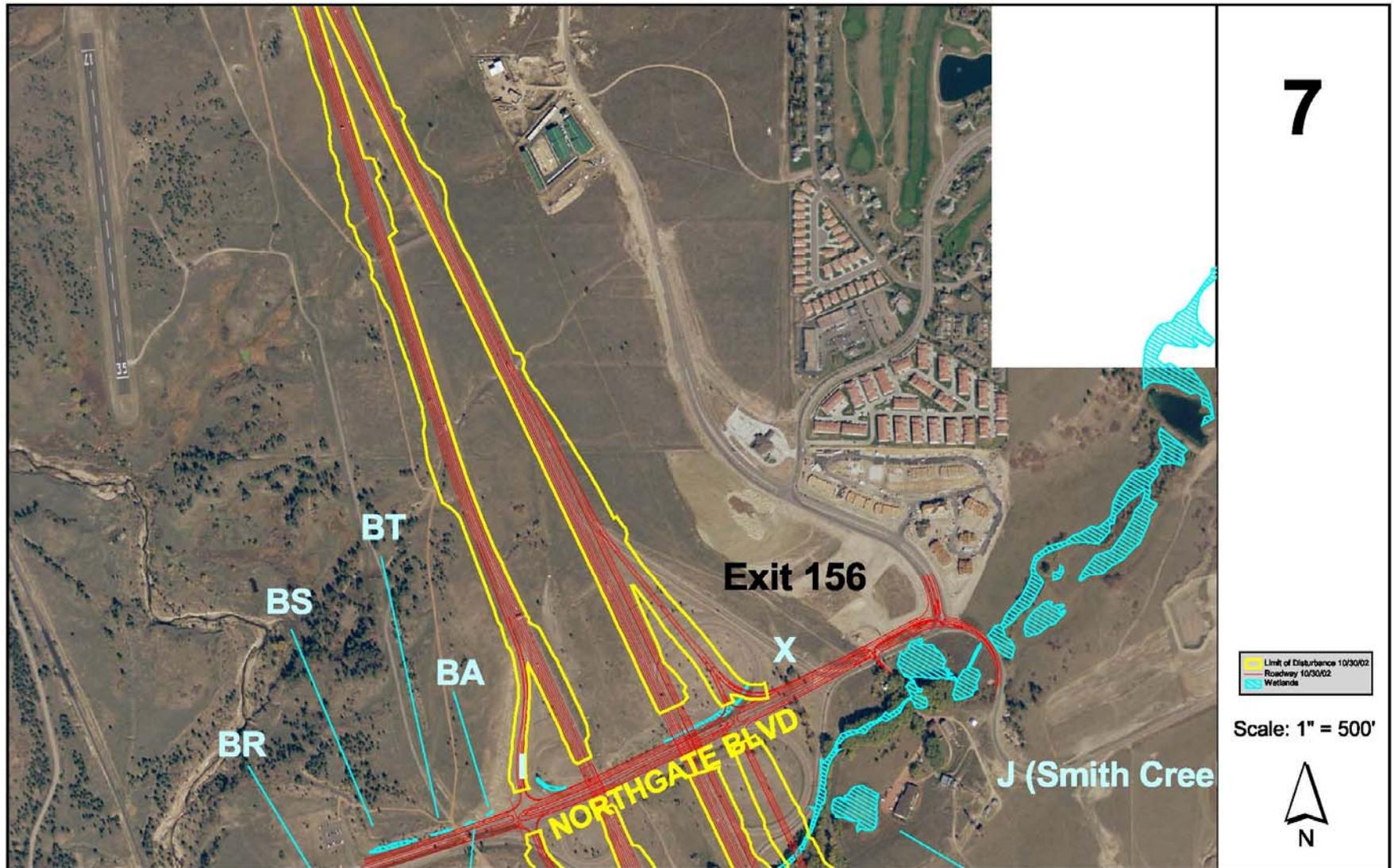


FIGURE 7-15
Wetlands in the Vicinity of I-25 Milepost 156 (North Gate Interchange)

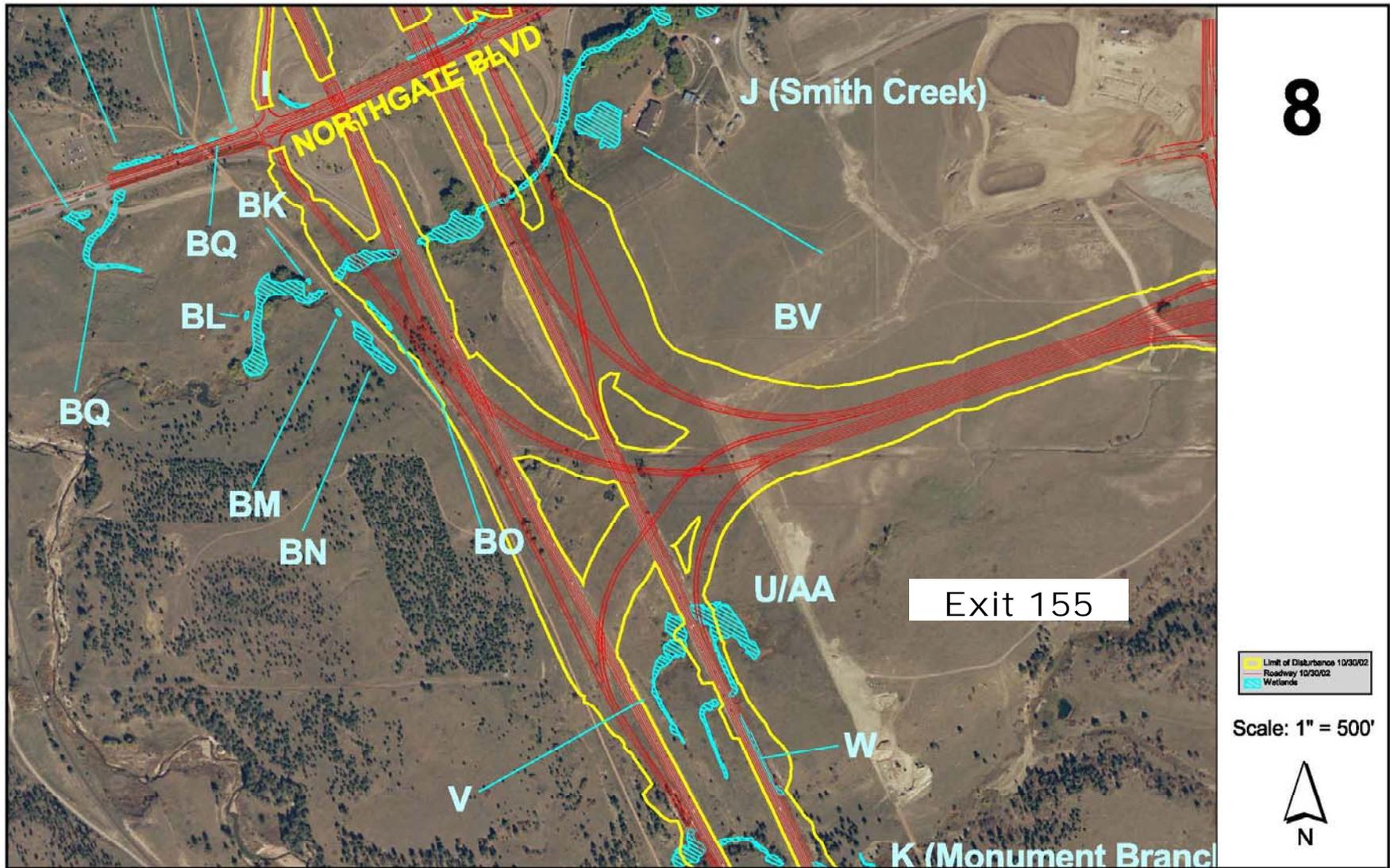


FIGURE 7-16
Wetlands in the Vicinity of I-25 Milepost 155 (Future Powers Boulevard Connection)

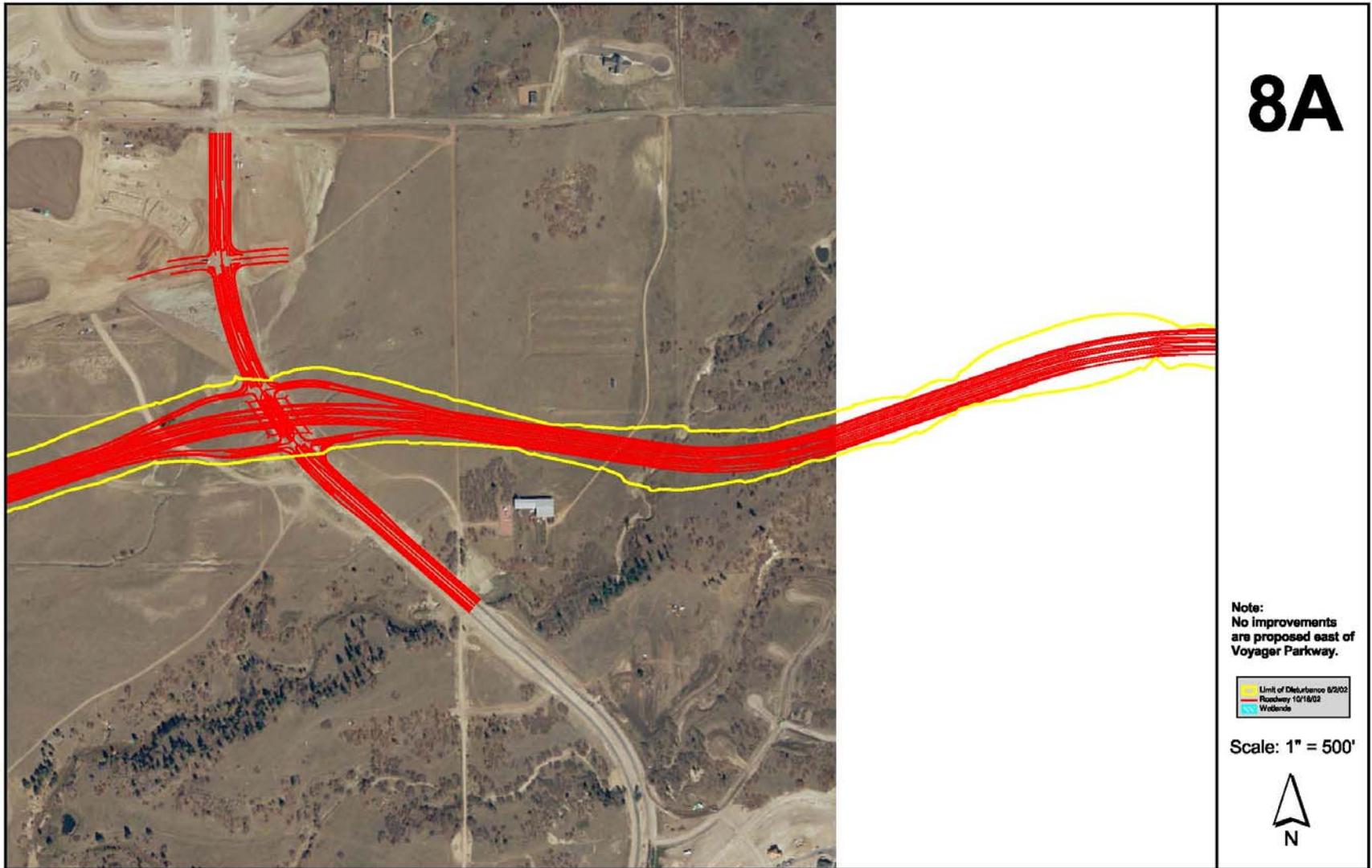
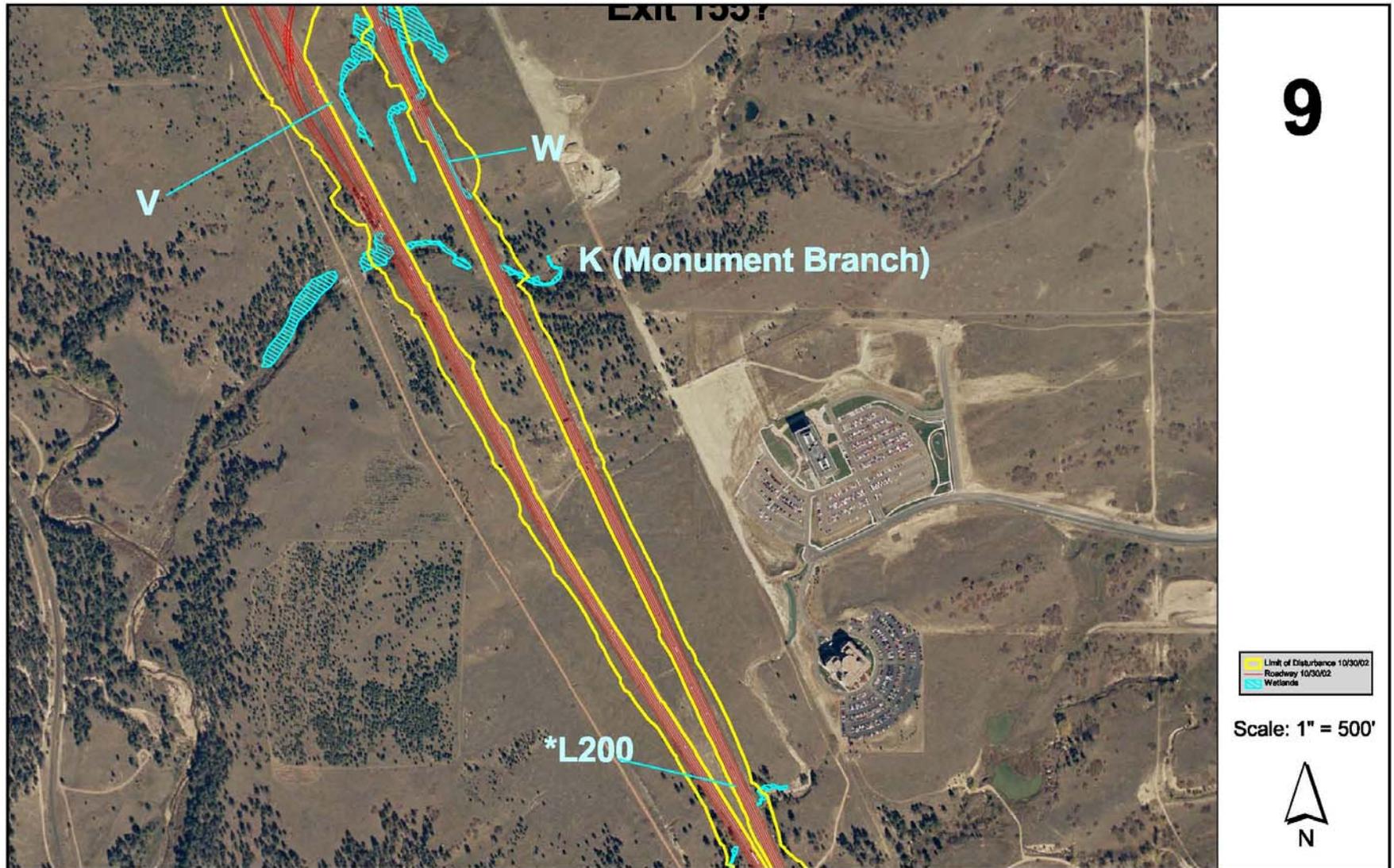
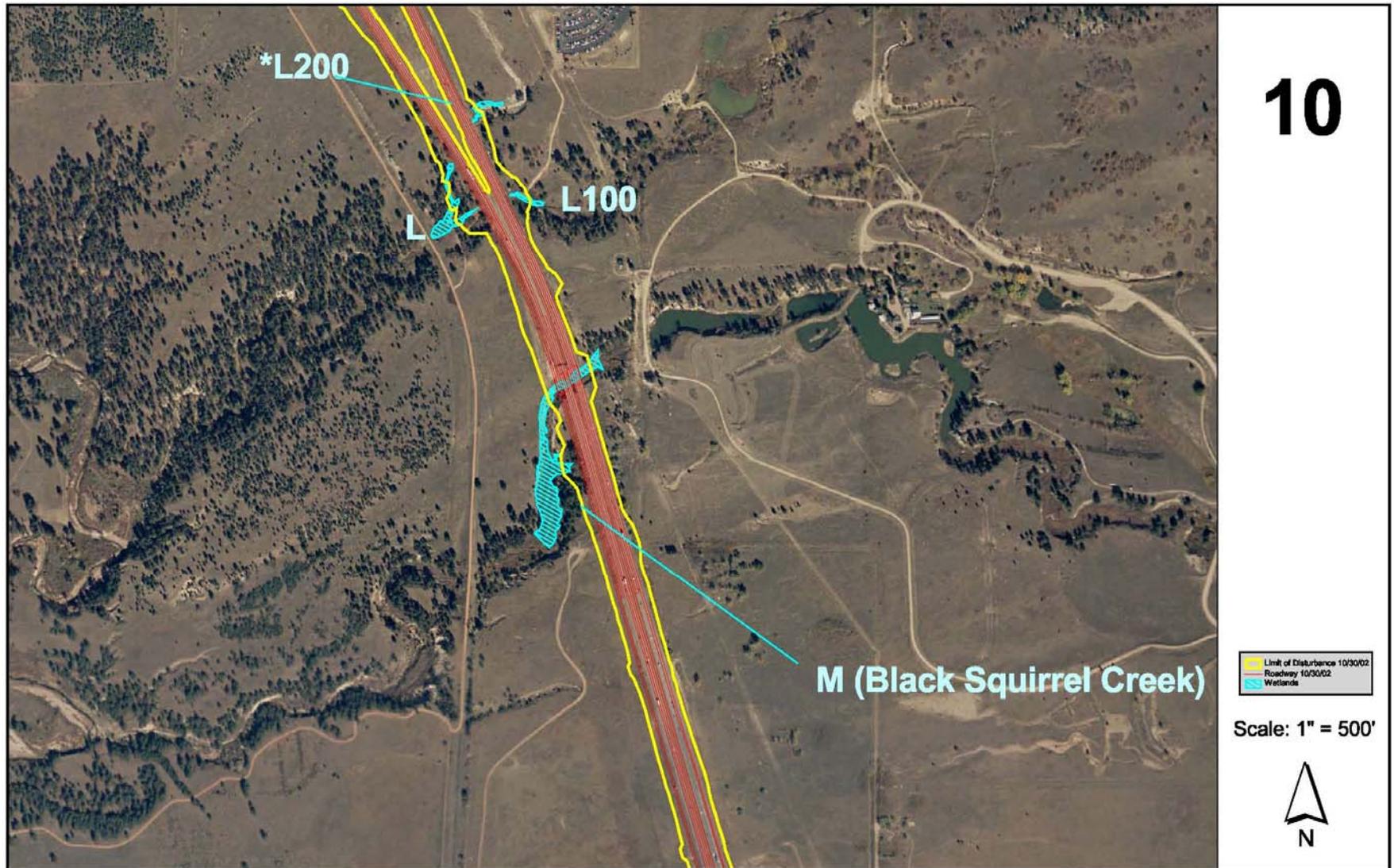


FIGURE 7-17
Wetlands in the Vicinity of the Future Powers/Voyager Interchange, East of I-25 Milepost 155



9

FIGURE 7-18
Wetlands in the Vicinity of I-25 Milepost 154 (Monument Branch Tributary)



10

FIGURE 7-19
Wetlands in the Vicinity of I-25 Milepost 153.5 (Black Squirrel Creek)

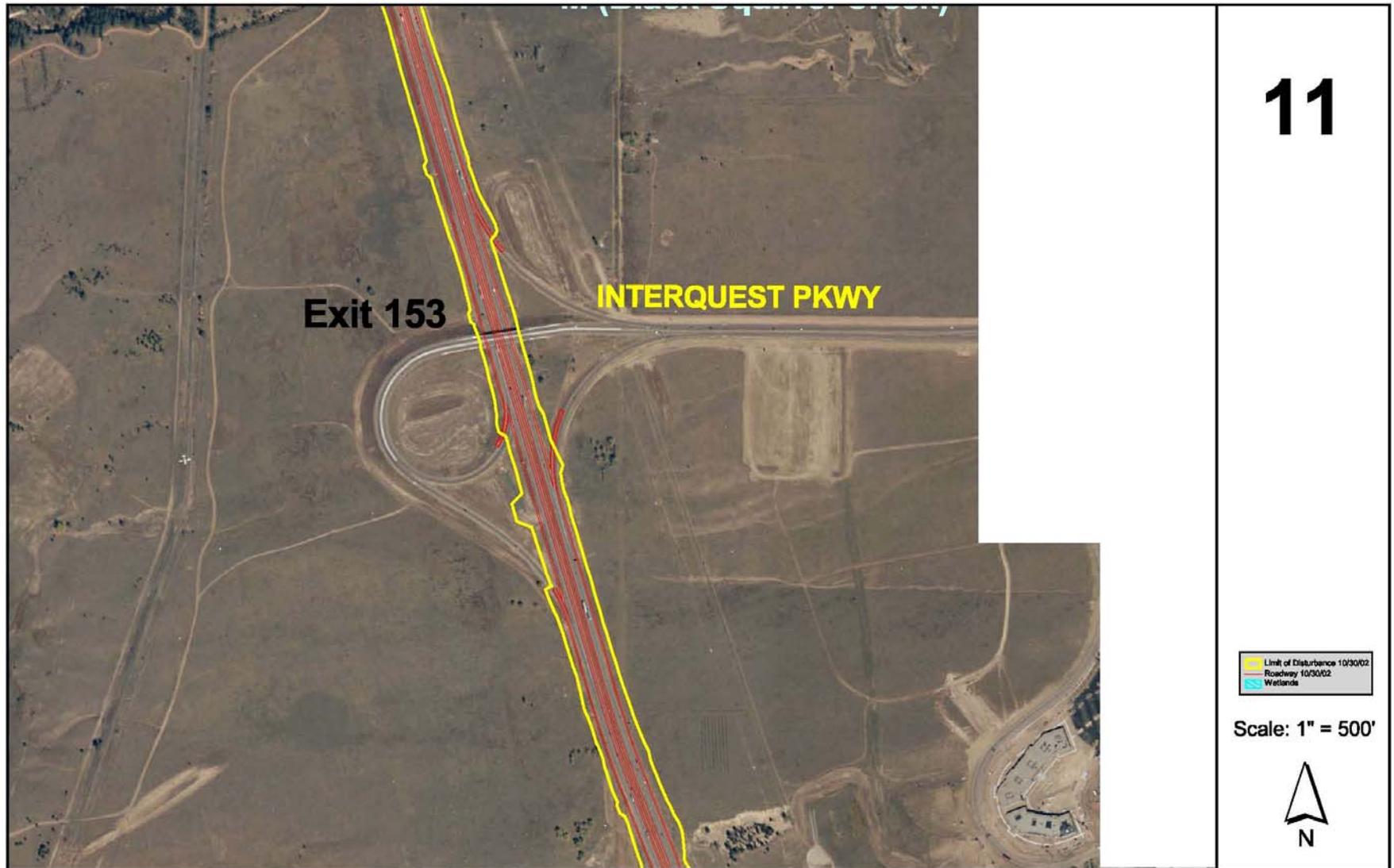
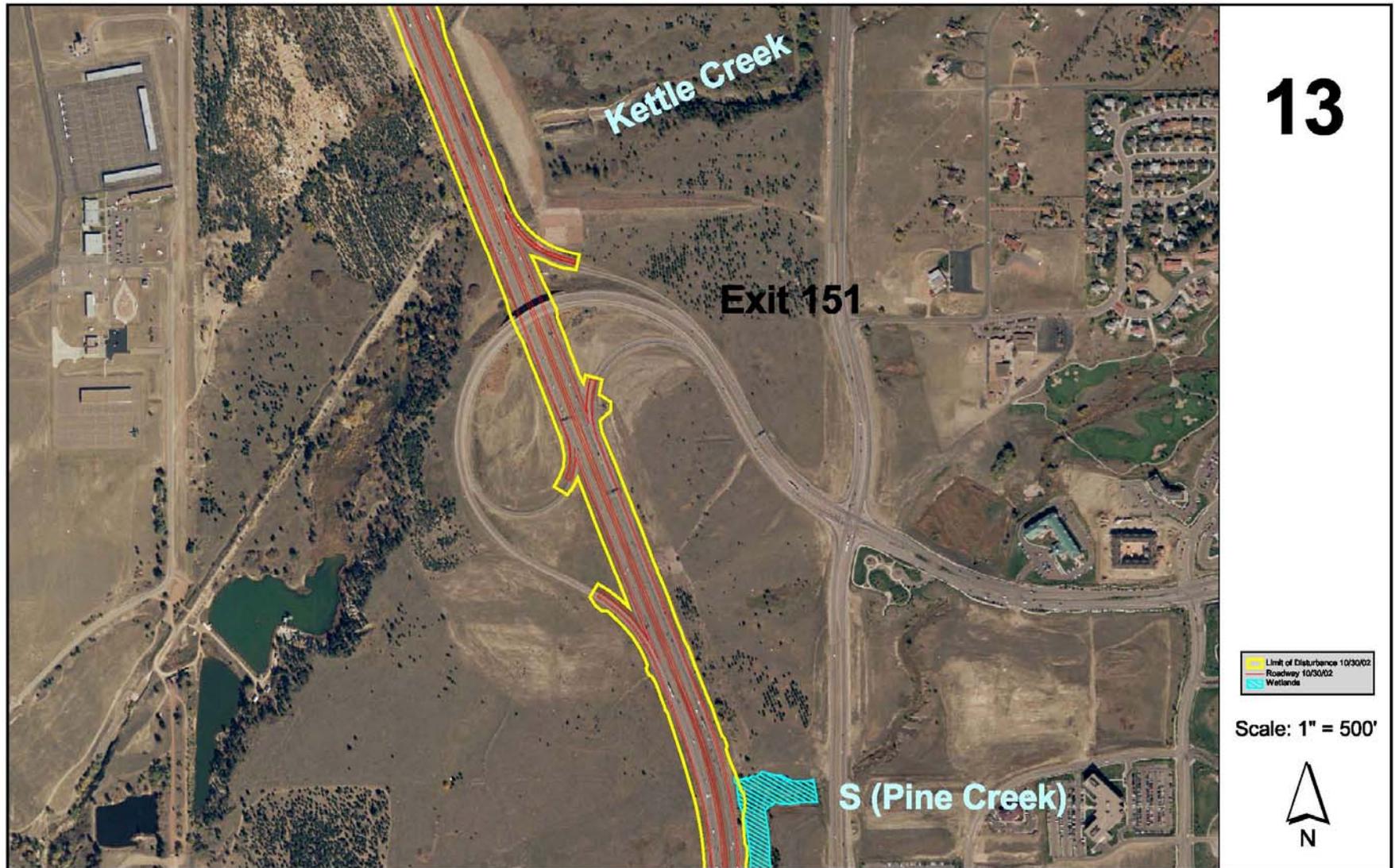


FIGURE 7-20
Wetlands in the Vicinity of I-25 Milepost 153 (Interquest Parkway Interchange)



FIGURE 7-21
Wetlands in the Vicinity of I-25 Milepost 152 (Kettle Creek Dam)



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FIGURE 7-22
Wetlands in the Vicinity of I-25 Milepost 151 (Briargate Interchange)

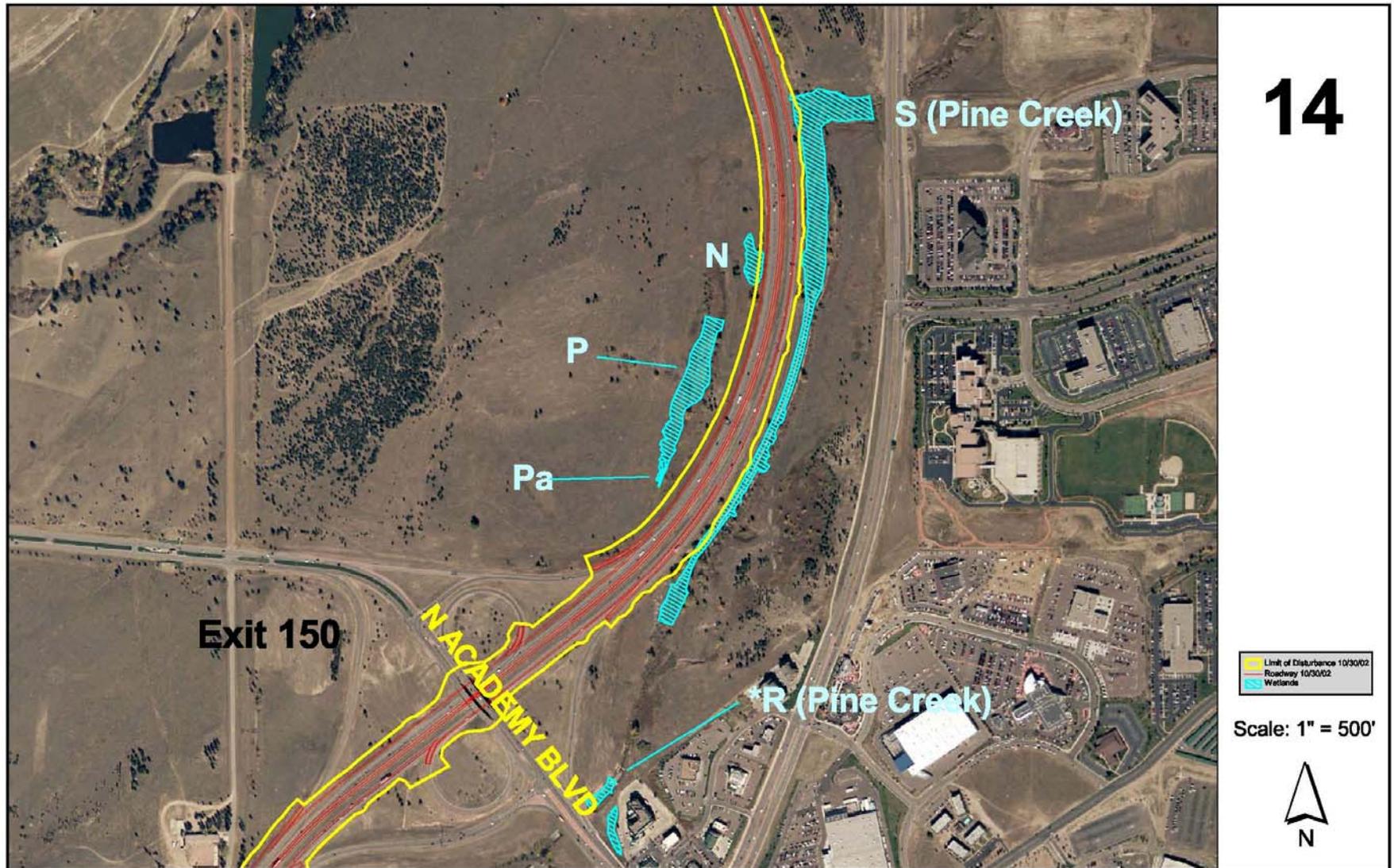
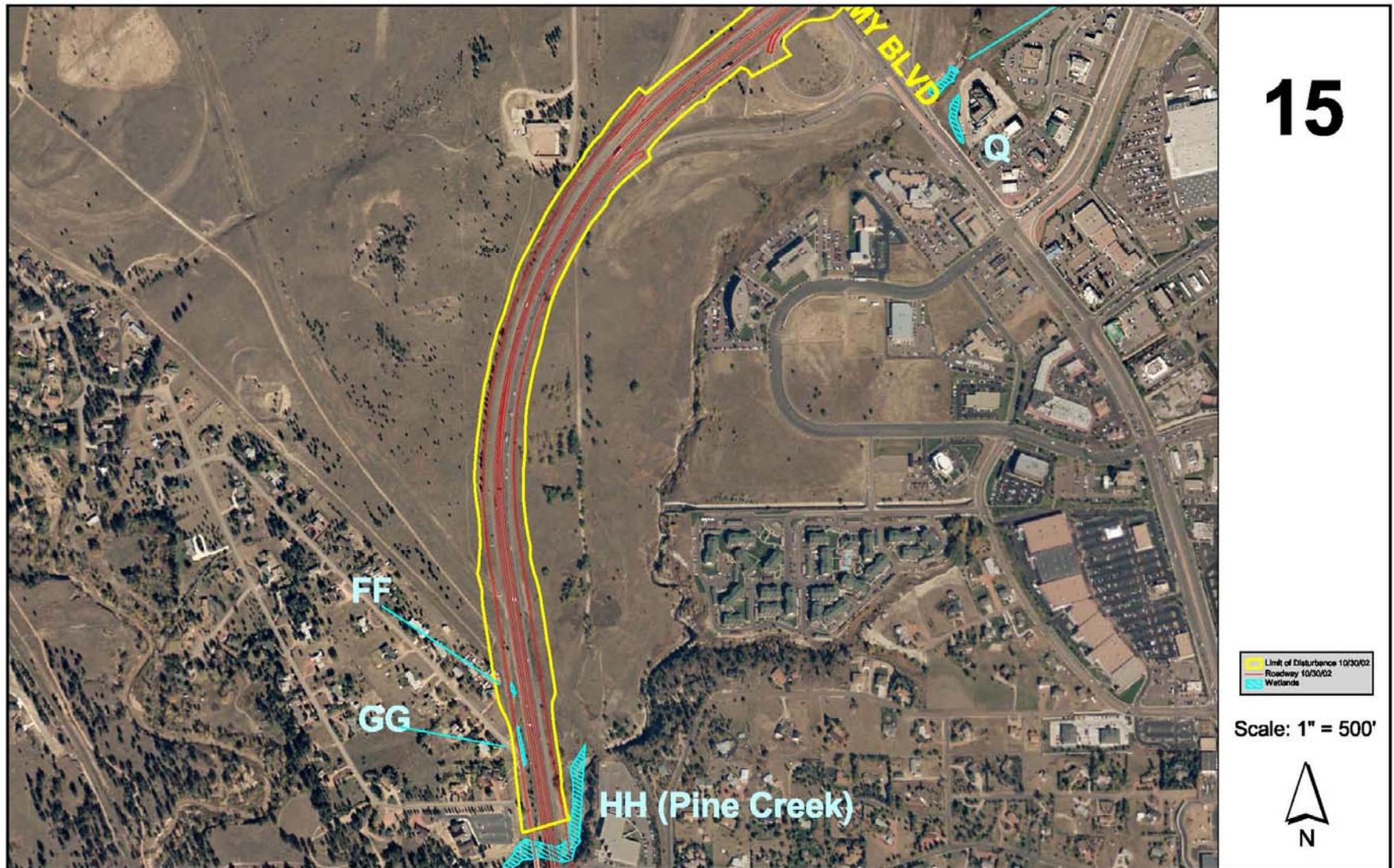


FIGURE 7-23
Wetlands in the Vicinity of I-25 Milepost 150 (N. Academy Boulevard Interchange)



15

FIGURE 7-24
Wetlands in the Vicinity of I-25 Milepost 149.5 (Pine Creek)



16

FIGURE 7-25
Wetlands in the Vicinity of I-25 Milepost 149 (Woodmen Road Interchange)

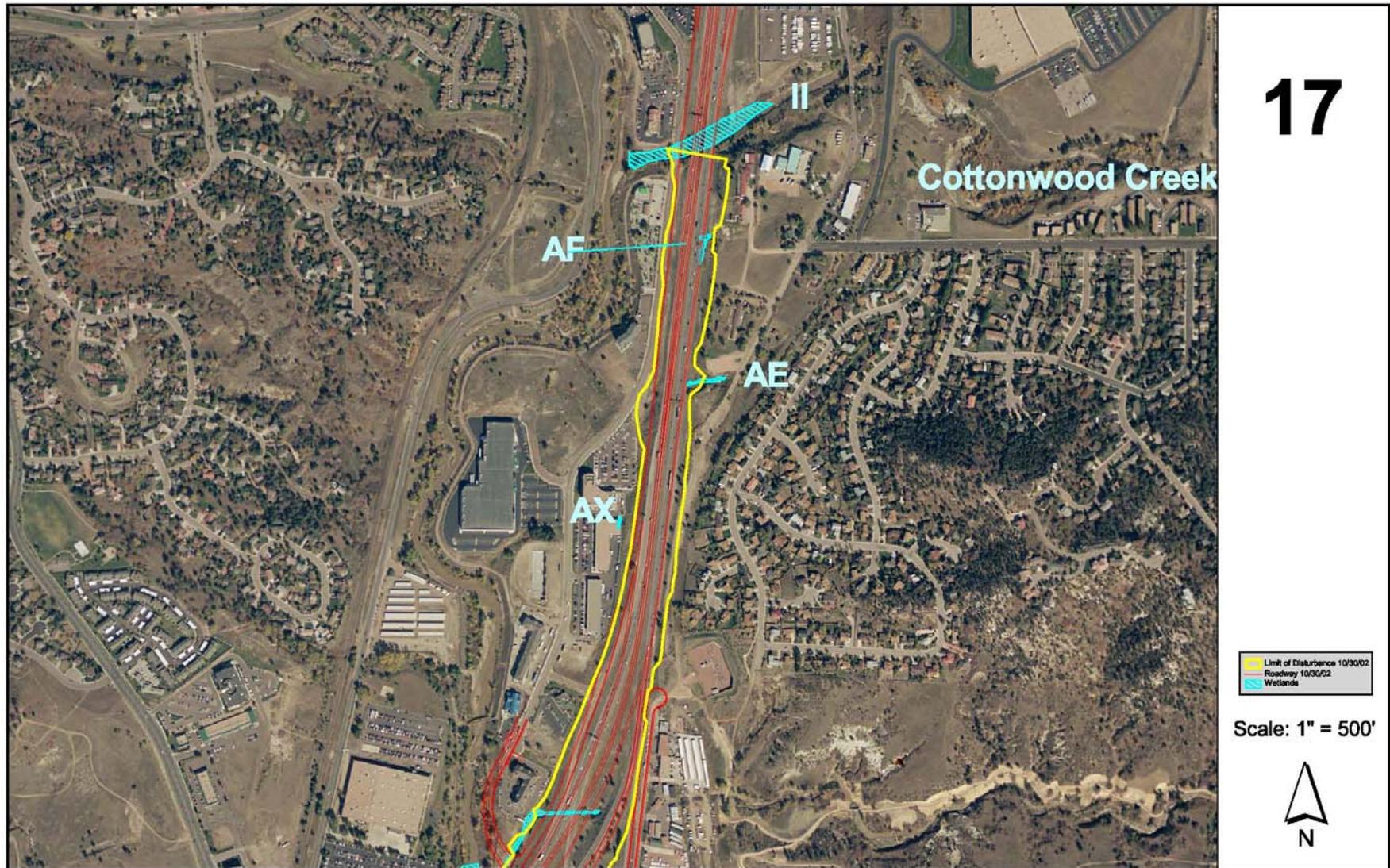


FIGURE 7-26
Wetlands in the Vicinity of I-25 Milepost 148 (Cottonwood Creek)

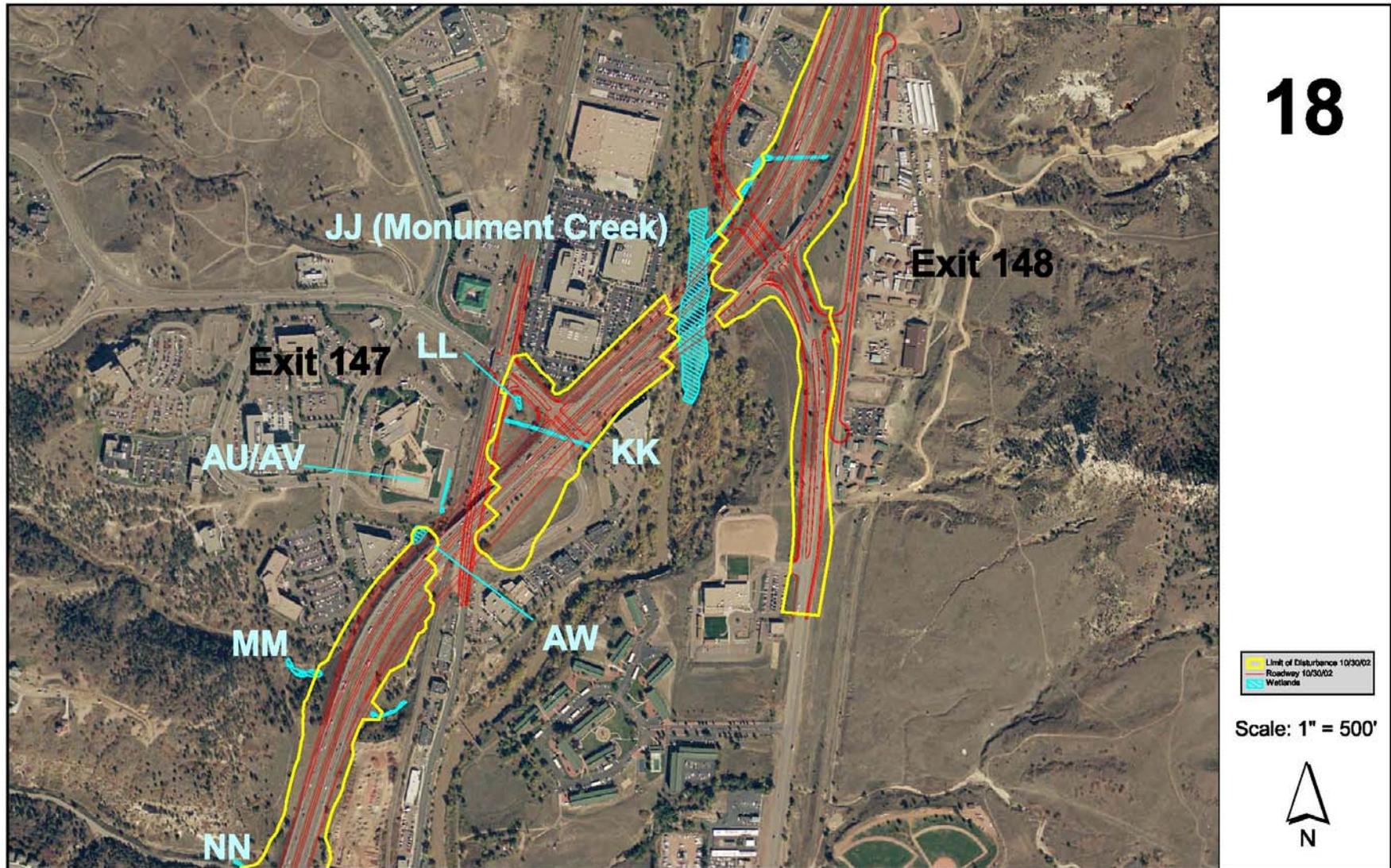


FIGURE 7-27
Wetlands in the Vicinity of I-25 Milepost 147 (Nevada/Rockrimmon Interchange)

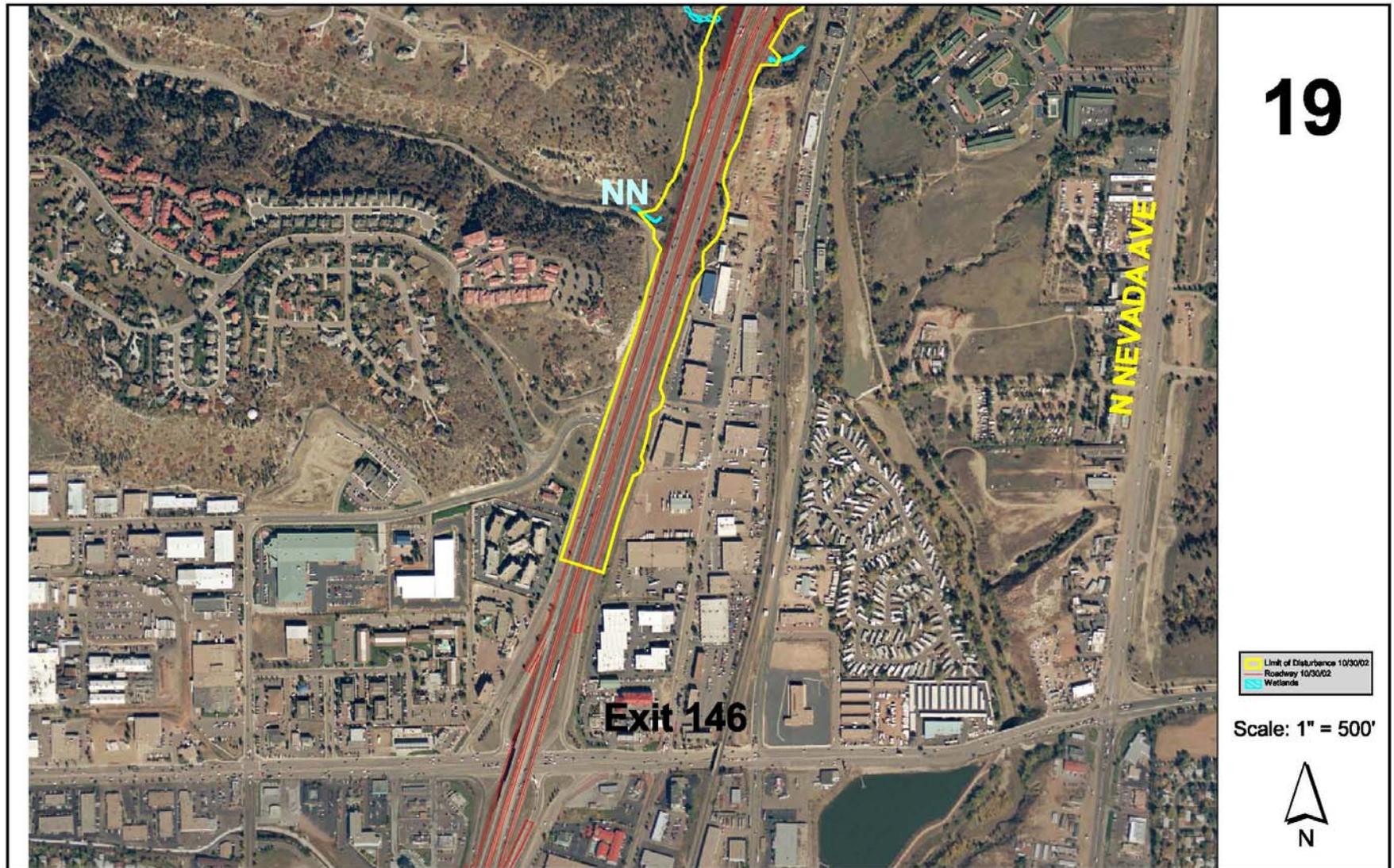


FIGURE 7-28
Wetlands in the Vicinity of I-25 Milepost 146 (Garden of the Gods Interchange)



FIGURE 7-29
Wetlands in the Vicinity of I-25 Milepost 145.5 (Douglas Creek)

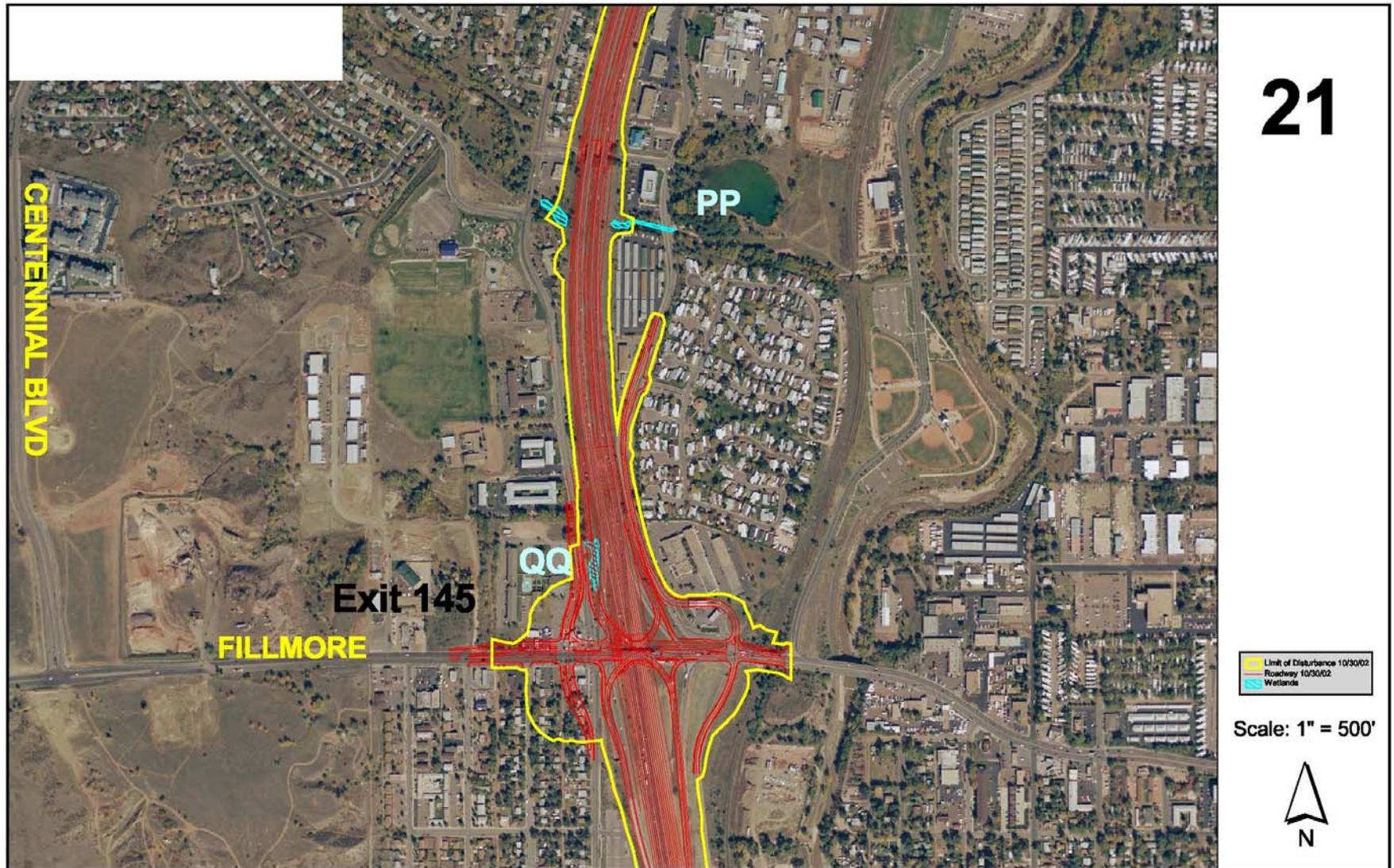


FIGURE 7-30
Wetlands in the Vicinity of I-25 Milepost 145 (Fillmore Interchange)

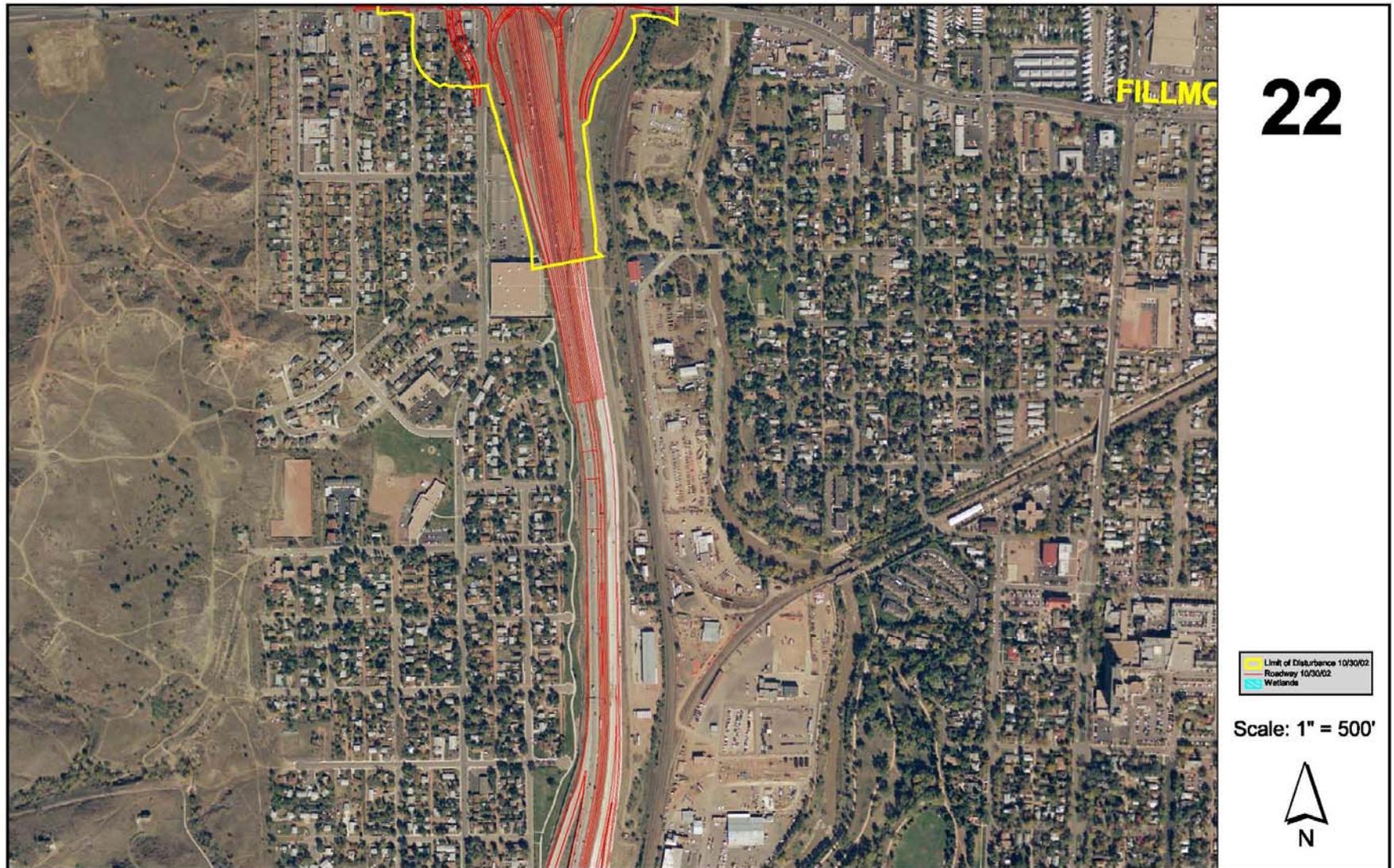


FIGURE 7-31
Wetlands in the Vicinity of I-25 Milepost 144.5 (south of Fillmore)



FIGURE 7-32
Wetlands in the Vicinity of I-25 Milepost 144 (Fontanero Street)



FIGURE 7-33
 Wetlands in the Vicinity of I-25 Milepost 143 (Uintah Street Interchange)



25

FIGURE 7-34
Wetlands in the Vicinity of I-25 Milepost 142 (Bijou Street Interchange)

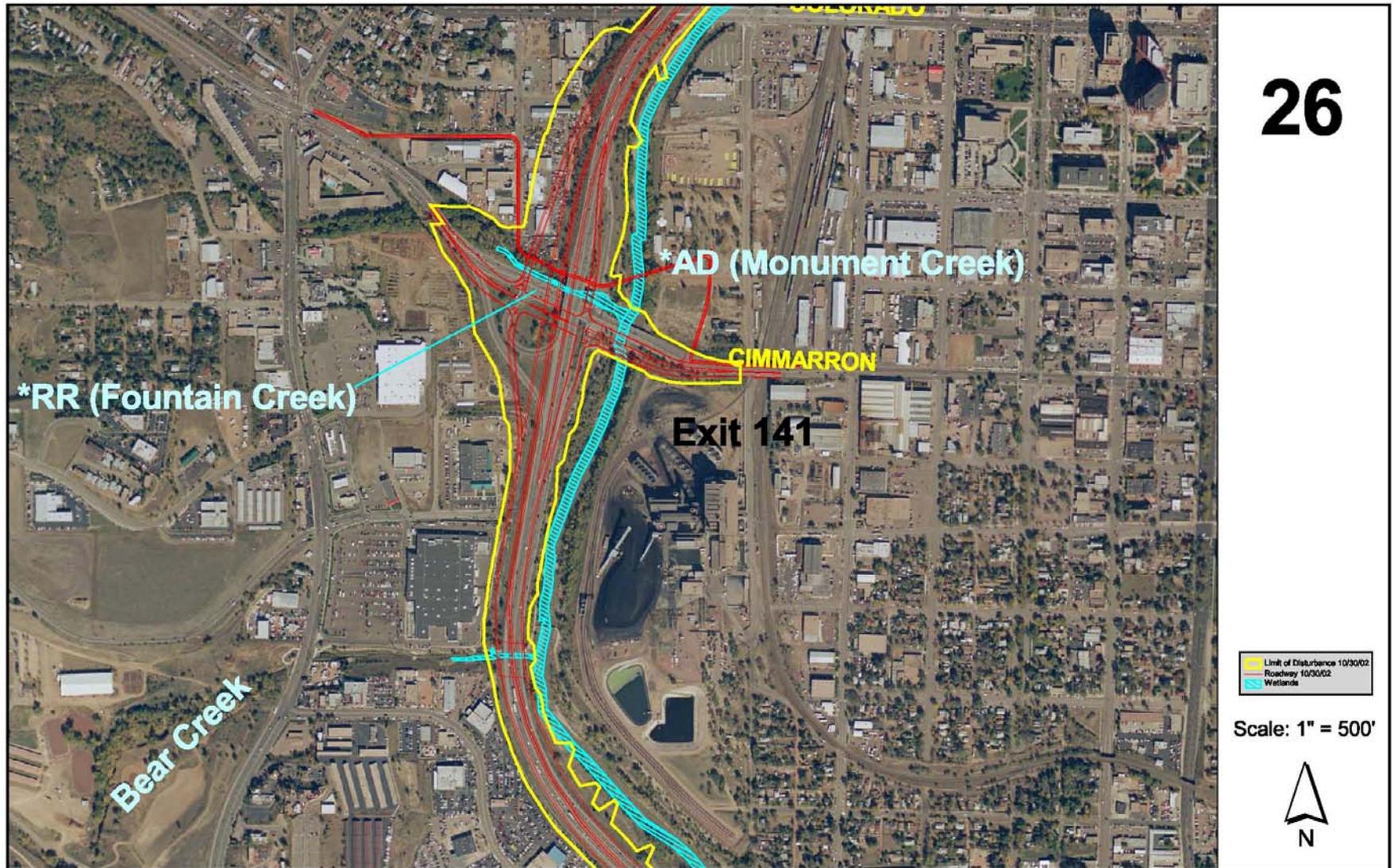


FIGURE 7-35
Wetlands in the Vicinity of I-25 Milepost 141 (Cimarron/US Highway 24 Interchange)

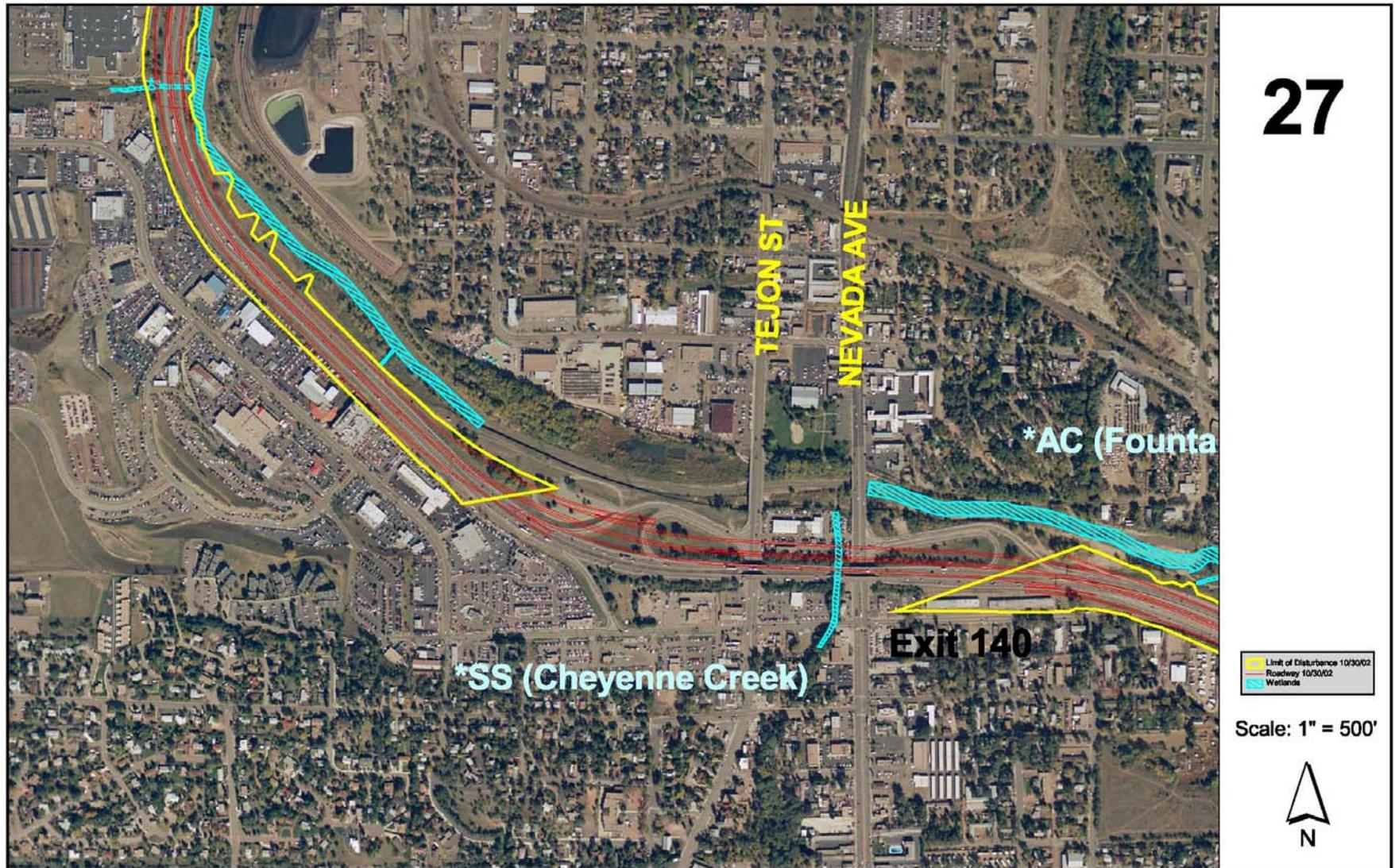


FIGURE 7-36
Wetlands in the Vicinity of I-25 Milepost 140 (S. Nevada/Tejon Interchange)

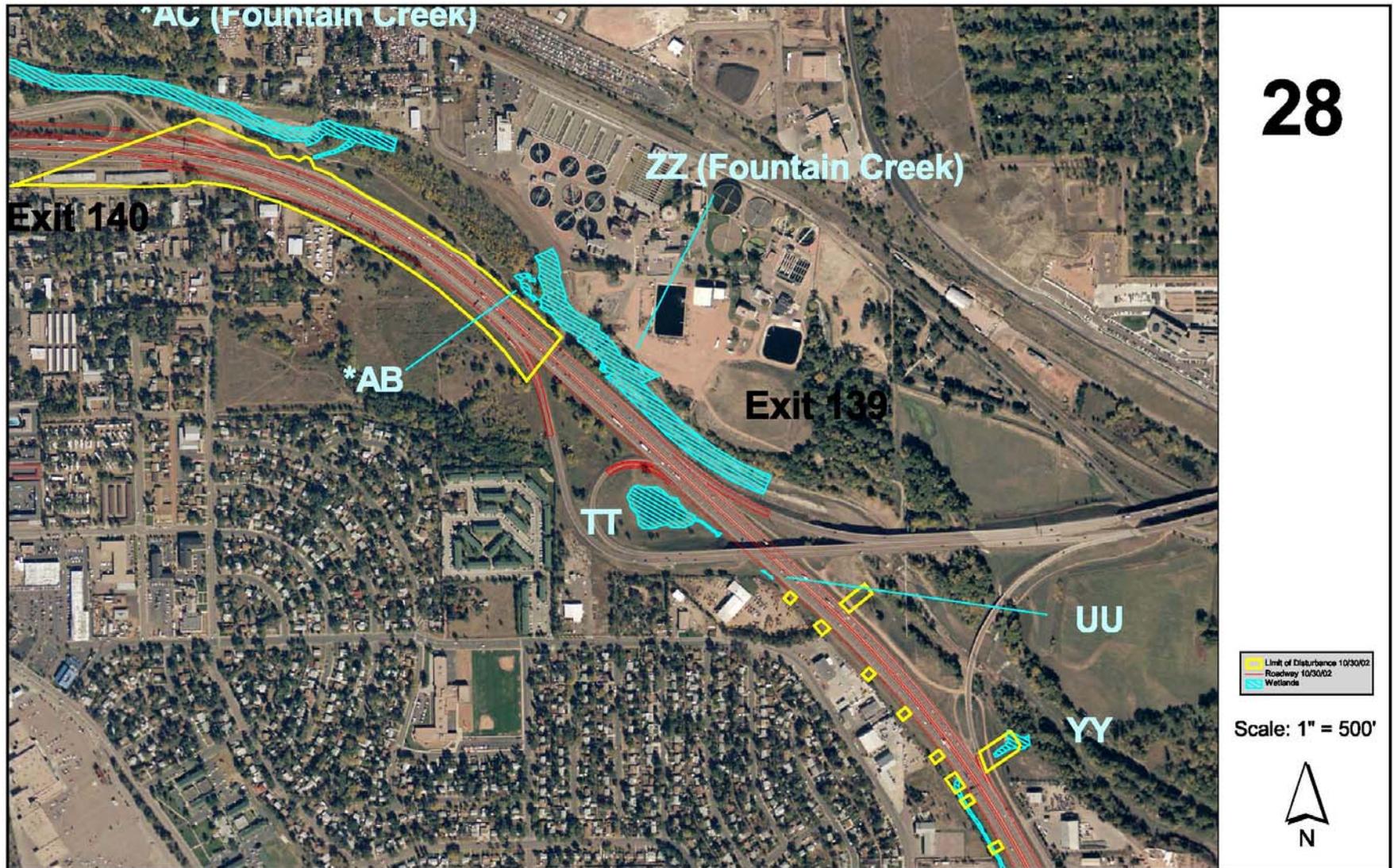


FIGURE 7-37
Wetlands in the Vicinity of I-25 Milepost 139 (US 24 Bypass)



29

FIGURE 7-38
Wetlands in the Vicinity of I-25 Milepost 138 (S. Circle Interchange)



FIGURE 7-39
Wetlands in the Vicinity of I-25 Milepost 137 (South of S. Circle)

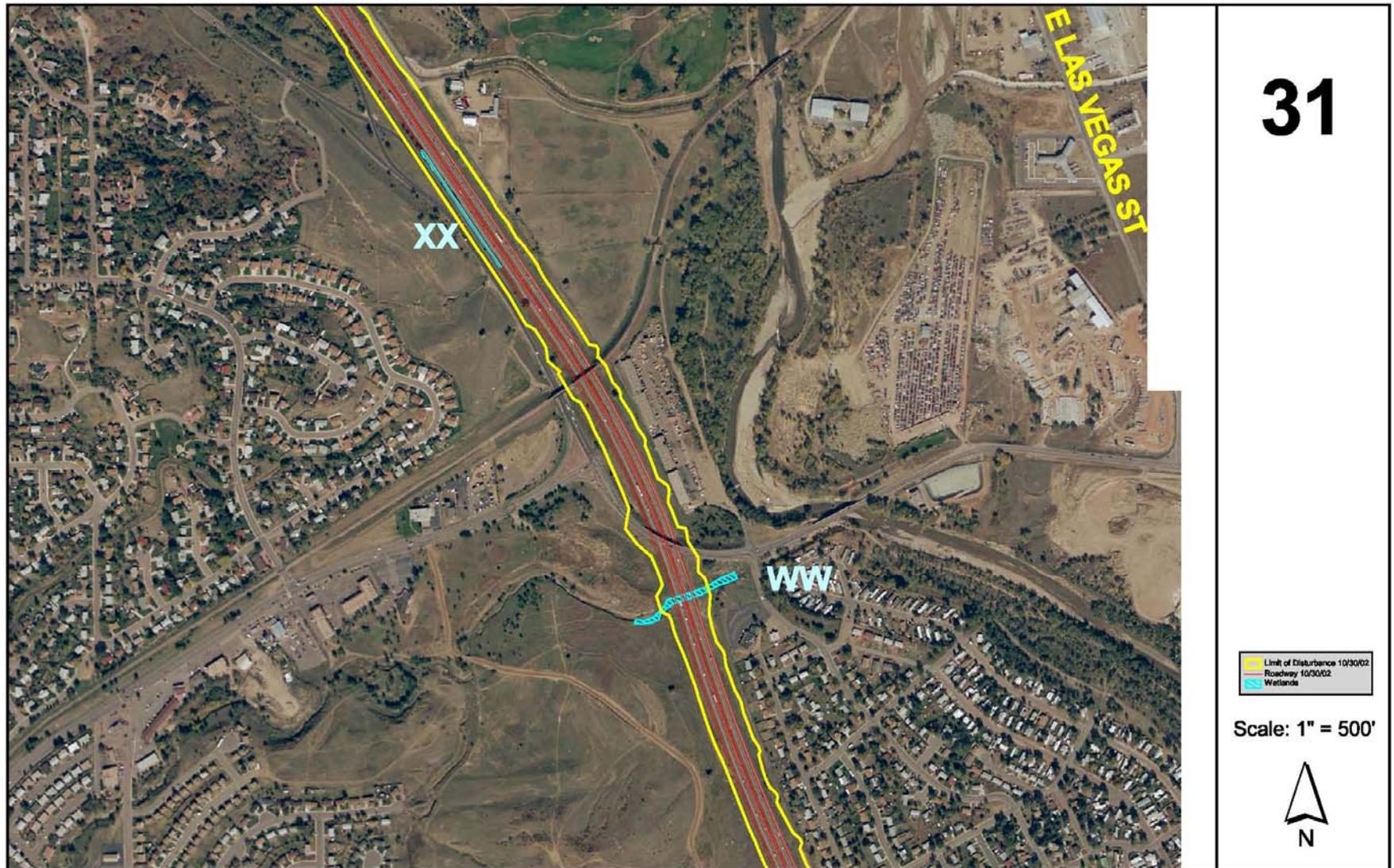


FIGURE 7-40
Wetlands in the Vicinity of I-25 Milepost 136 (North of S. Academy Boulevard)



FIGURE 7-41
Wetlands in the Vicinity of I-25 Milepost 135 (S. Academy Boulevard Interchange)

SECTION 8

Biological Opinion



United States Department of the Interior

FISH AND WILDLIFE SERVICE
Ecological Services
Colorado Field Office
755 Parfet Street, Suite 361
Lakewood, Colorado 80215

IN REPLY REFER TO:

ES/LK-6-CO-03-F-021
Mail Stop 65412

AUG 4 2003

William C. Jones, Division Administrator
Colorado Federal Aid Division
U.S. Department of Transportation
Federal Highway Administration
555 Zang Street, Room 250
Lakewood, Colorado 80228

Dear Mr. Jones:

In accordance with section 7 of the Endangered Species Act (Act) as amended (16 U.S.C. 1531 et seq.) and the Interagency Cooperative Regulations (50 CFR 402), this is the U.S. Fish and Wildlife Service's (Service) final biological opinion on impacts to federally-listed endangered and threatened species associated with Federal Highway Administration (FHWA) funding of three projects in El Paso County, Colorado. The three project areas are Interstate 25 (I-25) north of Colorado Springs, Powers Boulevard between State Highway 83 (SH83) and I-25, and the Shoup Road/SH83 intersection reconstruction.

This biological opinion is based on the proposal as described in the February 12, 2003, report by Ensign Technical Services, Inc. (Ensign) entitled "Programmatic Biological Assessment: Interstate 25 Corridor, Powers Boulevard North, and Shoup Road Projects in El Paso County, Colorado" (Biological Assessment). The Service received the Biological Assessment on March 10, 2003. The Service concurs with the FHWA's determination that the proposed projects are likely to adversely affect the threatened Preble's meadow jumping mouse, *Zapus hudsonius preblei* (Preble's).

CONFERENCE/CONSULTATION HISTORY

On May 13, 1998, Preble's was listed as threatened under the Act. Full protection for Preble's became effective on June 12, 1998. Several drainages in the project areas containing riparian and wetland habitat suitable to Preble's will be affected by the three proposed projects. Trapping surveys for Preble's have been conducted on all but two of these drainages, and presence confirmed. Drainages affected by the proposed projects are Pine Creek, Kettle Creek, Black Squirrel Creek South, Black Squirrel Creek North, Monument Branch, Smith Creek, Black Forest Tributary (not trapped), Jackson Creek, and Teachout Creek (not trapped).

On July 17, 2002, critical habitat for Preble's was proposed. In El Paso County, critical habitat was proposed on Teachout Creek, Jackson Creek, Black Forest Tributary, Smith Creek, Monument Branch, and Black Squirrel Creek. On June 23, 2003, critical habitat was finalized and did not include any of the drainages proposed in El Paso County.

A chronology of the consultation follows:

June 29, 2000, August 8, 2000, November 15, 2000. Meetings of Panel of Preble's experts convened by FHWA/CDOT to discuss impacts due to reconstruction of I-25 and related conservation measures.

May 14, 2001. Submittal of the Panel report entitled, "Preble's Meadow Jumping Mouse Issues Within the I-25 Project Area in Northern El Paso County, Colorado."

February 27, 2002. Meeting to discuss the I-25 Environmental Assessment and taking a programmatic approach to the section 7 consultation. CDOT, FHWA, Service, Ensight, and Wilson & Company (Wilson) representatives were present.

August 2, 2002. Field meeting to discuss and review habitat areas on the U.S. Air Force Academy (USAFA) property and other I-25 project areas with Ensight, CDOT environmental and engineering staff, design engineers from Wilson and PBS&J, the Service, and the USAFA in attendance.

November 13, 2002. Meeting to further discuss programmatic approach to the section 7 consultation. FHWA/CDOT proposed to add the Shoup Road/SH83 intersection reconstruction and the Powers Boulevard North construction to the process. Conservation strategies were discussed. Ensight, CDOT environmental and engineering staff, design engineers from Wilson and PBS&J, the Service, and the USAFA representatives attended.

December 5, 2002, January 13, 2003. Met to continue discussion of conservation strategies, success criteria, and project and consultation schedules. Made determination that programmatic approach would include an "umbrella" Biological Assessment describing the worst-case scenario of impacts due to all three projects and the conservation strategies, an "umbrella" biological opinion, and site-specific consultation documents on each project as their construction details are refined. Ensight, CDOT environmental and engineering staff, design engineers from Wilson and PBS&J, the Service, and the USAFA representatives attended.

January 21, 2003. Field meeting between Ensight and the Service to visit Shoup Road and Powers North sites containing potential Preble's habitat that will be impacted by the project.

March 10, 2003. Final Programmatic Biological Assessment received by the Service.

BIOLOGICAL OPINION

Description of the Proposed Action

Three projects are addressed in this programmatic consultation: 29 miles of I-25 reconstruction in northern El Paso County; reconstruction of the Shoup Road/SH83 intersection; and extension of Powers Boulevard from SH83 to its northern terminus at I-25 (Figure 1).

I-25 Reconstruction

The proposed action for improving I-25 capacity will take place in El Paso County along a 29-mile stretch of I-25 between the SH16 and Monument interchanges (Figure 1). Construction impacts will fall into two general categories: roadway widening and interchange reconstruction.

Some safety improvement projects on I-25 have already begun including the Circle Drive/Lake Avenue interchange, the Nevada Avenue/Tejon Street interchange, Bijou Street to Fillmore Street (including the Uintah Street interchange and the Fontanero Street interchange), the Woodmen Road interchange, and the North Academy Boulevard interchange. All of these projects, with the exception of the Monument and North Academy interchanges, are located outside of the area occupied by the mouse. Some of these drainages were formerly occupied, but

the Service has issued block clearances based on numerous negative trapping surveys. For the reconstruction of the Monument interchange, which is located within mouse habitat, a separate Biological Assessment was prepared by FHWA and CDOT, and a biological opinion was issued in August 2000. The North Academy interchange was under construction at the time Preble's was listed (May 1998), and FHWA/CDOT conducted a section 7 conference with the Service for that project.

It is anticipated that the I-25 project will be constructed in three phases. Phase I of the project will add one lane in each direction, resulting in three through-lanes per direction between South Circle Drive and Briargate Parkway. Phase II of the project will add one lane in each direction between Briargate Parkway and the Monument Interchange. Phase III, the final configuration of I-25 through northern El Paso County, would add one high occupancy vehicle (HOV) lane in each direction between Briargate Parkway and the Martin Luther King bypass, and one general purpose traffic lane in each direction between the Circle/Lake interchange and South Academy Boulevard. All lanes south of the Interquest Parkway interchange will be added in the median between the existing northbound and southbound lanes of the interstate. For lanes north of Interquest Parkway, the median is either not wide enough to accommodate the new lanes, or the median has Preble's habitat. Lanes in this area will be added to the outside of the existing pavement.

Proposed construction will affect a 20-foot (6.1-meter) wide area within the median and 20 feet (6.1 meters) in each direction outside the existing roadway. The average right-of-way (ROW) width is 300 feet (91.5 meters), which includes all paved lanes and shoulders. Most of the roadway widening will take place within the ROW. Much of this ROW area is either non-habitat (because of paving or mowing), or moderate to poor-quality habitat.

The proposed action also includes six major interchange reconstruction projects:

1. Baptist Road interchange, Exit 158;
2. Northgate/Powers interchange, Exit 156;
3. North Nevada Avenue/Rockrimmon interchange, Exit 148;
4. Fillmore Avenue interchange, Exit 145;
5. Bijou Street interchange, Exit 142; and
6. Cimarron (US Highway 24) interchange, Exit 141.

Of the interchanges listed above, Baptist and Northgate/Powers are located in areas with known Preble's habitat; the Nevada/Rockrimmon interchange is located at the northern edge of the Colorado Springs Preble's block clearance zone; and the Fillmore, Bijou and Cimarron interchanges are located in the center of the Colorado Springs Preble's block clearance zone.

The Baptist, Northgate/Powers and Nevada/Rockrimmon interchanges at areas of Preble's habitat are described below.

The Baptist Road interchange, at I-25's Exit 158, exists as an unsignalized diamond interchange where a bridge carries a two-lane cross-street over the four-lane freeway. FHWA/CDOT are proposing to replace the existing facility with a diamond interchange configuration. The reconstructed interchange will have an expanded bridge to carry more lanes of Baptist Road traffic over more lanes of I-25 traffic. Local business access and frontage roads will also be redesigned. The existing frontage road in the southeast quadrant of the interchange crosses Jackson Creek and adjacent Preble's meadow jumping mouse habitat. CDOT has purchased 65 acres here for conservation purposes. Under the proposed action, the existing frontage road will be removed and located on the east boundary of the conservation area.

The existing Northgate interchange, at I-25's Exit 156, provides access for Northgate Road, the main visitor entrance to the USAFA. South of the interchange, free-flow ramps are planned for a system-to-system interchange connecting I-25 and the planned Powers Boulevard. The entire interchange complex, including the I-25 mainline, is situated on USAFA property. CDOT

coordinated with USAFA to develop a proposed action. Preble's habitat is found along Smith Creek (immediately south of the Northgate interchange) and also in the Monument Branch tributaries at the south end of the proposed Powers Boulevard ramps. Replacement of substandard loop ramps at Northgate Road with a diamond interchange configuration may allow for restoration of upland habitat for the mouse. Minimization of adverse impacts to Preble's habitat was an important factor in the concept design process.

Under the proposed action, substandard ramps at I-25's Exits 147 (Rockrimmon Boulevard), 148A (North Nevada Avenue), and 148B (Corporate Center Drive) will be replaced with a consolidated split-diamond interchange configuration, improving capacity and safety for all roadways involved. Monument Creek flows southward under the I-25 bridges here. Due to the complexities of the local roadway system here, ten interchange concepts were developed for consideration. The concept design process attempted to minimize impacts to wetlands, riparian areas and floodplains. These efforts will prove beneficial if Preble's is able to recolonize this northernmost reach of the Colorado Springs block clearance zone.

Storm drainage improvements north of the North Academy Boulevard interchange, which is primarily in a rural setting, will consist of roadside and median grass-lined swales and buffer strips, and cross-culverts and bridges. South of the North Academy Boulevard interchange the interstate passes through a highly urbanized area of Colorado Springs. Storm drainage in this area will predominantly consist of storm sewer systems, pipes, bridges and other structures and devices common to urban storm drainage. Temporary erosion and sedimentation control improvements for construction activities will be included in all projects. Permanent detention/stormwater quality ponds will be constructed in interchange infield and other open areas where feasible. Other permanent stormwater quality Best Management Practices (BMPs) will be constructed for all drainage discharge locations, as practical.

Descriptions of reconstruction on I-25 at specific areas of Preble's habitat follows.

Pine Creek

Between North Academy and Briargate, the new east edge of pavement will generally match the existing edge of pavement along the southerly half of this reach of highway. The new pavement edge will be about 5 feet to the west of the existing edge of pavement along the northerly half of this reach. Construction will be done in two stages. First, all traffic will be shifted to one side of the existing highway, either northbound or southbound, while the other side is being fully constructed. When construction is finished on the first side, all traffic will be shifted to that side and the construction of the other side will be completed. It is possible this staged construction will be completed as two separate construction projects.

Kettle Creek

Highway reconstruction in the Kettle Creek area includes one additional lane in each direction with shoulders constructed within the existing open median and minor shoulder widening on the east side. The highway embankment side slopes will also be reconstructed for safety. Construction will be completed in two main stages, as described for Pine Creek. A new culvert to connect habitat on opposite sides of I-25 may be installed, depending on the outcome of feasibility studies and discussions with the USAFA, who owns part of the property.

Black Squirrel Creek South

Black Squirrel Creek South crosses I-25 approximately 3,850 feet north of Interquest Parkway through a divided median. The existing crossing is a separate 3-span bridge for both the northbound and southbound roadways, each having a total span length of about 105 feet and a clearance of 15 feet. The existing median opening is approximately 24 feet.

Highway reconstruction in this reach includes one additional lane in each direction with shoulders constructed on the outside of both the northbound and southbound roadways. The existing open median will remain. The highway embankment side slopes will also be improved for safety. Separate new bridges will be constructed for both the northbound and southbound roadways. The new bridges will likely be multi-span that have a total span length of about 120 feet and will maintain the existing clearance of about 15 feet. The bridges will be about 63 feet wide with an approximate 24-foot-wide median opening. Construction will be done in two main stages, as described for Pine and Kettle Creeks.

Black Squirrel Creek North

I-25 will be widened from two lanes to three lanes in each direction, with construction to the outside of the existing pavement (to protect habitat in the median). The new construction will occur at the existing I-25 grade (elevation) and location. Additional widening will be required for the Powers Boulevard northbound to southbound I-25 ramp connection. This ramp connection requires an acceleration lane that will add 12 to 24 feet of widening to the southbound I-25 lanes. An additional 12 feet of widening on the northbound I-25 lanes for the ramp from I-25 northbound to Powers Boulevard southbound is also required.

In addition to pavement reconstruction and widening, hydraulic structures will be replaced or extended. Some of these structures are located within mouse habitat areas. There are two existing 12 foot by 10 foot concrete box culverts (CBCs) just north of Black Squirrel Creek. These structures will require significant extensions and some rehabilitation work on both sides of the structure.

Monument Branch

The limits of work in this area are from south of Monument Branch extending north to south of Smith Creek. I-25 will be widened from two lanes to three lanes in each direction. In addition to the new lanes, there will be additional lanes required to accommodate acceleration and deceleration lanes for the entrance and exit ramps to I-25 from the Powers Boulevard interchange.

Powers Boulevard is a major north-south highway that runs along the eastern edge of Colorado Springs, Colorado. Powers Boulevard is planned to intersect I-25 approximately one-half mile south of the existing Northgate interchange. Powers Boulevard will connect to I-25 through a series of direct connecting ramps. In addition, there will be direct access from Powers Boulevard to Northgate Boulevard. The interchange will be constructed below existing I-25 grade, resulting in cuts into the existing terrain.

New ramps will be constructed for the development of the interchange. The area on the east side of the northbound I-25 pavement will be impacted due to I-25 pavement widening and reconstruction, and construction of the new northbound I-25 to southbound Powers Boulevard ramp. Pavement widening of I-25 will be to the outside of the existing northbound and southbound I-25 lanes to reduce impacts to median habitat.

At northbound I-25 at Monument Branch there are two existing 10 foot by 12 foot CBCs. These structures will be extended on the east end to accommodate the pavement widening in this area.

There are two existing 10 foot by 12 foot CBCs at southbound I-25 at Monument Branch. These structures will be extended on the west end to accommodate pavement widening in this area. There will also be rehabilitation work on the existing wing walls on the east side of the structures.

There is an existing 6 foot by 7 foot CBC at northbound I-25 approximately 1,050 feet north of Monument Branch. This structure will be extended on the east side and will affect habitat.

Smith Creek

Smith Creek is located approximately 900 feet south of Northgate Boulevard. The limits of work in this area include the widening and reconstruction of I-25 and reconstruction and reconfiguration of the existing Northgate Boulevard and I-25 interchange to accommodate the Powers Boulevard connection. Additionally, southbound I-25 will be widened to the outside in this area. The I-25 median area will be impacted on the west side in order to construct the fill slopes for southbound I-25.

The area to the east of the I-25 northbound lanes will also be impacted. These impacts are a result of the new interchange ramps for Northgate Boulevard and Powers Boulevard. The new ramp from northbound Powers Boulevard to the Northgate Boulevard ramp will bisect the existing loop ramp for Northgate Boulevard to northbound I-25. There will also be a new ramp from northbound Powers Boulevard to northbound I-25 that will parallel northbound I-25 and connect to I-25 north of Northgate Boulevard. Finally, there will be a new ramp from northbound-I-25 to Northgate Boulevard.

There are two large CBCs located at Smith Creek under the existing I-25 lanes. These structures will be extended to accommodate the roadway widening in these areas. In addition to the existing CBCs, new CBCs will be constructed to accommodate the stream flows under the new interchange ramps.

Black Forest Tributary

The limits of work in this area are from north of Northgate Boulevard extending north to Black Forest Tributary.

I-25 will be widened from two to three lanes in both directions. The widening of I-25 will occur to the outside of the existing pavement and the existing pavement will be reconstructed (there is no room to widen to the inside). The new construction will occur at the existing I-25 grade (elevation) and location. Additional widening will be required for the Northgate Boulevard ramps to I-25.

There are two existing 10 foot x 10 foot CBCs at Black Forest Tributary. These structures will require significant extensions on both sides.

Baptist Road and Jackson Creek

The limits of work in this area are from north of the Black Forest Tributary to Baptist Road.

I-25 will be widened and reconstructed from two lanes to three lanes in each direction including improved shoulders. The widening will be to the outside of the existing lanes in this area (there is no room to widen to the inside). Baptist Road will be reconstructed to six lanes with raised median and curb, gutter, and sidewalk beyond the roadway edges. The Baptist Road / I-25 interchange will be reconstructed with new ramps. There is an existing two-lane frontage road on the east side of I-25, which will be removed. A new frontage road will be constructed that will intersect Baptist Road at Jackson Creek Parkway. The new frontage road will extend south and connect with the existing frontage road, south of Jackson Creek.

The Jackson Creek floodplain currently crosses both Baptist Road and I-25. The crossing structure at I-25 is a 29 by 18 foot CBC with a natural bottom. This structure will be extended on both sides to accommodate roadway widening in this location. Two 36-inch corrugated metal pipes cross under the existing frontage road to carry water to this structure. There is evidence that the flow from Jackson Creek is currently overtopping the frontage road during significant rainfall events. The frontage road will be removed in this location. There will be channel improvements made to Jackson Creek upstream of the 29 foot by 18 foot CBC. These

improvements will allow for improved habitat conditions and will facilitate wildlife crossing of I-25 in this location.

At the Baptist Road crossing, the roadway will be widened and a new hydraulic structure placed under the road, affecting habitat. FHWA/CDOT are considering a drainage detention structure on the upstream side (north) of Baptist Road to help control the significant erosion problem that has resulted from private development and construction up-gradient of the CDOT conservation area.

Teachout Creek

Teachout Creek crosses I-25 about 5,900 feet north of Baptist Road. The existing crossing is a double 10-foot wide by 10-foot high concrete box culvert that passes under the northbound and southbound roadways and the open median, and has a total length of about 125 feet.

Highway reconstruction in this reach includes additional lanes and shoulders constructed on both the east and west sides, and some minor shoulder widening in the existing median (non-habitat area). The open median will remain. The highway embankment side slopes will also be improved for safety. The existing culvert will be extended about 35 feet to the west and about 40 feet to the east, for a total completed length of about 200 feet.

Construction will be done in two main stages as described before.

North Powers Boulevard

Powers Boulevard has been constructed between Woodmen Road and Research Parkway. Construction of Powers between Research and SH83 is currently underway. Powers Boulevard will ultimately be extended from SH83 north to I-25. The configuration of the new roadway ultimately will be a freeway with grade-separated interchanges. New sections of roadway will be initially constructed as a four-lane expressway with at-grade intersections controlled by stop signs or traffic signals. In the ultimate configuration, interchanges are planned at eight major crossroads. A minimum 210-foot ROW width is required. Where interchanges would be built (which require more land than an at-grade intersection), a ROW "footprint" area was determined that is large enough to contain the entire future interchange.

Powers Boulevard will cross Black Squirrel Creek approximately 0.30 miles north of the proposed interchange with SH83 (Figure 2). The crossing will allow for construction access from both sides of the creek to minimize channel disturbance.

The design includes a multiple bridge structure over Black Squirrel Creek. A 3-span girder bridge design will probably be required and it is estimated that bridge clearance will range from 20 to 70 feet above the stream. Bridge abutments were placed to limit the impacts to habitat. The placement also reduces the height of the fill sections. Currently the south banks of the channel have steep vertical cuts which will be graded to gentler slopes to facilitate revegetation.

Drainage will be designed in accordance with CDOT standards. The resulting drainage flow volumes that reach the creek will have controlled outlets and will not have a significant impact to the area.

The initial construction will require access from both the north and south ends of the bridge. Access to the south side will be from SH83. Access to the north side will be from the Powers ROW, or easements obtained from the developer. Crane pads and the access road for delivery of the girders will have impacts within riparian habitat. The access road and pads are required for placement of the girders, construction of the piers, and concrete pump trucks.

Shoup Road

SH83 will be realigned from the planned Powers interchange to a point north of the Shoup Road intersection. SH83 reconstruction will include the crossing of Black Squirrel Creek and alterations in the drainage structure at that location (Figure 2).

The existing drainage structure is a 15-foot-diameter metal pipe that may be replaced, or an additional pipe may be constructed parallel to the existing one to accommodate flows under SH83. Drainage will be directed under SH83 using a series of culvert pipes or a single-span bridge to keep the flows in the channel of Black Squirrel Creek instead of topping the roadway.

SH83 crosses Black Squirrel Creek approximately 0.75 miles north of Powers Boulevard. The structure selection is not final, but if the structure is a bridge, it will be a single-span structure that will extend approximately 80 feet across the creek and will accommodate 5 12-foot travel lanes with 10-foot outside shoulders for the SH83 improvements. Minimal impacts to the main channel will be necessary to construct the abutments and fill sections. Additional impacts will occur should the structure include adding pipes or a box culvert structure. El Paso County is planning on routing a recreational trail under SH83 adjacent to Black Squirrel Creek, and the trail will be within the footprint of the bridge or culvert. Trail impacts are not part of this project.

Schedule

Construction schedules are contingent on funding, which is unknown at this time. It is anticipated that construction for all projects will begin in the spring of 2004, and last 4 - 10 years, finishing in 2014. More time however, may be needed.

Conservation Measures

As part of this project, the following conservation measures were proposed in the Biological Assessment to reduce potential for impacts to Preble's:

- Project boundaries will be controlled with chain link or orange plastic fencing to keep heavy equipment within proposed work zones.
- Disturbance areas within hibernation habitat will be cleared of shrubs and other woody vegetation by August 15 to discourage Preble's from hibernating in these areas prior to construction.
- Widening of I-25 will be to the inside (where median areas are non-habitat) when possible to avoid impacts to habitat on road edges.
- Powers Boulevard's crossing over Black Squirrel Creek was located in an area with degraded Preble's habitat.
- Impacts to Black Squirrel Creek at the Shoup Road intersection were shifted to the west side of the road where the habitat is of lesser quality.
- Design for all three projects is currently at approximately 30 percent. Impact minimization efforts will continue through final design phases.
- Smith Creek, Monument Branch, and North and South Black Squirrel Creeks are in close proximity to each other along I-25 south of the Northgate interchange. Preble's may move into the I-25 median from any of these creeks and could even move between the creeks from within the median. Impacts in this area are being minimized by maintaining at least one of these four creeks as a movement corridor at all times, including during construction. Such a movement corridor will either be undisturbed or will be a disturbed area that is fully restored, or has been restored to the extent that animal mobility will not be affected. In the latter case,

artificial cover and other means may be necessary to provide adequate cover for movement. Also in this area, no more than 50 percent of the projected impact area (for all four of these drainages) will be disturbed at any one time.

- Highway construction in habitat areas will be scheduled during Preble's hibernation season (November 1 to April 30).
- Native seed mixes will be used in all revegetation efforts, and the site will be promptly revegetated.
- Noxious weeds will be controlled.
- When practical, construction of minor drainage culverts and other roadway appurtenances will be done from the roadway itself.
- Riprap will be covered with soil and revegetated where possible.
- Maximum slope grades will be used to decrease impacts in habitat areas including the use of guardrail where appropriate.
- In most areas where work on CBCs will be necessary, existing culverts will be lengthened rather than replaced.
- Some culverts under I-25 may have lighting shafts constructed to allow some daylight to enter the culvert.
- Construction access will utilize existing pathways to the extent possible.
- Placement of bridge girders and related work will take place from existing roadway pavement (from above) to the extent possible.
- Mowing along the new highway will be limited to one mower width in most cases, and the remainder of the toe slopes will be left unmowed. Mowing will be consistent with the Memorandum of Understanding between CDOT, CDOW, and the Service. Signage will be provided to delineate mowing limits for CDOT maintenance personnel.
- CDOT and FHWA will continue to explore ways to avoid or minimize impacts to Preble's during the remainder of project development and construction.
- In order to offset the temporary and permanent loss of habitat due to the proposed actions, FHWA/CDOT have devised a four-point program which includes conducting onsite restoration and enhancement actions such as revegetating all temporarily disturbed areas with native plant species; conducting offsite mitigation projects that will promote Preble's recovery in the Monument Creek drainage; monitoring; and research. These measures focus on creating, restoring, or enhancing habitat linkages.

1. Onsite Actions

On-site actions include all steps that will be taken to avoid and minimize impacts, as well as to enhance, restore, and create habitat within or near project areas. Actions to enhance, restore, and create habitat linkages will be given the highest priority. At this time, a minimum of 3.8 acres of habitat will be enhanced, restored, or created at the Pine Creek, Baptist Road, and SH83 locations, including restoration after temporary impacts.

2. Offsite Actions

Off-site actions are conservation measures that will be taken to enhance, restore, or create habitat linkages, as well as the purchase of properties that are needed to create habitat corridors.

A. Enhance, restore, or create habitat linkages. FHWA/CDOT have identified five locations where habitat linkages can be restored in northern El Paso County, and are committed to the reestablishment of at least two of these linkages. Details of these and additional options are provided in Appendix D of the Biological Assessment. A summary of the five known options is provided here. Restoring these linkages will lead to improved (or restored) mouse mobility, but may also provide the habitat elements that will allow establishment of a resident population, if the linkage is large enough. The length and condition of the linkage will determine the eventual benefits of restoration or enhancement actions. If expected restoration outcomes are not achieved, corrective measures will be taken and the success of these measures will be monitored.

(i.) The lower Monument Creek to upper Monument Creek linkage would involve the restoration of approximately 1.2 miles of Monument Creek located on private property. A trapping survey has shown that Preble's occurs on adjacent properties, but the subject property is too degraded to support habitat. The site has been grazed for many years and has little to no shrub or grass cover along the creek. Willows are present, but are cropped low by cattle. It is likely that Preble's are also unable to move through the property, and that the populations north and south of the property are separate. Reconnecting Monument Creek through this area would connect the approximately 211 stream miles of lower Monument Creek to the 64 stream miles of upper Monument Creek. The landowner is interested in working with CDOT, and test grazing exclusion plots have been established on the property. This option would also restore the area of the Beaver Creek/Monument Creek confluence.

(ii.) Linking Kettle Creek to Monument Creek across I-25 will involve constructing a land bridge and/or culvert system. Currently, Kettle Creek crosses under I-25 through a siphon pipe approximately ½ mile long and there is a large dam on the upstream (east) side of I-25. Both of these structures prevent mice from moving downstream along Kettle Creek to Monument Creek. A Preble's was observed in the area between the dam and I-25 in 2001. The most likely route the mouse took to this location adjacent to I-25 was over the north side of the dam on the east side of I-25. The creek is occupied on both sides of I-25, and upstream of I-25, Preble's have been found up to 1.5 miles away from I-25. Downstream of I-25, Preble's have been captured to the confluence with Monument Creek. Kettle Creek is one of Monument Creek's longest tributaries. FHWA/CDOT are proposing to construct a "green bridge" over the north side of the dam using existing habitat features such as topography and vegetation to enhance movement, and installing a culvert under I-25, connecting both sides of Kettle Creek. Because I-25 runs through USAFA property at Kettle Creek, any work here will require USAFA approval. Reconnecting Kettle Creek across I-25 would link approximately 67 stream miles of Kettle Creek to the approximately 211 stream miles of lower Monument Creek.

(iii.) The confluence of Hay and Beaver Creeks is upstream of option 1 above, and this option would involve restoring approximately ½ mile of Monument Creek that is degraded by grazing. Hay Creek flows into Beaver Creek about ¼ mile west of Monument Creek and the Beaver Creek/Monument Creek confluence area has been trapped and Preble's were not found. Preble's have been found upstream on Beaver Creek. Beaver and Hay Creeks contain approximately 34 stream miles.

(iv.) Downstream movement of the Preble's population at FHWA/CDOT's mitigation site on Jackson Creek at I-25 and Baptist Road is inhibited by two small culverts under the frontage road on the east side of I-25, the frontage road, and a large CBC under I-25. The

culverts and the frontage road will be removed, and the CBC improved by installing a natural bottom and improving habitat at its portals, thereby re-establishing the connection across I-25. Jackson Creek is occupied by Preble's both upstream and downstream of I-25. The confluence of Jackson Creek and Monument Creek is also occupied by Preble's. Jackson Creek contains approximately 10 stream miles though not all of the creek contains good habitat.

(v.) Restore the confluence of Teachout Creek and Monument Creek. This area is on private property just north of and contiguous with option 1 above. Teachout Creek is a small ephemeral drainage that flows through a residential area near the active railroad track, becomes a grazed, grassy swale, then flows into a terminal pond approximately 1/4 mile from Monument Creek; it truly never conflues with Monument Creek. Any Preble's along Teachout Creek are probably isolated from Monument Creek. The area to be restored includes a reach of Monument Creek approximately 1 mile long and varying in width from about 100 to 300 feet. The length of the area to be restored along Teachout Creek is approximately 1/3 mile, and of varying width. Currently, this area is degraded by grazing. There was a Preble's capture in 1997 near the confluence of Teachout and Monument, at a wastewater treatment plant.

B. Protect, enhance, or restore habitat corridors. Conservation at the small watershed scale will help to ensure desirable population size, genetic diversity, and protection against catastrophic events and future fragmentation.

FHWA/CDOT have made considerable progress toward reconnecting habitat corridors on two streams in northern El Paso County through preservation and enhancement. Efforts have been focused on Dirty Woman and Jackson Creeks in northern El Paso County (including the area of the confluence of Dirty Woman and Monument Creeks). Both of these streams are occupied by Preble's and support the most important Monument Creek tributary populations north of the USAFA.

Dirty Woman Creek is the location of the I-25/SH105 Monument interchange, where construction began in fall 2002 (Ensign 2000, 2002). CDOT began a program of property and conservation easement purchase in 2000, and much of the known Preble's habitat on this stream is now in permanent protection through CDOT efforts. Conservation easements to date have been used to offset project impacts at the Monument interchange project (DeFelice, Shingledecker, and Lovato easements). CDOT also owns the area between SH105 and I-25, and the area west of I-25 for approximately 0.3 miles. CDOT will continue to pursue the remaining parcels that are needed to complete this corridor, and is committed to habitat protection, enhancement, and restoration, as needed.

CDOT has also purchased a 65-acre conservation property on Jackson Creek east of I-25, to fulfill conservation needs for the Monument interchange and Powers Boulevard projects. This property was scheduled for development before CDOT intervened and purchased it in 2001. Several habitat improvements will occur on this property in the coming years, including conversion of dense cattail stands to shrub islands (scheduled for winter 2003-04), the removal of a frontage road and a long culvert, and improvements to the I-25 culvert structure. CDOT is actively negotiating for additional habitat purchases on the west side of I-25 that will complete this important habitat corridor. CDOT will also purchase either conservation easements or through fee title an additional 50 acres of habitat along Dirty Woman, Monument, Jackson Creeks, or other areas of Preble's habitat. Habitat restoration, enhancement, or creation will be conducted on these lands as appropriate.

C. Coordinate conservation actions and information with other agencies and landowners. Recovery can best be achieved through coordinated efforts and CDOT is working closely with El Paso County and the USAFA, and these agencies will likely conduct actions that will contribute towards recovery. The cooperation of developers and private landowners will also be essential for success, and CDOT will share conservation information and cooperate with other such interested parties.

3. Monitoring

The proposed monitoring program will have two major elements: effectiveness monitoring for success standards, and monitoring for special project information.

Effectiveness monitoring determines if the anticipated impacts stated in the Biological Assessment and permitted in the biological opinion are exceeded, and if progress is being made toward the biological goals and objectives of this Biological Assessment. This will generally include a determination of disturbed area (tracked in a project database), and an accounting of revegetation activities. Revegetation monitoring includes management of the revegetation contract, selecting appropriate plant materials, ensuring proper planting techniques, and implementing appropriate BMPs. Revegetation areas are then surveyed following planting until the success standards stated in the site-specific consultation documents are met. These monitoring actions will be reported to the Service in an annual report.

Preble's populations will be monitored at sites where habitat linkages will be created or improved. Although the general value of habitat linkages for the persistence of small populations is recognized, there is relatively little specific scientific information on linkage value to small mammals. Collecting these data would serve to gauge the success of the planned linkages, and provide valuable information for the Preble's Recovery Team. FHWA/CDOT will work with the Service to develop success standards appropriate for selected linkages.

4. Research

CDOT will fund a research project on Preble's use of culverts with small mammal ledges. This work is guided by similar work that was conducted in Montana, where small mammal ledges were shown to enhance movement through culverts (Foresman, 2001). This work would have wide applicability in all areas of the Preble's range. CDOT and FHWA are committed to completing this research and applying the results.

Details of the above conservation measures are outlined in the Biological Assessment.

Proposed Best Management Practices

This section presents the Best Management Practices (BMPs) recommended by CDOT and FHWA to avoid potential impacts to listed species. They are intended to avoid and reduce potential impacts to Preble's populations and habitat. BMPs may be superseded by more stringent or general conditions that are established in project-specific consultation documents. Minimization of adverse effects will be accomplished by implementing the following steps:

1. Each construction project will have an erosion control plan with permanent and temporary measures (BMPs) that will minimize adverse effects to water quality.
2. Identify and prioritize habitat areas that are subject to disturbance. For example, large willow patches or prime hibernation areas shall be avoided if possible. Explore various options with project designers and stretch design flexibility to the greatest extent possible if these discussions result in reduced or avoided site impacts.
3. Vegetation that has to be removed may be salvaged for replanting, or may have other on-site uses (brush piles for mouse cover). Consult with the project biologist.
4. Engineers and construction staff shall consult with the project biologist if there are any changes in plans or if there are any questions regarding proposed activities within Preble's habitat.
5. Limit equipment entrance/exit areas to a single location if possible. Construction access routes shall overlap with permanently disturbed areas to the greatest extent possible.

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2. Identify and prioritize habitat areas that are subject to disturbance. For example, large willow patches or prime hibernation areas shall be avoided if possible. Explore various options with project designers and stretch design flexibility to the greatest extent possible if these discussions result in reduced or avoided site impacts.
3. Vegetation that has to be removed may be salvaged for replanting, or may have other on-site uses (brush piles for mouse cover). Consult with the project biologist.
4. Engineers and construction staff shall consult with the project biologist if there are any changes in plans or if there are any questions regarding proposed activities within Preble's habitat.

5. Limit equipment entrance/exit areas to a single location if possible. Construction access routes shall overlap with permanently disturbed areas to the greatest extent possible.
6. Minimize Preble's habitat impacts by coordination with equipment operators to find out specifically where they will drive. There are often last-minute changes that can lead to further reduction in site impacts.
7. Minimize impacts to vegetation. This might mean pruning trees rather than tree removals, or cutting shrub stems and allowing sprout re-growth, rather than grubbing out an entire root system.
8. Minimize time periods with bare soil. Vegetation cover is not only beneficial for Preble's but affords the site better resistance to invasion from non-native weeds and reduces erosion.
9. Weed control measures shall be consistent with guidelines established by state, local and federal governments.
10. Installation of chain-link or plastic (orange) fencing to establish no-work zones as early in the project as possible.
11. Schedule project construction and other habitat disturbances during the dormant season if possible. Most plants are more resilient to disturbances when they are dormant than when they are actively growing. This timing also coincides with Preble's hibernation season, and feeding, movement, and reproduction will not be affected.
12. Select native plant species for revegetation, and local varieties if available. All revegetation plans shall be consistent with revegetation and monitoring guidelines established in the pertinent site-specific consultation document.
13. Stockpile soil from disturbed natural areas; it can often be used as a seed bank to re-establish native plant species.
14. The project biologist shall assess the presence of bullfrogs in the project areas, and consider implementing control measures for this introduced species that preys on Preble's meadow jumping mouse.
15. Take precautions in removal of any beaver dams. Beaver dams are likely to improve habitat for jumping mice by creating wider riparian corridors and encouraging willow growth. Prior to removal of any beaver dam, a careful evaluation and assessment of the impact of this action on the entire drainage, especially the effects of flooding and scouring that may result, will take place.
16. Consider mitigation for altered hydrology due to upstream development. This might include detention basins or channel stabilization actions.
17. Consider impacts to upland habitat. Establish shrubs suitable for day nests and hibernacula, and try to get easements in order to extend buffers where good upland habitat is present.
18. Revegetate exposed sand bars and bank margins as quickly as possible after project completion to minimize erosion.
19. Avoid introduction or excess application of chemicals into aquatic ecosystems. Limit soil stabilizers, sterilants, growth inhibitors, de-icing salts, etc.
20. Prevent spilled fuels, lubricants, or other related materials from entering Preble's habitat.

21. Any project-related construction trash (e.g., cement blocks, asphalt piles, cans, bottles, scrap lumber, etc.) will be removed from habitat areas at project completion.
22. Vehicle traffic in riparian areas will be minimized to the extent practicable.
23. Equipment staging areas in Preble's habitat are prohibited.
24. Use directional drilling/boring if possible when relocating utility lines in all habitat areas.
25. Night-time work will not be allowed in the active season unless specifically permitted in the project-specific consultation document.

Procedure for Changing Future Actions

FHWA/CDOT will notify the Service when proposing any site-specific construction activities by submitting a site-specific Biological Assessment. The Service will review the site-specific Biological Assessment and make a determination whether:

1. the effects of the action described in the site-specific Biological Assessment were sufficiently addressed in this biological opinion;
2. the project description in this biological opinion needs to be amended but there is no change in effects, or;
3. consultation needs to be reinitiated for one of the following reasons:
 - a. Incidental take is above the amount identified in this opinion. Incidental take is defined as harm, harassment, pursuit, hunting, shooting, wounding, killing, trapping, capture, or collection of wildlife or removal, damage, or destruction of plants of an endangered species.
 - b. Activities are outside of the scope of this biological opinion.

The Service will review the site-specific documents and, if they are complete, respond within 30 days.

Status of the Preble's meadow jumping mouse

Preble's is a small rodent in the family Zapodidae and is 1 of 12 recognized subspecies of the species *Z. hudsonius*, the meadow jumping mouse. Preble's is native only to the Rocky Mountains-Great Plains interface of eastern Colorado and southeastern Wyoming. This shy, largely nocturnal mouse lives in moist lowlands with dense vegetation. It is 8 to 9 inches long (its tail accounts for 60 percent of its length) with hind feet adapted for jumping. Preble's hibernates underground from September to May.

Records for Preble's meadow jumping mouse define a range including Adams, Arapahoe, Boulder, Denver, Douglas, El Paso, Elbert, Jefferson, Larimer, and Weld counties in Colorado; and Albany, Laramie, Platte, Goshen, and Converse counties in Wyoming (Kruttsch 1954, Compton and Hugie 1993). Armstrong, *et al.* (1997, p. 77) described typical Preble's meadow jumping mouse habitat as "well-developed plains riparian vegetation with relatively undisturbed grassland and a water source in close proximity." Also noted was a preference for "dense herbaceous vegetation consisting of a variety of grasses, forbs and thick shrubs."

Preble's has undergone a decline in range; populations within its remaining range have been lost. Habitat loss and fragmentation resulting from human land uses have adversely impacted Preble's populations. David Armstrong (University of Colorado, pers. com. 1998) concluded that the meadow jumping mouse, in this region as elsewhere, is a habitat specialist, and that its specialized habitat is declining.

Compton and Hugie (1993, 1994) cited human activities that have adversely impacted Preble's meadow jumping mouse including: conversion of grasslands to farms; livestock grazing; water development and management practices; and, residential and commercial development. Shenk (1998) linked potential threats to ecological requirements of Preble's meadow jumping mouse and suggested that factors impacting vegetation composition and structure, riparian hydrology, habitat structure, distribution, geomorphology, and animal community composition must be addressed in any conservation strategy.

Residential and commercial development, accompanied by highway and bridge construction, and instream alterations to implement flood control, directly remove Preble's meadow jumping mouse habitat, or reduce, alter, fragment, and isolate habitat to the point where Preble's meadow jumping mouse can no longer persist. Corn *et al.* (1995) proposed that a 100 meter (328 foot) buffer of unaltered habitat be established to protect the floodplain of Monument Creek from a range of human activities that might adversely affect Preble's or its habitat. Roads, trails, or other linear development through Preble's habitat may act as movement barriers or filters. Shenk (1998) suggested that on a landscape scale, maintenance of acceptable dispersal corridors linking patches of Preble's habitat may be critical to its conservation.

Further information about the biology and status of Preble's can be found in the "Conservation Assessment and Preliminary Conservation Strategy for Preble's Meadow Jumping Mouse (*Zapus hudsonius preblei*)" (Shenk, 1998, available on request).

Environmental Baseline

Many of the drainages in El Paso County have been trapped and Preble's has been found to occupy portions of Monument Creek, Jackson Creek, Beaver Creek, Lehman's Run, Dirty Woman Creek, Smith Creek, Pine Creek, Cottonwood Creek, Black Squirrel Creek, Kettle Creek, as well as smaller tributaries to these creeks.

Many of the occupied streams have suitable riparian vegetation at their confluences with Monument Creek and for 1 to 3 miles upstream. Most streams affected by the projects have headwaters in the Black Forest east of Monument Creek, where ponderosa pine (*Pinus ponderosa*) is the primary cover type. Although Preble's have been captured in ponderosa pine communities, it is likely that mouse distribution is patchier and densities are lower in these forest types, which do not support the dense understory cover found in riparian communities.

The project areas are within the Monument Creek watershed in El Paso County, itself a part of the larger Arkansas River watershed. All of the drainages within the three project areas are positioned on the south side of the Palmer Divide, a watershed divide that separates the South Platte and Arkansas watersheds. I-25 is located east of Monument Creek, at a distance of 0.8 miles at the northern end, to 0.1 miles at the southern end. Tributaries of Monument Creek include several first-order streams and ephemeral drainages. The smaller drainages in the corridor are barely more than wet swales that support patches of wetland vegetation, and have poorly-defined channel cross-sections. Flow is intermittent during the growing season. Black Forest Tributary and Teachout Creeks typify these conditions.

Moderately sized creeks within the corridor include Monument Branch, Smith, Jackson, and Dirty Woman Creeks. Flow is permanent, but may be reduced to a trickle during the latter part of the growing season. Channel width varies from less than 3 feet to greater than 33 feet, and channel depth is generally moderate (less than 1.5 feet), but may include sections that are more deeply incised. These creeks have floodplains that are usually less than 160 feet wide, but may extend to almost 328 feet.

Cottonwood, Pine, Kettle, and Black Squirrel Creeks are the larger drainages in the project areas. All have well-defined channels that are generally less than 33 feet wide, but can exceed 100 feet in places. Some of the upper stretches of Black Squirrel Creek are primarily dry gulches with upland shrub cover. Most of these creeks also have deeply incised sections, which are probably due to both

naturally erosive soils and increased flow from urbanizing influences in their watersheds. Pine, Cottonwood, and Kettle Creeks all have sections where the channel depth exceeds 66 feet.

Preble's habitat and populations are not distributed continuously on Monument Creek and its tributaries. Estimates of Preble's densities also vary considerably between sites and within sites in different years. Habitat is fragmented by urban, suburban, and commercial development, as well as by agricultural activities, primarily grazing.

Conditions along the I-25 corridor differ from conditions along the proposed Powers Boulevard corridor and at the Shoup Road/SH83 intersection. The I-25 corridor near Pine Creek is commercially developed, and in some places Pine Creek is confined within a concrete channel. A large energy-dissipation structure was constructed on the creek in 1996 at Academy Boulevard. This structure effectively splits Pine Creek's Preble's population. Northward of Pine Creek, the corridor becomes less commercially developed, but housing becomes more common. Drainages are mostly undeveloped along I-25 where it crosses the USAFA. Preble's habitat at Kettle Creek is truncated by a large dam/pipe combination at I-25. The creek is funneled through a siphon approximately 0.5 mile long under I-25 and emerges on the west side of I-25 on USAFA property. The dam and siphon are likely barriers to Preble's movement across I-25, although the creek on both sides of the highway is occupied. Both branches of Black Squirrel Creek are occupied by Preble's on both sides of I-25. At Monument Branch, I-25's northbound and southbound lanes are split by a wide median. This median is occupied by Preble's, as are both sides of the highway. A large housing development to the east of the highway is a potential threat to Preble's in the area. Smith Creek is also occupied on both sides of I-25 and is threatened by housing. Middle Black Forest Creek is also occupied. Jackson Creek is occupied on both sides of I-25 and FHWA/CDOT has purchased 65 acres of Jackson Creek and its floodplain on the east side of I-25 and has plans to enhance Preble's habitat at the site. Development is a potential threat along Jackson Creek on both sides of the highway. The northernmost drainage affected by this project is Teachout Creek which has good Preble's habitat west of I-25, though the east side is developed.

The Powers Boulevard extension alignment is currently undeveloped and is open, native, grazed rangeland. The new corridor is slated for development including residential and commercial development as well as a golf course. The new highway will cross Black Squirrel Creek in an area that is highly eroded and steep, though still occupied by Preble's.

The Shoup Road/SH83 intersection site has well-developed Preble's habitat on the east side where the banks are steep but the floodplain is wide enough to support good habitat. The east side has been trapped and is occupied. The west side however, is highly eroded, has few shrubs, and steep banks. The uplands surrounding the site have been grazed in the past but are currently owned by a developer.

Effects of Action

The proposed projects will affect almost every drainage occupied by Preble's in northern El Paso County. Areas of Preble's habitat affected by the proposed projects include the floodplains as well as adjacent side slopes and uplands. At the time that FHWA/CDOT calculated the action's impacts, critical habitat was proposed by the Service and was defined as those areas within 360 feet of the edge of the stream. Typically however, habitat has been defined as those areas within 300 feet of the 100-year floodplain. Most of the creeks in the project area had reaches that were proposed as critical habitat, but all have been removed from the final designation. Most of the creeks that will be impacted by the proposed action have narrow floodplains and using the critical habitat definition to determine impacts to Preble's habitat is more conservative and results in a higher number of impacted acres than using the typical definition of 300 feet from the 100-year floodplain.

Direct impacts include paving, fill slopes, vehicle access roads, crane pads, mowing along highway rights-of-way, and areas covered by new bridges and culvert extensions. Incidental take of Preble's during both the active and hibernation periods is possible and disturbance of both of those habitat types is assured. Temporary impacts include the temporary loss of both riparian and upland habitat areas during construction and recovery, and alteration of the stream channels during construction.

Indirect impacts include a temporary increase in sedimentation in the affected creeks during construction as well as the potential of an increased amount of road traction substances such as sand and de-icers, into the surface water, due to a wider road surface (and, in the case of Powers Boulevard, a new roadway), and an increase in noise, traffic, and pollutants.

Most of the appropriate habitat in the project areas are likely inhabited by Preble's year-round. The project could directly impact Preble's through temporary or permanent loss of habitats regularly occupied by Preble's. Additional effects of the proposed work include temporary disturbance to potential movement corridors, and increased noise, vibration, and human presence during construction. The majority of work is scheduled to occur during the period when Preble's is hibernating.

A description of site-by-site impacts follows.

I-25

Pine Creek

Habitat along Pine Creek was calculated as 300 feet from the 100-year floodplain on each side of Pine Creek, because it was not proposed as critical habitat. The habitat ends at the 15-foot-wide mowing strip adjacent to the east edge of pavement of the existing highway. The area of permanent impact to the habitat is the area between the east edge of the mowing strip of the existing highway and the east edge of the 15-foot-wide mowing strip next to the new highway. Widening here is estimate to increase the habitat area 0.2 acre (gain of 0.2 acre), because the east edge of pavement of the new highway will be constructed either at the existing edge of pavement or shifted to the west, and a small area that is currently paved will be torn up and revegetated. The remainder of the disturbance area was designated as temporary impact, because it will be revegetated with native plantings and maintained in a natural condition. Temporary impacts are estimated to be 3.3 acres.

Kettle Creek

Habitat was calculated as 300 feet from the 100-year floodplain on each side of Kettle Creek, because this section of the creek was not proposed as critical habitat. The habitat ends on both sides of the existing highway at the 15-foot-wide mowing strip adjacent to the edges of pavement. The area of permanent impact to the habitat is the area between the edges of the mowing strips of the existing highway and the edges of the 15-foot-wide mowing strips next to the new highway. The remainder of the disturbed habitat will have temporary impacts. Permanent impact at Kettle Creek and I-25 is estimated to reduce the habitat area by 0.1 acre, and there will be approximately 0.4 acre of temporary impact. Kettle Creek currently crosses under I-25 in a 9-foot diameter reinforced concrete pipe that is 2,600 feet long. This crossing design will not change.

Black Squirrel Creek South

Because Black Squirrel Creek was proposed critical habitat, impact was calculated as those affected areas within 360 feet of each side of the creek. The habitat ends on both sides of the existing highway at the 15-foot-wide mowing strip adjacent to the edges of pavement. The area of permanent impact to the habitat is the area between the edges of the mowing strips of the existing highway and the edges of the 15-foot-wide mowing strips next to the new highway. The remainder of the disturbed habitat will be considered a temporary impact area because it will be revegetated with native plants, and then maintained in a natural condition. The permanent impact at Black Squirrel Creek South will be approximately 1.2 acres. The temporary impact is estimated to be 2.1 acres. I-25 currently crosses over this drainage on 15-foot high bridges. Post-construction, the height will not change but the bridge span will increase from 105 feet to 120 feet.

Black Squirrel Creek North

The total permanent impact area at Black Squirrel Creek North is from pavement and CBC widening and is approximately 1.0 acre, with a temporary impact of approximately 3.1 acres. Portions of this creek were proposed critical habitat and impacts were calculated as those areas within 360 feet of each side of the creek. For those portions that were not proposed critical habitat, impacts were calculated as 300 feet from the 100 year floodplain. The water in this drainage is currently conveyed under I-25 through two 12 x 10 CBCs approximately 210 feet long. These CBCs will increase in length to 235 feet.

Monument Branch

Habitat impacts from the construction of the Powers/I-25 interchange are due to cuts, fills, pavement widening, and reconstruction. Impacts will occur to an unnamed drainage approximately 600 feet north of the edge of Monument Branch on the east side of I-25, and to habitat within the median. The area on the east side of the northbound I-25 pavement will be impacted due to I-25 pavement widening and reconstruction, and construction of the new northbound I-25 to southbound Powers Boulevard ramp. The habitat area in the existing I-25 median will be impacted primarily because of the new northbound Powers Boulevard to southbound I-25 ramp. Pavement widening of I-25 will be to the outside of the existing northbound and southbound I-25 lanes to reduce impacts to median habitat.

Permanent impacts to habitat due to pavement widening, new ramp construction, roadway cuts and fills, and structure widening for the Monument Branch area will affect approximately 3.5 acres. The area of temporary impacts will account for approximately 6.1 acres. There may be an opportunity to enhance the median area of I-25 south to connect to the Monument Branch habitat area as mitigation for the impacts in this area. This will be further evaluated during final design. Portions of this creek were proposed critical habitat and impacts were calculated as those areas within 360 feet of each side of the creek. For those portions that were not proposed critical habitat, impacts were calculated as 300 feet from the 100 year floodplain. There is a median between the northbound and southbound lanes of I-25 where it crosses over Monument Branch. Two 12 x 10 CBCs convey water under each set of lanes and the current culvert length in the northbound direction is 180 feet and the length in the southbound direction is 91 feet. These lengths are projected to increase to 282 and 202 feet, respectively.

Smith Creek

The impacts to habitat are due to I-25 widening and reconstruction and the construction of new ramps for the Northgate Boulevard and I-25 interchange. The habitat area between the Santa Fe Trail and the southbound I-25 lanes will be affected due to construction of new ramps for Northgate Boulevard to southbound I-25 and from Northgate Boulevard to the southbound I-25 to southbound Powers Boulevard ramps. Additionally, southbound I-25 will be widened to the outside in this area. The I-25 median area will be impacted on the west side in order to construct the fill slopes for southbound I-25.

The permanent impact area due to pavement widening, new ramp construction, roadway cuts and fills, and structure widening for the Smith Creek area is estimated to be 6.2 acres. The temporary impact area is approximately 4.0 acres. The area of the existing loop ramp on the southeast quadrant of the existing Northgate interchange may be a possible location for habitat mitigation. This will be further evaluated during final design. Portions of this creek were proposed critical habitat and impacts were calculated as those areas within 360 feet of each side of the creek. For those portions that were not proposed critical habitat, impacts were calculated as 300 feet from the 100 year floodplain.

Like Monument Branch, there is a median where Smith Creek flows under I-25, and it flows under I-

single culvert 480 feet long under southbound I-25 and the new Northgate and Powers Boulevard ramps. This length is based on conceptual design and grading, and represents the worst-case scenario. FHWA/CDOT will pursue a concept that keeps a portion of Smith Creek approximately 50 – 55 feet in length intact. In this scenario, the culverts under the southbound mainline would be approximately 225 feet long, and the culverts under the ramps would be approximately 145 feet long.

Black Forest Tributary

The permanent impact area due to pavement widening, roadway cuts and fills, and structure widening for the Black Forest Tributary area is approximately 0.3 acres. The temporary impact area is approximately 1.0 acre. Portions of this creek were proposed critical habitat and impacts were calculated as those areas within 360 feet of each side of the creek. For those portions that were not proposed critical habitat, impacts were calculated as 300 feet from the 100 year floodplain. Black Forest Tributary is currently conveyed under I-25 in two 10 x 10 CBCs 142 feet long. These CBCs will be extended to 285 feet.

Baptist Road and Jackson Creek

Permanent habitat impacts due to pavement widening, new roadway construction, roadway cuts and fills, and structure widening for the Jackson Creek area amount to approximately 7.7 acres, and the temporary impact area is estimated to be 4.6 acres. The temporary areas impacted will be re-vegetated after completion of the roadway construction. The area of the existing frontage road that will be removed may then be used for potential habitat mitigation and the area could be enhanced. This created/restored/enhanced habitat area is estimated at 3.6 acres. Portions of this creek were proposed critical habitat and impacts were calculated as those areas within 360 feet of each side of the creek. For those portions that were not proposed critical habitat, impacts were calculated as 300 feet from the 100 year floodplain. The existing 29 x 18-foot natural bottomed CBC under I-25 will be extended from 105 feet to 292 feet.

Teachout Creek

The habitat areas were calculated as 360 feet on each side of Teachout Creek (the proposed critical habitat width). The habitat ends on both sides of the existing highway at the 15-foot-wide mowing strips adjacent to the edges of pavement. The area of permanent impact to the habitat is the area between the edges of the mowing strips of the existing highway and the edges of the 15 feet wide mowing strips next to the new highway, and the area to be covered by the culvert extensions. The permanent impact at Teachout Creek will be approximately 1.1 acres, and the temporary impact approximately 1.4 acres. Portions of this creek were proposed critical habitat and impacts were calculated as those areas within 360 feet of each side of the creek. For those portions that were not proposed critical habitat, impacts were calculated as 300 feet from the 100 year floodplain. Teachout Creek flows under I-25 in two 10 x 10 CBCs that are currently 125 feet long that will be extended to 200 feet in length.

North Powers Boulevard

Temporary impacts due to the construction of Powers Boulevard at Black Squirrel Creek have been minimized. The impact areas were measured within the 360-foot-wide habitat area, measured from the bank of the normal flow channel. The impacts will include the placement of the roadway fill, work area needed for construction, access road and crane pads for placement of the steel girders. The temporary disturbance area is estimated at 6.36 acres.

Permanent impact areas due to the proposed Black Squirrel Creek bridge include the permanent roadway fills within the 360-foot-wide habitat area. In addition, pier and wall structures were tallied as permanent impact areas. The permanent disturbance area is estimated at 2.25 acres. The new bridge will be three spans totaling approximately 400 feet in length.

single culvert 480 feet long under southbound I-25 and the new Northgate and Powers Boulevard ramps. This length is based on conceptual design and grading, and represents the worst-case scenario. FHWA/CDOT will pursue a concept that keeps a portion of Smith Creek approximately 50 – 55 feet in length intact. In this scenario, the culverts under the southbound mainline would be approximately 225 feet long, and the culverts under the ramps would be approximately 145 feet long.

Black Forest Tributary

The permanent impact area due to pavement widening, roadway cuts and fills, and structure widening for the Black Forest Tributary area is approximately 0.3 acres. The temporary impact area is approximately 1.0 acre. Portions of this creek were proposed critical habitat and impacts were calculated as those areas within 360 feet of each side of the creek. For those portions that were not proposed critical habitat, impacts were calculated as 300 feet from the 100 year floodplain. Black Forest Tributary is currently conveyed under I-25 in two 10 x 10 CBCs 142 feet long. These CBCs will be extended to 285 feet.

Baptist Road and Jackson Creek

Permanent habitat impacts due to pavement widening, new roadway construction, roadway cuts and fills, and structure widening for the Jackson Creek area amount to approximately 7.7 acres, and the temporary impact area is estimated to be 4.6 acres. The temporary areas impacted will be re-vegetated after completion of the roadway construction. The area of the existing frontage road that will be removed may then be used for potential habitat mitigation and the area could be enhanced. This created/restored/enhanced habitat area is estimated at 3.6 acres. Portions of this creek were proposed critical habitat and impacts were calculated as those areas within 360 feet of each side of the creek. For those portions that were not proposed critical habitat, impacts were calculated as 300 feet from the 100 year floodplain. The existing 29 x 18-foot natural bottomed CBC under I-25 will be extended from 105 feet to 292 feet.

Teachout Creek

The habitat areas were calculated as 360 feet on each side of Teachout Creek (the proposed critical habitat width). The habitat ends on both sides of the existing highway at the 15-foot-wide mowing strips adjacent to the edges of pavement. The area of permanent impact to the habitat is the area between the edges of the mowing strips of the existing highway and the edges of the 15 feet wide mowing strips next to the new highway, and the area to be covered by the culvert extensions. The permanent impact at Teachout Creek will be approximately 1.1 acres, and the temporary impact approximately 1.4 acres. Portions of this creek were proposed critical habitat and impacts were calculated as those areas within 360 feet of each side of the creek. For those portions that were not proposed critical habitat, impacts were calculated as 300 feet from the 100 year floodplain. Teachout Creek flows under I-25 in two 10 x 10 CBCs that are currently 125 feet long that will be extended to 200 feet in length.

North Powers Boulevard

Temporary impacts due to the construction of Powers Boulevard at Black Squirrel Creek have been minimized. The impact areas were measured within the 360-foot-wide habitat area, measured from the bank of the normal flow channel. The impacts will include the placement of the roadway fill, work area needed for construction, access road and crane pads for placement of the steel girders. The temporary disturbance area is estimated at 6.36 acres.

Permanent impact areas due to the proposed Black Squirrel Creek bridge include the permanent roadway fills within the 360-foot-wide habitat area. In addition, pier and wall structures were tallied as permanent impact areas. The permanent disturbance area is estimated at 2.25 acres. The new bridge will be three spans totaling approximately 400 feet in length.

Shoup Road

Temporary impacts to Black Squirrel Creek due to the reconstruction of the Shoup Road/SH 83 intersection will be minimized to the extent possible. Construction will be accomplished from the existing roadway and will occur west of the existing alignment. Grading and access roads will have a temporary impact to the habitat area. The temporary disturbance area is estimated at 3.84 acres. All temporary impact areas will be revegetated.

Permanent impacts will include the placement of additional roadway fill and pavement, construction of any channel structure, walls and rock riprap. Current roadway, drainage structures and mowed areas next to the existing roadway were subtracted from the totals as an existing impact area. The permanent impact areas due to the proposed roadway and drainage structure improvements were quantified for the area within 360 feet of either side of the channel bank normal flow line. The permanent disturbance area is approximately 2.35 acres. Impacts described here are for the pipe or box structure and may be reduced during the final design once a structure is selected. It is more likely that a 142-foot single span bridge approximately 40 feet high will be constructed. At its lowest point, the height of this bridge is expected to be approximately 32 feet high.

Non-Habitat Areas

Several areas within the corridor were classified in the Biological Assessment as non-habitat. These areas are:

- All highway shoulders along I-25 within 15 feet of pavement (these grassy strips are regularly mowed);
- All paved or dirt roads;
- Most highway medians that clearly did not contain Preble's habitat (the area around Northgate was an exception);
- All currently paved areas within potential habitat;
- The Colorado Springs block exclusion area. This is a 9.34-mile stretch of Monument and Fountain Creeks, beginning in the north from the I-25 crossing of Monument Creek, continuing southward to the Monument/Fountain Creek confluence, and continuing south to the wastewater treatment plant, about one mile south of the Nevada Avenue bridge over Fountain Creek;
- The Cottonwood Creek block exclusion area;
- Areas on North Powers Boulevard, with the exception of the Black Squirrel Creek bridge crossing. These areas were field reviewed by Ensign and the Service on January 21, 2003. There was concern about one potential habitat area on Powers Boulevard about 0.25 miles east of the Voyager Parkway crossing of Monument Branch. Although there was no suitable habitat at the crossing, there was potential habitat just downstream of the project area. Although no impacts are anticipated at this location, FHWA/CDOT will consult with the Service on the status of this area during construction planning if FHWA/CDOT build this section of roadway. If there are future impacts to habitat and they fall within the limited take amount permitted in the biological opinion, no additional conservation measures would be required; and
- An area on Monument Creek just north of the I-25 bridge in Colorado Springs. There will be improvements to the Rockrimmon interchange and frontage road, and this area is just north of the Colorado Springs block exclusion area. This channelized section of Monument Creek is being monitored for Preble's as a condition of the Colorado Springs block clearance. FHWA/CDOT will consult with the Service on the habitat status of this area during construction planning. If there are future impacts to habitat and they fall within the limited take amount permitted in the biological opinion, no additional conservation measures would be required.

The total area of impact as calculated by Ensign is 61.9 acres (Table 1). Temporary impacts account for 36.2 acres, and permanent impacts for 25.7 acres. The majority (86 percent) of the total disturbance will be associated with improvements to existing roadway, through adding highway

lanes, extending culverts and rebuilding existing interchanges. North Powers Boulevard however, is a new roadway. All three projects will result in alteration of Preble's habitat, however, following construction and revegetation, the site should return to functioning Preble's habitat.

Effects to habitat will be primarily due to reduction in habitat areas, but fragmentation will also occur. Fragmentation usually refers to a reduction in habitat areas as well as a reduction in animal mobility between habitat patches. Preble's mobility will be affected to some extent by lengthening of culverts under I-25, but this effect is expected to be temporary, and last only during construction and habitat recovery. It is anticipated that culvert lengths will not exceed 300 feet, which is close to the maximum known distance that Preble's have dispersed through a culvert (305 feet at Dirty Woman Creek) (Table 2). As Table 2 shows, of the fourteen drainage crossings affected, nine are CBCs that will be lengthened anywhere from 25 – 350 feet; six of the crossings will be more than 100 feet longer after construction than they currently are. These numbers are based on the worst-case scenario for Smith Creek as described above, where a single crossing of 480 feet will be used under the southbound lanes of I-25 and the new Powers Boulevard/Northgate ramps. In the more likely scenario, there will be a new 140-foot long CBC installed at Smith Creek for the new ramps, and a separate 225-foot long crossing for southbound I-25, leaving approximately 55 feet of Smith Creek between the mainline and the new ramps. The I-25 crossing of Kettle Creek will not change, and the new Powers Boulevard crossing of Black Squirrel Creek will be a span bridge ranging from 20 –70 feet high which should not present a barrier to wildlife movement. One crossing, Black Squirrel Creek at Shoup Road, is currently a CBC that will be replaced with a span bridge a minimum of 32 feet high, making the road more permeable to wildlife at that location. Mobility will also be better than it currently is at Jackson Creek because of habitat improvements and removal of the frontage road and the culverts beneath it.

Small mammal ledges may be used in new culverts to enhance mouse mobility pending research results. Although longer culverts may affect Preble's dispersal under road surfaces, dispersal should not be affected to the point where movement is impossible, with subsequent isolation of populations. All project areas should allow for dispersal rates that support both genetic mixing and maintenance of current population sizes. Post-project dispersal rates should be comparable to pre-project dispersal rates, or in some cases, better. Pre- and post-project monitoring will be conducted at some sites.

Project impacts will cause a loss of habitat area. There will be a permanent loss of approximately 25.7 acres from the three projects, and approximately 36.20 acres of temporary loss. Some of these areas include breeding, feeding, nesting, and potential hibernation habitat. The majority of habitat impact (86 percent) will occur adjacent to existing roads, in areas not considered high quality habitat. The new Powers Boulevard project, with approximately 8.61 acres of disturbance, will include disturbances to poor quality riparian habitat, within a severely downcut stream channel.

Impacts at the three project areas will not occur simultaneously, allowing for some habitat and Preble's population recovery between impacts. In addition, efforts to reconnect corridors through land purchase and habitat improvement are ongoing, and some of these efforts will be complete and successful prior to project impacts, thus reducing the effects of the projects to Preble's on a landscape scale. The construction and habitat protection schedules combined should help protect populations throughout the project areas from the effects of natural stochastic events, such as flood, fire, or drought because habitat and populations should have time to recover in some areas before they are affected in others.

Most work will be done during the hibernation period and hibernating Preble's individuals could be directly killed during construction by being crushed by construction equipment, or through increased exposure to predators or the elements due to lack of cover. Preble's behavior will also be affected during project construction. Areas where vegetation has been cleared but not yet recovered, could deter dispersal of breeding individuals or of young. Clearing may also reduce hibernation habitat. Silt fences could also have the effect of preventing mice from moving through or to areas that otherwise would be accessible. Lack of escape cover and the presence of silt fencing could also increase Preble's susceptibility to predation. Such effects are difficult to quantify, but were

Table 1. Summary of Impacts by Site.

Site	Permanent Impact (acres)	Temporary Impact (acres)	Activities
Pine Creek	0.0 (0.2 recovered)	3.3	New lane, east side of I-25, minor drainage culverts, construction access.
Kettle Creek	0.1	0.4	New lanes both sides, construction access.
Black Squirrel Creek South	1.2	2.1	New lanes both sides, new multi-span bridges to replace two existing bridges, construction access.
Black Squirrel Creek North	1.0	3.1	New lanes both sides, extend existing side-by-side CBCs, construction access.
Monument Branch	3.5	6.1	New lanes both sides, auxiliary lanes for Powers, extension of separate culverts on east and west sides of I-25, and on east side of I-25 north of Monument Branch, construction access.
Smith Creek	6.2	4.0	New lanes both sides, new ramps, extend existing side-by-side CBCs on east and west sides of I-25, new CBCs under new ramps, detention pond in median, construction access.
Black Forest Tributary	0.3	1.0	New lanes both sides, extend existing side-by-side CBCs on east and west sides of I-25, construction access.
Jackson Creek and Baptist Road	7.7 (up to 3.6 recovered)	4.6	New lanes both sides of I-25, extend existing CBC. Baptist Road will be widened to six lanes with a new culvert at Jackson Creek. Existing frontage road will be eliminated, replaced by new Jackson Creek Parkway on east side of the 65-acre CDOT property.
Teachout Creek	1.1	1.4	Additional lanes, lengthen CBC.

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Black Squirrel Creek South	1.2	2.1	New lanes both sides, new multi-span bridges to replace two existing bridges, construction access.
Black Squirrel Creek North	1.0	3.1	New lanes both sides, extend existing side-by-side CBCs, construction access.
Monument Branch	3.5	6.1	New lanes both sides, auxiliary lanes for Powers, extension of separate culverts on east and west sides of I-25, and on east side of I-25 north of Monument Branch, construction access.
Smith Creek	6.2	4.0	New lanes both sides, new ramps, extend existing side-by-side CBCs on east and west sides of I-25, new CBCs under new ramps, detention pond in median, construction access.
Black Forest Tributary	0.3	1.0	New lanes both sides, extend existing side-by-side CBCs on east and west sides of I-25, construction access.
Jackson Creek and Baptist Road	7.7 (up to 3.6 recovered)	4.6	New lanes both sides of I-25, extend existing CBC. Baptist Road will be widened to six lanes with a new culvert at Jackson Creek. Existing frontage road will be eliminated, replaced by new Jackson Creek Parkway on east side of the 65-acre CDOT property.
Teachout Creek	1.1	1.4	Additional lanes, lengthen CBC.

Site	Permanent Impact (acres)	Temporary Impact (acres)	Activities
Powers Boulevard North	2.25	6.36	New highway over Black Squirrel Creek with multiple bridge structures, disturbed uplands, construction access.
Shoup Road/SH83	2.35	3.84	Relocation and widening of SH83, new culvert or bridge, construction access.
TOTALS	25.70	36.20	

BMPs such as leaving brush piles in areas where vegetation has been removed to provide thermal and escape cover while habitat recovers, controlling vehicle access, minimizing time periods and areas with bare soil, doing the majority of work during the hibernation period, or clearing disturbance areas within hibernation habitat of shrubs and other woody vegetation prior to the hibernation period to discourage hibernation (and thus decrease the chance of potentially killing a hibernating mouse).

Although the projects will result in alteration and loss of habitat, given the proposed conservation measures, the projects should not cause permanent habitat fragmentation and loss of connectivity within and between populations in the project areas. Habitat connectivity and mouse mobility could improve at the project sites where culvert and bridge designs are improved, and where actions designed to remove obstacles to movement are implemented. One culvert will be replaced with a bridge which will improve permeability, but most culverts will be lengthened anywhere from 25 feet to 350 feet. Most of the project actions will occur within habitat that supports low density Preble’s populations. The nature of the impacts and subsequent restoration actions will allow for recovery of populations in project areas.

Based on the amount and nature of project impacts, the project will have temporary but not significant long term effects on the ability of Preble’s to travel upstream or downstream along the riparian corridors within the project areas, or on the creeks’ hydrologic regimes, including their ability to support riparian vegetation. Given the conservation measures proposed, over time temporarily disturbed Preble’s habitat should return to a condition as good as that which is currently present. Monitoring and success standards described in the project-specific consultation documents as well as in the Terms and Conditions below, will assure that the temporarily impacts areas are maintained as good habitat.

Cumulative Effects

Cumulative effects include the effects of future State, tribal, local, or private actions that are reasonably certain to occur in the action area considered in this biological opinion. Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the Act.

El Paso County is one of the fastest growing counties in the nation with substantial residential, urban and commercial development occurring. According to the Biological Assessment, in 2000, the county’s population was approximately 517,000, but that number is expected to increase to 746,000 by 2025. It is very likely that Preble’s upland and riparian habitats will be affected by this development. Such changes in land use could have potential direct or secondary impacts on Preble’s and its habitat in the area. Secondary effects include an increase in impervious surfaces and subsequent changes in the hydrology of Monument Creek and its tributaries potentially leading to

Table 2. Comparison of Existing and New Crossings at All Sites

Crossing	Crossing type	Current length	Post-construction type	Post-construction length
Kettle Creek	9-foot Reinforced Concrete pipe	2600 feet	Existing 9-foot RCP	Same as existing
Black Squirrel Creek South	15-foot high bridges	105-foot spans	15-foot high new bridges	120-foot spans
Black Squirrel Creek North	2 12 x 10-foot Concrete Box Culvert (CBC)	210 feet	2 12 x 10 foot CBC extension	235 feet
Monument Branch	2 21 x 10-foot CBC in each direction	180 feet northbound	extension	282 feet
		91 feet southbound	extension	202 feet
N of Monument Branch	6 x 7-foot CBC northbound only	78 feet	2 10x6-foot CBC northbound only	130 feet
Smith Creek (worst-case scenario)	2 10 x 10-foot CBC northbound	114 ft northbound	extension northbound	250 feet northbound
	2 10 x 10-foot CBC southbound	130 ft southbound	extension southbound	480 feet southbound
Smith Creek (most likely scenario)	2 10 x 10-foot CBC northbound	114 ft northbound	extension northbound	250 feet northbound
	2 10 x 10-foot CBC southbound	130 ft southbound	extension southbound 2 10x10-foot CBCs for new ramps	225 feet southbound 145 feet
Black Forest Tributary	2 10 x 10-foot CBC	142 feet	extension	285 feet
I-25 at Jackson Creek	29x18-foot CBC natural bottom	105 feet	extension	292 feet
Baptist Road at Jackson Creek	48-inch corrugated metal pipe	50 feet	will be removed	
Teachout Creek	double 10x10-foot CBC	125 feet	extension	200 feet
Black Squirrel Creek at Powers Boulevard	none	none	3 span bridge 20-70 feet high	400 feet
Black Squirrel Creek at Shoup Road	15-foot diameter pipe	130 ft	single span 32-40 feet high	142 feet

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Smith Creek (most likely scenario)	2 10 x 10-foot CBC northbound 2 10 x 10-foot CBC southbound	130 ft northbound	extension northbound	225 feet northbound
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El Paso County is currently working on a county-wide Habitat Conservation Plan (HCP) in cooperation with the Service. This plan will address growth and other activities within the county.

Conclusion

After reviewing the current status of Preble's, the environmental baseline for the action area, the effects of the proposed action and the cumulative effects, it is the Service's biological opinion that neither the direct nor indirect effects of the proposed action (which includes the implementation of conservation measures agreed to during informal consultation and outlined in this biological opinion) nor the cumulative effects will jeopardize the continued existence of Preble's. A Panel of Preble's experts convened by FHWA/CDOT to discuss impacts due to reconstruction of I-25 and related conservation measures met three times during 2000. A report that identified and prioritized concerns was compiled and submitted to the Service in 2001. That report identified isolation of small populations as the greatest threat to long-term persistence of Preble's in the Monument Creek watershed. The Panel also identified general biological goals for maintaining a viable mouse population in the corridor. The top three goals are: 1) keep tributary populations whole; 2) maintain upland habitat, and; 3) maintain connectivity between populations. Through their conservation measures, FHWA/CDOT will be addressing the first and third goals by re-establishing at least two severed populations, as already discussed. They will also be maintaining connectivity along onsite drainages through habitat restoration activities. These activities are likely to improve connectivity in El Paso County, thereby increasing Preble's population sizes on some drainages, thus supporting recovery goals.

Although the project will adversely affect Preble's and its habitat in the Monument Creek drainage in the short term, the proposed action and conservation measures will avoid the likelihood of jeopardy to the species. In the long term, habitat linkages in some drainages will be greatly improved, maintained, and protected. Critical habitat was not designated in the project area, therefore, none will be affected.

INCIDENTAL TAKE STATEMENT

Section 9 of the Act and Federal regulations pursuant to 4(d) of the Act prohibit the take of endangered and threatened species, respectively, without special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or attempt to engage in any such conduct. Harm is further defined by the Service to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering. Harass is defined by the Service as intentional or negligent actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding, or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the Act provided that such taking is in compliance with the terms and conditions of this Incidental Take Statement.

This incidental take statement is based on full implementation of the proposed action as described in the Description of the Proposed Action section of this biological opinion, including conservation measures that were incorporated into the project design. Relevant aspects of the proposed action (including conservation measures) include, but are not limited to, the following:

1. Avoidance of impacts to Preble's habitat.

2. Minimization of impacts to Preble's habitat through implementation of BMPs and further refinement of project design.
3. Implementation of Conservation Program including onsite actions, offsite actions, monitoring and research commitments.

The measures described below are non-discretionary, and must be undertaken by the FHWA so that they become binding conditions of any project approval issued to CDOT for the exemption in section 7(o)(2) to apply. The FHWA has the continuing duty to regulate the activity covered by this incidental take statement. If the FHWA fails (1) to assume and implement the terms and conditions or (2) fails to require CDOT to adhere to the terms and conditions of the incidental take statement through enforceable terms that are added to the project approval, the protective coverage of section 7(o)(2) may lapse. In order to monitor the impact of incidental take, CDOT must report the progress of the action or its impact on the species to the Service as specified in the incidental take statement.

This biological opinion allows for take of listed species. Site-specific consultations will allow for refinement of take when specific information on project design, timing, and amount of take anticipated are known.

Amount or Extent of Incidental Take

The Service anticipates incidental take of Preble's through direct killing will be difficult to detect due to their small size. However, the Service believes that the level of take can be anticipated by loss of food and cover, movement and dispersal corridors, and other essential habitat elements. The Service anticipates that the proposed action will result in incidental take of an undetermined number of Preble's through permanent and temporary loss of approximately 61.9 acres of Preble's habitat. Habitat in the project area is inhabited by Preble's year-round.

Incidental take may also occur through secondary impacts to Preble's and its habitat. Along the I-25 corridor and at the Shoup Road/SH83 intersection site, this take is not expected to be significant because the roads have impacted the area for many years, and only insignificant additional secondary threats to Preble's will be introduced through the completion of the projects. Powers Boulevard however, is a new roadway that will traverse areas previously impacted primarily only by grazing. The corridor has been slated for development for many years, and this development will introduce new threats to Preble's and their habitat including increased impervious surfaces, increase in road traction substances, noise, vibration, weeds, predators, and competitors. The project areas are occupied by Preble's and are also likely used as travel or dispersal corridors. Conservation measures will minimize take.

Effect of the Take

In this biological opinion, the Service determined that the level of anticipated take is not likely to result in jeopardy to the species. No critical habitat has been designated in the project area, therefore none will be affected.

Reasonable and Prudent Measures

The reasonable and prudent measures, with their implementing terms and conditions, are designed to minimize the effects of incidental take that might otherwise result from the proposed action.

The Service believes that the following reasonable and prudent measures are necessary and appropriate to minimize impacts of incidental take of Preble's:

1. The FHWA will monitor the extent of habitat impacted to assure that it does not exceed the authorized area.
2. The FHWA will monitor all aspects of proposed onsite restoration and enhancement to assure project completion and success.
3. The FHWA will ensure that all offsite acreage conserved to offset the projects' impacts, including reestablished linkages, are maintained into perpetuity as Preble's habitat. These areas will be monitored to assure project completion and success.
4. The FHWA will ensure that BMPs designed to minimize take are implemented and successful.
5. The FHWA will ensure that site-specific biological assessments are submitted and approved by the Service prior to implementation of any specific action.
7. The FHWA will ensure that offsite fill material will not be obtained from nor disposed of in an area containing a listed species or its habitat without Service approval.

Terms and Conditions

In order to be exempt from the prohibitions of section 9 of the Act, the FHWA must comply with the following terms and conditions, which implement the reasonable and prudent measures described above and outline required reporting/monitoring. These terms and conditions are non-discretionary.

1. The following terms and conditions implement reasonable and prudent measure number 1. Work will be supervised, inspected, and monitored by an onsite individual from CDOT or by an authorized representative. Staging areas for equipment will be outside habitat areas or in permanently impacted areas.
2. The following terms and conditions implement reasonable and prudent measure number 2. The FHWA will include as a binding condition of project approval that CDOT conduct annual monitoring of onsite revegetation efforts and noxious weeds. Monitoring will extend for at least three growing seasons (or until such time as the FHWA and the Service determine that proposed revegetation has been successfully completed). Success criteria will be established during site-specific consultation.

CDOT shall forward monitoring reports to the FHWA and the Service after each growing season and prior to February 1. CDOT must also provide a report to the FHWA and the Service, which includes photographic documentation of site conditions within identified Preble's habitat prior to construction and at completion of construction.

4. The following terms and conditions implement reasonable and prudent measure number 3. FHWA and CDOT will purchase Preble's habitat or will enter into agreements with private property holders to maintain and manage their properties for the benefit of Preble's into perpetuity. This term and condition applies to FHWA/CDOT's commitments to reestablish at least two linkages, and to secure at least an additional 50 acres of Preble's habitat in the project area, as stated in the Biological Assessment. Success criteria will be established when these sites are chosen. CDOT shall forward monitoring reports to the FHWA and the Service after each growing season and prior to February 1.

4. The following terms and conditions implement reasonable and prudent measure number 4. An employee awareness training session will be held prior to construction. Meeting minutes and a list of attendees will be submitted to the Service. During this training, workers will be informed by CDOT

as to the reason for and importance of limiting impacts to vegetated habitat outside the fenced work area. BMPs will also be presented and discussed at this time.

5. The following terms and conditions implement reasonable and prudent measure number 5. Site specific biological assessments must contain a complete project description including the location of the actions covered and efforts taken to avoid and minimize project impacts. The project schedule will also be provided. Additionally, the biological assessment must determine whether this project fits into the programmatic consultation by showing the effects of the project. A precise estimate of the expected level of impact, the amount of take, and the amount of habitat affected or lost must be included.

6. The following terms and conditions implement reasonable and prudent measure number 6. CDOT will include in the project specifications that the contractor shall obtain prior written approval from the Service and/or CDOT's Threatened and Endangered Species staff specialist for all borrow or offsite material sources or for material disposal sites. The contractor and workers will be informed during training that they will be required to submit proof of compliance. This condition will assure that offsite indirect impacts of the project to listed species are minimized.

7. In the unlikely event that a Preble's mouse (dead, injured, or hibernating) is located during construction, the Colorado Field Office of the Service (303) 275-2370 or the Service's Law Enforcement Office (303) 274-3560 will be contacted immediately.

The reasonable and prudent measures, with their implementing terms and conditions, are designed to minimize the impact of incidental take that might otherwise result from the proposed action. If, during the course of the action, this level of incidental take (61.9 acres of Preble's habitat) is exceeded, such incidental take represents new information requiring reinitiation of consultation and review of the reasonable and prudent measures provided. The Federal agency must immediately provide an explanation of the causes of the taking and review with the Service the need for possible modification of the reasonable and prudent measures.

Reporting Requirements

CDOT will maintain a database that will include project information for activities that are covered in the Biological Assessment. In addition, FHWA/CDOT will deliver an annual report to the Service that documents the status of all activities covered in the Biological Assessment.

If an emergency occurs within project area habitat, CDOT will notify the Service immediately and determine and implement actions that will correct the situation and minimize any necessary additional impacts. CDOT will submit a report to the Service describing any actions taken, additional impacts (if any), and an updated project database report, if applicable.

CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the Act directs Federal agencies to utilize their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information.

The Service has no conservation recommendations at this time relating to the proposed project.

REINITIATION NOTICE

This concludes formal consultation and conference on proposed Federal actions related to the proposed highway improvements. As required by 50 CFR 402.16, reinitiation of formal consultation is required if (1) the amount or extent of incidental take is exceeded, (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion, (3) the agency action is subsequently modified in a manner that causes an adverse effect to the listed species or critical habitat that was not considered in this opinion, (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where incidental take exceeds the authorized, any operations causing such take must cease pending reinitiation. In addition, if any of the Terms and Conditions are not met, reinitiation of formal consultation will become necessary.

If the Service can be of further assistance, please contact Alison Deans Michael of my staff at (303) 275-2370.

Sincerely,



Susan C. Linner
Colorado Field Supervisor

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FWS, RO (J. Mizzi)
CDOT, Denver, CO (R. Wostl)
Michael

Ref:Alison/CDOT2003/Reg2

LITERATURE CITED

Armstrong, D.M., M.E. Bakeman, A. Deans, C.A. Meaney, and T.R. Ryon. 1997. Report on habitat findings of the Preble's meadow jumping mouse. Boulder (CO); report to the U.S. Fish and Wildlife Service and Colorado Division of Wildlife. 91 pp.

Bakeman, M.E. Personal communication with A.D. Michael, March 14 and June 24, 2002.

Compton, S.A., and R.D. Hugie. 1993. Status report on *Zapus hudsonius preblei*, a candidate endangered subspecies. Logan (UT): Pioneer Environmental Consulting Services Inc.; under contract with the U.S. Fish and Wildlife Service. 32 pp.

Compton, S.A., and R.D. Hugie. 1994. Addendum to the status report on *Zapus hudsonius preblei*, a candidate subspecies. Logan (UT): Pioneer Environmental Services, Inc.; under contract with the U.S. Fish and Wildlife Service. 8 pp.

Corn, J.G., C.A. Pague, A.R. Ellingson, M. Sherman, T. Zwiejacz, G. Kittel, and C. Fleming. 1995. Final report on the geographic extent of the Preble's meadow jumping mouse population on the United States Air Force Academy. Ft. Collins (CO): Colorado Natural Heritage Program; under contract with the United States Air Force Academy. 40 pp.

CNHP (Colorado Natural Heritage Program). 1997a. Preble's meadow jumping mouse survey, Monument Creek, north of Woodmen Road, Colorado Springs, El Paso County, Colorado. Survey report submitted to City of Colorado Springs by the CNHP, 19 July 1997.

Enight Technical Services, 1997. Presence or Absence survey for Preble's meadow jumping mouse at State Highway 105 at Monument, El Paso County, Colorado. Prepared for Colorado Department of Transportation.

Enight Technical Services, 1999. Report on Preble's meadow jumping mouse movement assessment at Dirty Woman and Monument Creeks, El Paso County, Colorado. Submitted to Colorado Department of Transportation. February 26, 1999.

Foresman, K. 2001. Small Mammal Use of Modified Culverts on the Lolo South Project of Western Montana. Proceedings of the International Conference on Ecology and Transportation, September 24-28, 2001. Keystone, Colorado.

Krutzsch, P.H. 1954. North American jumping mice (genus *Zapus*). University of Kansas Publications, Museum of Natural History 7:349-472.

Meaney, C., A. Deans and N. Clippinger. 1997. Survey for Preble's meadow jumping mice, Academy Boulevard and Pine Creek, Colorado Springs, El Paso County, Colorado. Prepared for the Colorado Department of Transportation. 21 June 1997.

Meaney, C., A. Ruggles and A. Deans. 1998a. Survey for Preble's meadow jumping mice, lower Pine Creek, Colorado Springs, Colorado. Survey report submitted to the Colorado Department of Transportation. 7 September 1998.

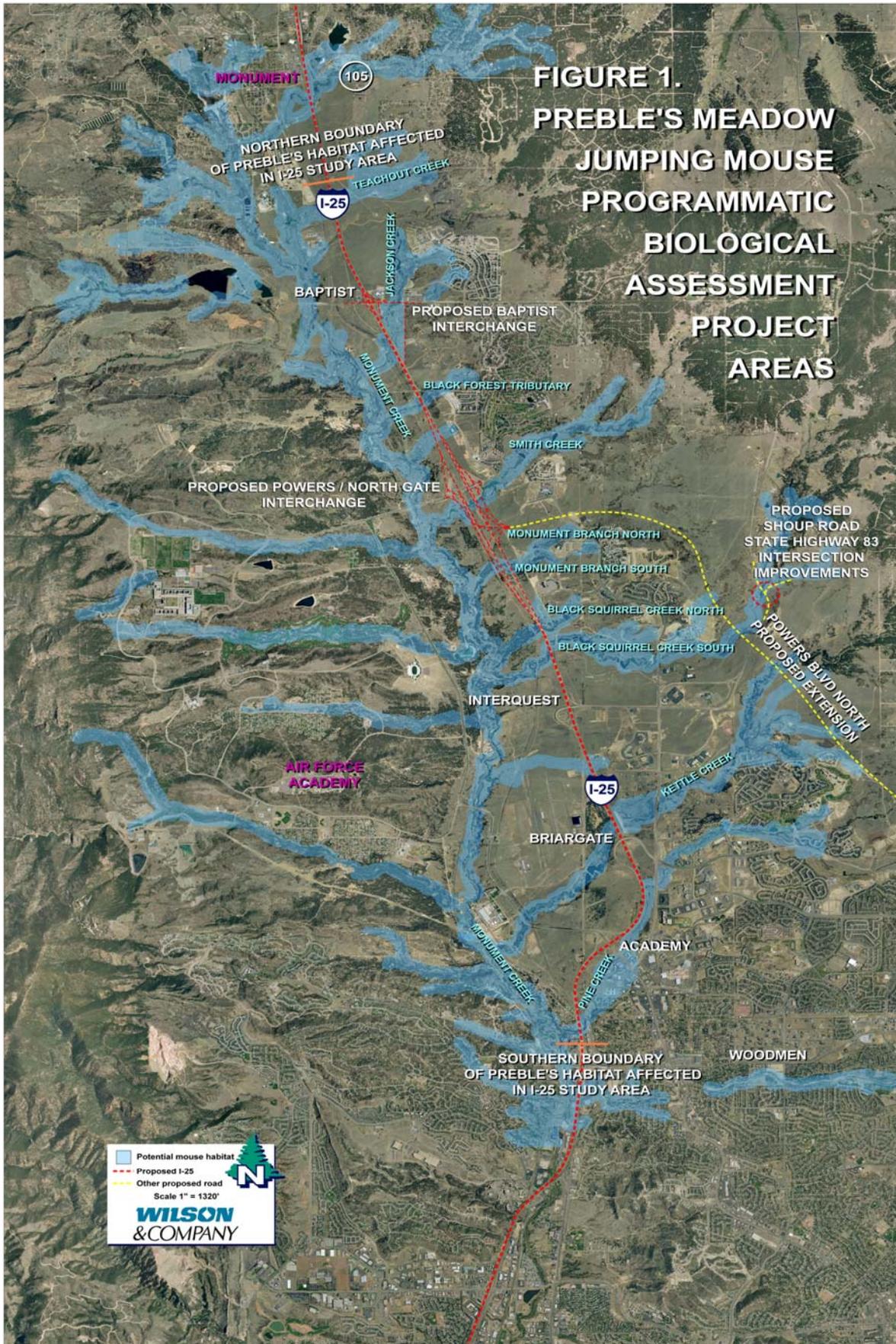
Meaney, C., A. Ruggles and A. Deans. 1998b. First year monitoring survey for Preble's meadow jumping mice on Pine Creek at Academy Boulevard, Colorado Springs, El Paso County, Colorado. Report submitted to the Colorado Department of Transportation. 26 October 1998.

Meaney, C., A. Ruggles and A. Deans. 1999. Second year monitoring survey for Preble's meadow jumping mice on Pine Creek at Academy Boulevard, Colorado Springs, El Paso County, Colorado. Report submitted to the Colorado Department of Transportation. 18 October 1999.

Meaney, C., A. Ruggles and A. Deans. 2000. Third year monitoring survey for Preble's meadow jumping mice on Pine Creek at Academy Boulevard, Colorado Springs, El Paso County, Colorado. Report submitted to the Colorado Department of Transportation. 30 October 2000.

Shenk, T. 1998. Conservation assessment and preliminary conservation strategy for Preble's meadow jumping mouse (*Zapus hudsonius preblei*). Fort Collins (CO): Colorado Division of Wildlife. 38 pp.

**FIGURE 1.
PREBLE'S MEADOW
JUMPING MOUSE
PROGRAMMATIC
BIOLOGICAL
ASSESSMENT
PROJECT
AREAS**



■ Potential mouse habitat
- - - Proposed I-25
- - - Other proposed road
 Scale 1" = 1320'
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