

5.0 MEASURES TO MINIMIZE HARM

This Section Has Minor Changes From The 2001 ROD

The total environmental impacts for the August 2001 ROD Selected Alternative are provided in Table 5.1.

Table 5.1
August 2001 ROD Selected Alternative Impacts Summary

Resource	I-25 Corridor	US 85 Corridor
Neighborhood	None	None
Environmental Justice	None	None
Relocation	None	Nine relocations
Recreational Resources	None	Centennial Trail: 2 m (6.5 ft) High Line Canal Trail: 124 m (410 ft) Spring Gulch: 0.2 ha (0.6 ac)
Land Use	Changes to higher density use	Changes to higher density use
Air Quality	None	None
Water Quality and Quantity	Minimal impacts to water quality Impervious Area: 110 ha (272 ac)	Potential improvements to water quality Impervious Area: 71 ha (176 ac)
Vegetation	86 ha (213 ac)	68 ha (169 ac)
Wetlands	0.14 ha (0.36 ac) wetlands 0.33 ha (0.82 ac) Other Waters of the US	0.10 ha (0.25 ac) wetlands 0.46 ha (1.14 ac) Other Waters of the US
Geology	None	None
Wildlife	80.7 ha (199.3 ac) loss of habitat	60.8 ha (151 ac) loss of habitat
Wild and Scenic Rivers	None	None
Floodplains	Happy Canyon Creek #1 and #2, Tributary A, Tributary D, Hangman's Gulch, and East Plum Creek #1 and #2 are expected to be directly impacted	Marcy Gulch, No Name #1, No Name #2, No Name #3, Indian Creek, Tributary A, Tributary B, and Tributary C are expected to be directly impacted
Threatened, Endangered, and Other Special-Status Species	Black-tailed prairie dog: 0.10 ha (0.24 ac) PMJM: 1.76 ha (4.36 ac)	Black-tailed prairie dog: 2.5 ha (6.1 ac) PMJM: None
Historic Resources	D&RG RR: 870 m (2,850 ft)	AT&SF Railway: 4.3 m (14 ft) Cherokee Ranch: 5.1 ha (12.5 ac)
Section 4(f) Properties	D&RG RR: 870 m (2,850 ft)	High Line Canal Trail: 124 m (410 ft) Spring Gulch: 0.2 ha (0.6 ac) AT&SF Railway: 4.3 m (14 ft) Cherokee Ranch: 5.1 ha (12.5 ac) Cherokee Ranch Conservation Easement: 6.5 ha (15.9 ac)
Archaeological Resources	Potential impacts to three sites	Potential impacts to one site
Paleontological Resources	Potential impacts to one site	Potential impacts to one site
Prime and Unique Farmland	No Prime and Unique Farmland impacts 1.34 ha (3.3 ac) of High Potential Dry Cropland	No Prime and Unique Farmland impacts 17.4 ha (43.0 ac) of High Potential Dry Cropland
Noise	25 receivers	7 receivers
Visual Character	Change in visual character	Change in visual character
Hazardous Waste Sites	Further investigation needed	Further investigation needed

The total environmental impacts for the October 2002 Selected Alternative (Revised Selected Alternative) are provided in Table 5.2.

**Table 5.2
October 2002 ROD Selected Alternative Impacts Summary**

Resource	I-25 Corridor	US 85 Corridor
Neighborhood	None	None
Environmental Justice	None	None
Relocation	None	Nine relocations
Recreational Resources	None	Centennial Trail: 2 m (6.5 ft) High Line Canal Trail: 124 m (410 ft) Spring Gulch: 0.2 ha (0.6 ac)
Land Use	Changes to higher density use	Changes to higher density use
Air Quality	None	None
Water Quality and Quantity	Minimal impacts to water quality Impervious Area: 118 ha (292 ac)	Potential improvements to water quality Impervious Area: 71 ha (176 ac)
Vegetation	103.6 ha (256 ac)	68 ha (169 ac)
Wetlands	0.15 ha (0.38 ac) wetlands 0.34 ha (0.85 ac) Other Waters of the US	0.10 ha (0.25 ac) wetlands 0.46 ha (1.14 ac) Other Waters of the US
Geology	None	None
Wildlife	97.5 ha (240.9 ac) loss of habitat	60.8 ha (151 ac) loss of habitat
Wild and Scenic Rivers	None	None
Floodplains	Happy Canyon Creek #1 and #2, Tributary A, Tributary D, Hangman's Gulch, and East Plum Creek #1 and #2 are expected to be directly impacted	Marcy Gulch, No Name #1, No Name #2, No Name #3, Indian Creek, Tributary A, Tributary B, and Tributary C are expected to be directly impacted
Threatened, Endangered, and Other Special-Status Species	Black-tailed prairie dog: 0.10 ha (0.24 ac) PMJM: 1.53 ha (3.79 ac)	Black-tailed prairie dog: 2.5 ha (6.1 ac) PMJM: None
Historic Resources	D&RG RR: 870 m (2,850 ft)	AT&SF Railway: 4.3 m (14 ft) Cherokee Ranch: 5.1 ha (12.5 ac)
Section 4(f) Properties	D&RG RR: 870 m (2,850 ft)	High Line Canal Trail: 124 m (410 ft) Spring Gulch: 0.2 ha (0.6 ac) AT&SF Railway: 4.3 m (14 ft) Cherokee Ranch: 5.1 ha (12.5 ac) Cherokee Ranch Conservation Easement: 6.5 ha (15.9 ac)
Archaeological Resources	Impacts to two sites	Potential impacts to one site
Paleontological Resources	Impacts to one site	Potential impacts to one site
Prime and Unique Farmland	No Prime and Unique Farmland impacts 1.34 ha (3.3 ac) of High Potential Dry Cropland	No Prime and Unique Farmland impacts 17.4 ha (43.0 ac) of High Potential Dry Cropland
Noise	25 receivers	7 receivers
Visual Character	Change in visual character	Change in visual character
Hazardous Waste Sites	Further investigation needed	Further investigation needed

For ease of comparison, Table 5.3 presents the categories of impacts that differ from the August 2001 ROD Selected Alternative to the Revised Selected Alternative. Note again that changes occur only in the I-25 Corridor elements of the Revised Selected Alternative, and therefore, impacts of the US 85 Corridor Revised Selected Alternative do not appear in Table 5.3.

Table 5.3
Impact Summary Comparison Along I-25 Corridor
August 2001 ROD Selected Alternative and Revised Selected Alternative

Resource	August 2001 ROD Selected Alternative I-25 Corridor	Revised Selected Alternative I-25 Corridor
Water Quality and Quantity	Minimal impacts to water quality Impervious area: 110 ha (272 ac)	Minimal impacts to water quality Impervious area: 118 ha (292 ac)
Vegetation	86 ha (213 ac)	103.6 ha (256 ac)
Wetlands	0.14 ha (0.36 ac) wetlands 0.33 ha (0.82 ac) Other Waters of the US	0.15 ha (0.38 ac) wetlands 0.34 ha (0.85 ac) Other Waters of the US
Wildlife	80.7 ha (199.3 ac) loss of habitat	97.5 ha (240.9 ac) loss of habitat
Threatened, Endangered, and Other Special-Status Species	PMJM: 1.76 ha (4.36 ac)	PMJM: 1.53 ha (3.79 ac)
Archaeological Resources	Potential impacts to three sites	Impacts to two sites
Paleontological Resources	Potential impacts to one site	Impacts to one site

The difference in impacts from the August 2001 ROD Selected Alternative and the Revised Selected Alternative do not change the mitigation measures or commitments. However, for some impact categories, such as PMJM habitat which decrease slightly, the area mitigated would be smaller, and in other cases, such as wetlands which increase slightly, the area mitigated would be larger. Further investigation of the archeological and paleontological sites have confirmed impacts to 3 of the 4 sites. However, mitigation of these sites through excavation and recordation of information has made a significant contribution to the understanding of the physiographic formation of the Denver Basin and the historic cultural setting of the region.

Impacts associated with the Revised Selected Alternative were included in the FEIS and August 2001 ROD and disclosed to the public. The Revised Selected Alternative includes all practical measures to minimize harm to the environment. The following mitigation measures will be incorporated into the project and implemented before or concurrently with construction.

The Federal Highway Administration (FHWA) and the Colorado Department of Transportation (CDOT) remain committed to the general mitigation measures listed here for the South I-25 Corridor and US 85 Corridor Revised Selected Alternative.

5.1 RELOCATION

This Section Is Unchanged From The 2001 ROD

Relocations will be conducted in accordance with the ***Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970***, as amended (1989). Relocation resources will be available without discrimination to all residents and businesses that are required to relocate.

Nine relocations are anticipated along US 85 based on the conceptual design of the Revised Selected Alternative; six sites are commercial and three are residential.

5.2 RIGHT-OF-WAY ACQUISITION

This Section Is Unchanged From The 2001 ROD

The right-of-way (ROW) acquisition process follows the ***Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970***, as amended (1989).

5.3 RECREATIONAL RESOURCES

This Section Is Unchanged From The 2001 ROD

A more bicycle-friendly environment is created in conjunction with the Revised Selected Alternative along the US 85 Corridor. Currently, no sidewalks or bikeway exists along US 85. The Revised Selected Alternative includes a grade-separated crossing for pedestrians and bicycles at the High Line Canal Trail and an improved crossing for the Centennial Trail.

An analysis was completed to determine the opportunities available for a detached bicycle/pedestrian facility along US 85. In some areas, a detached bicycle/pedestrian facility does not fit due to the environmental impacts the facility causes. The Revised Selected Alternative includes:

- An attached facility in the form of a sidewalk from C-470 to Blakeland Drive
- A detached facility from Blakeland Drive to Highlands Ranch Parkway
- An attached facility in the form of a sidewalk or a widened shoulder from Highlands Ranch Parkway to Titan Road
- An attached facility in the form of a sidewalk from Intermountain Rural Electric Association (IREA) to Daniels Park Road
- A detached facility from Daniels Park Road to Meadows Parkway

CDOT will maintain the wide shoulder with regular sweeping.

5.4 WATER QUALITY AND QUANTITY

This Section Is Unchanged From The 2001 ROD

CDOT will comply with appropriate federal (e.g., Clean Water Act sections 401, 402, and 404) and state legislation (e.g., Colorado Water Quality Control Act, Title 25, Article 8, CRS) to ensure that project-related impacts do not result in additional water quality degradation over current conditions. CDOT will also take reasonable steps to comply with local regulations or special requirements. Potential construction-related impacts to water resources and water quality will be further reduced by adherence to conditions included in any United States Army Corps of Engineers (USACE) Section 404 permit and the Colorado Discharge Permit System (CDPS)

general permit that will be issued to cover construction-related stormwater discharges (Construction Stormwater Discharge Permit).

CDOT will obtain a Construction Stormwater Discharge Permit(s) for the Revised Selected Alternative. The Construction Stormwater Discharge Permit requires preparation of a Stormwater Management Plan (SWMP), site inspections every 14 days, and specific erosion control and pollution prevention requirements. CDOT will use the following best management practices (BMPs) to prevent the transport of sediment and other contaminants in stormwater runoff:

- Install perimeter erosion control measures (e.g., certified weed-free straw bales, filter fences, or vegetated buffer strips) as required in environmentally sensitive areas prior to grading.
- Divert clean water runoff during construction.
- Time ground-disturbing activities at erosion-prone sites or sites adjacent to Waters of the US shall be minimized during the wet spring months when saturated soils are susceptible to compaction and movement, and when surface and groundwater levels are at their highest.
- Sequence and stage construction so that no area remains exposed for an unnecessarily long time. Cleared areas should be stabilized before other areas are disturbed.
- Implement stabilization BMPs (e.g., mulching, cover crops, erosion control blankets, or a combination depending on local site conditions) after grading.
- Rip and till soils that have been over-compacted by heavy equipment to break up restrictive layers; then harrow or roll to firm the seedbed prior to revegetation. Soil surfaces will be treated to lessen wind damage to young plants and promote moisture retention and surface water infiltration.
- Develop and carry out a regular maintenance schedule for erosion and sediment control practices.
- Use spill prevention and containment measures at storage sites.
- Develop and implement a schedule for regular collection and disposal of waste material.
- Locate appropriate concrete washout areas well away from Waters of the U.S., riparian areas, or floodplains.

In addition to adhering to the SWMP, the construction contractor will also adhere to CDOT water quality and erosion control management specifications. As the project progresses, the Colorado Division of Wildlife (CDOW) will be consulted on specific water quality mitigation to avoid impacts to rare fish species inhabiting, or with habitat, in Plum Creek and East Plum Creek. Construction-related impacts to water quality will be mitigated by minimizing the number of piers placed in Waters of the U.S. Bridges will be anchored outside the bed and banks of East Plum Creek and other project area tributaries, whenever possible.

Final design of the Revised Selected Alternative will include appropriately sized drainage structures and stormwater quality management BMPs to minimize any project related water quantity or quality impacts (i.e., phosphorus loading) to downstream surface waters.

5.5 VEGETATION

This Section Is Unchanged From The 2001 ROD

Impacts to native vegetation have been minimized where possible. Construction BMPs in accordance with CDOT's *Erosion Control and Stormwater Quality Guide*, 1995, and as directed by CDOT, will be implemented to minimize unavoidable impacts to native vegetation. These BMPs will include, but are not limited to, the following:

- Fencing of construction zone and access points at specific locations to limit impacts outside the project area.
- Developing landscape management practices to avoid the removal of vegetation where possible.
- Implementing temporary and permanent erosion control measures such as revegetating disturbed areas with native grasses, mulching, erosion control blankets, sediment basins, erosion bales, and silt fences.
- Grading and seeding incrementally to reduce soil loss during construction. Native grasses should be used in seed mixes. Native shrub species should be added to the seed mix in areas where conflicts with maintenance can be avoided.
- Using native grass species for; areas identified as having moderate to high erosion potential, fast-growing, non-native cover species should be included in the seed mix to minimize soil loss while native species establish. Seeding rates will be determined by CDOT.
- Rounding of ditches and slopes to prevent unnecessary erosion.
- Inventorying and mapping, prior to construction, state listed noxious weeds in the ROW and adjacent areas of both corridors using North America Weed Management (NAWMA) protocols. The mapping must be compatible with the current CDOT Geographic Information System (GIS).
- Analyzing the potential spread of identified noxious weeds due to construction activities.
- Developing and implementing a site-specific integrated pest management plan (IPMP) that focuses on the prevention and elimination of noxious weed species in the project area.
- Measures such as coordination with other agencies; appropriate herbicide selection and timing of herbicide spraying; using backpack herbicide sprayers in or around sensitive areas (e.g., wetlands or riparian areas); cleaning equipment between sites to reduce the spread of noxious weeds; hand pulling, stripping, and removing topsoil; re-seeding areas with native seed, may be included in the IPMP.

- Using certified weed-free mulch and inspecting as regulated by the Weed Free Forage Act (Title 35, Article 27.5, CRS).
- Reseed vegetation as necessary to maintain good erosion control practices.

Shrubland, woodland, and riparian areas will be denoted on the construction plans. Impacted shrubs and trees will be replaced contingent upon water availability and ROW maintenance.

5.6 WETLANDS

This Section Has Minor Changes From The 2001 ROD

Design features, such as alignment shifts and construction alternatives (e.g., retaining walls and steeper side slopes), were considered to avoid or minimize impacts to wetlands and Other Waters of the U.S. Implementation of BMPs discussed in the *Erosion Control and Stormwater Quality Guide*, 1995, minimizes impacts to wetlands and Other Waters of the US Specific measures to reduce erosion and maintain water quality will be identified by CDOT and include the following:

- Grading and seeding incrementally to reduce soil loss during construction. Native grasses should be used in seed mixes. Non-native cover species should be added to the seed mix when reseeding areas of moderate to high erosion potential to minimize soil loss while native species establish.
- Temporary fencing wetlands during construction. A 0.9-meter (3-foot) offset from the wetland boundary will be used when possible.
- Diverting clean water runoff during construction.
- Using soil stabilization practices such as rounding of ditches and slopes, erosion control blankets, re-seeding with native species, and mulching impacted areas to reduce erosion.
- Installing structural BMPs such as silt fences and erosion bales in impacted areas to reduce off-site siltation.
- Developing an emergency spill response program and implementing spill-prevention practices, such as locating staging areas, and fuel and hazardous construction material storage sites well away from wetlands and Other Waters of the US to reduce risks from accidental spillage and leaching.
- Disposing of surplus fill in non-wetland areas designated by CDOT.
- Timing construction in and around open water to occur, if possible, in late fall and winter when water levels are low, soil compaction is minimal, and vegetation is dormant.
- Fencing trees and shrubs to prevent damage and spare existing trees in impacted wetlands when possible.

Impacts to Other Waters of the US will be mitigated through the restoration of the original topography. Compensatory wetland mitigation will occur at a ratio of 1:1 as close to the site of impact as possible. Wetland mitigation will occur within the riparian area adjacent to East Plum Creek in Castle Rock and at Spring Gulch on US 85. These areas were chosen for their proximity to sites of impact and their favorable hydrological conditions for wetland creation.

Due to channel incision along East Plum Creek, the water table is no longer connected to the adjacent floodplain. Wetland mitigation is complicated along East Plum Creek by the presence of the federally threatened Preble's Meadow Jumping Mouse (PMJM). Wetland mitigation in this area consists of a series of nine check dams designed to raise groundwater levels in the adjacent floodplain. These nine check dams have been constructed and are now being monitored.

The total amount of wetland mitigation area achieved will be determined through the monitoring of 23 shallow groundwater wells. Wetland restoration in this area will be accomplished through the re-establishment of wetland hydrology and will consist of soil saturation within the top 0.3 meter (12 inches) of the soil surface for 18 consecutive days during the growing season (12.5 percent of the growing season).

Compensatory wetland mitigation will occur at East Plum Creek on I-25 and Spring Gulch on US 85. Opportunities for additional wetland mitigation exist there through the re-grading and expansion of existing wetland areas. Similarly, wetlands at Spring Gulch may be expanded by re-grading existing sideslopes to permit saturation/inundation of adjacent areas.

Although not required by the USACE, non-jurisdictional wetlands (temporary impacts) will be mitigated in the newly created ditches when possible, adjacent to the site of impact, by broadcast seeding these areas with a wetland seed mix specified by CDOT.

5.7 WILDLIFE

This Section Has Minor Changes From The 2001 ROD

Habitat fragmentation and barriers to connectivity among areas of high quality wildlife habitat (i.e., conservation areas) are the primary wildlife concern. Because I-25 already poses a substantial barrier to wildlife movement, and several conservation areas exist on both sides of the US 85 Corridor, wildlife habitat along US 85 is a higher priority than it is along I-25. Therefore, compensatory mitigation for habitat conversion will occur within the US 85 Corridor. Mitigation for lost habitat and permeability among habitats will be coordinated with the CDOW and will include:

- Providing mitigation for riparian habitat losses. Woody riparian vegetation will be mitigated at a replacement ratio of 1:1 where water requirements can be met for planting riparian vegetation. Mitigation will include enhancement and/or reclamation, and will consist of revegetation (i.e., cottonwood and willow plantings, snowberry, etc.) and reseeding with native grass and forb species specified by CDOT.
- CDOT will work with the Douglas County Open Space program to identify the protection, restoration, or enhancement of important habitat.
- Enlarging wildlife crossings at tracking stations 1 and 3 (milepost (MP) 195.2 and MP 189.7) to accommodate deer and elk movement across US 85. These sites will also be enhanced with shrub plantings to facilitate wildlife movement.
- Enhancing shrub cover in other drainages (in addition to tracking Station 1 and Station 3) with existing structures used as wildlife crossing points to improve east-west connectivity in other areas along US 85.

- Maintaining existing hydraulic structures (i.e., concrete box culverts, bridges, etc.) where practical to facilitate movement of carnivores or mid-sized mammals, even if they are no longer needed for water movement.
- Installing fencing to funnel wildlife through selected wildlife crossings will be determined in consultation with the CDOW.
- Promoting the use of wildlife crossing structures through the use of native materials as substrate. Native substrate (i.e., coarse sand) should be used inside the wildlife crossing structures, and materials such as rip-rap should be avoided as possible at structure inlets and outlets.
- Installing wildlife crossing signage in areas of known wildlife crossings. Consider use of modern methods to reduce driver habituation to wildlife crossing signs. CDOT will consult with the CDOW as to the proper signage type and location.
- Resize and clean existing culverts along US 85 to allow for use by wildlife.
- CDOT commits to ongoing dialogue with the appropriate agencies in respect to the dynamic nature of wildlife behavior and management. This dialogue will allow CDOT to more effectively tailor the broad commitments summarized herein to the actual field conditions.

In April 2002, three raptor nests were identified within the Area of potential affect (APE). Two were located at Upper Cottonwood Creek and one at Happy Canyon Creek. These areas will be re-surveyed before construction. Prior to construction, the USFWS and the CDOW will review the final mitigation measures for species under their respective jurisdictions. Final mitigation measures may include additional information on timing of construction activities, steeper sideslopes, or other means of reducing impacts.

CDOT will coordinate with the CDOW, Douglas County Open Space, and the Chatfield Basin Conservation Network during the design phase of the wildlife crossing enhancements at Tracking Stations 1 and 3 (MP 195.2 and MP 189.7) in order to determine if any additional wildlife crossing enhancements are needed.

Installing noise walls, retaining walls, jersey barriers, and curbs could create additional barriers to wildlife permeability. CDOT will continue to consult with the CDOW, Douglas County Open Space, and the Chatfield Basin Conservation Network during design to ensure that the wildlife underpasses constructed by CDOT are functioning as intended and are adequate to address permeability issues.

5.8 FLOODPLAINS

This Section Has Minor Changes From The 2001 ROD

Bridge and roadway designs seek to minimize impacts to floodplains in compliance with FHWA requirements, including efforts to span 100-year floodplains and by following standard stream crossing design criteria. Final designs will adhere to CDOT drainage criteria for both minor and major hydraulic structures, as well as following all Federal Emergency Management Agency (FEMA) requirements. The Revised Selected Alternative will also avoid the longitudinal and significant encroachment in the floodplains.

Under the direction of CDOT, the implementation of BMPs identified in the *Erosion Control and Stormwater Quality Guide*, 1995, minimizes impacts to floodplains. Specific measures include the following:

- Coordinating with Douglas County and local governments concerning issues related to floodplain encroachment.
- Developing and implementing a SWMP for each project phase, which will contain measures preventing the inadvertent transport of noxious weeds into the construction site by heavy equipment and fill dirt.
- Installing detention basins, infiltration beds, or other structural controls to reduce and minimize the effects of increased runoff due to substantial increases in impervious surfaces.
- Grading and seeding incrementally to reduce soil loss during construction. Native grasses should be used in seed mixes. Native shrub seeds should be included in the seed mix where conflicts with maintenance will not occur.
- Using fast-growing non-native grass species in areas identified as having moderate to high erosion potential to minimize soil loss while slow-growing native species establish.
- Providing ditch and slope rounding to prevent unnecessary erosion.
- Excluding construction vehicles from entering wetland areas by installing temporary fencing.
- Diverting clean water runoff during construction.
- Identifying and using appropriate concrete washout areas well away from floodplains to ensure polluted water does not leave the site.
- Using soil stabilization practices (such as erosion control blankets and mulching impacted areas) to reduce erosion.
- Installing structural BMPs (such as silt fences and erosion bales downgradient from impacted areas) to reduce off-site siltation.
- Developing an emergency spill response program and implementing spill prevention practices (such as locating staging areas and fuel and hazardous construction material storage sites well away from floodplains) to reduce risks from accidental spillage and leaching.
- Fencing existing shrubs and trees to avoid damage. Replacing trees where maintenance and water requirements can be met.
- Using stone intermixed with soil where slope stabilization is required due to unavoidable impacts.

5.9 THREATENED, ENDANGERED, AND OTHER SPECIAL-STATUS SPECIES

This Section Has Minor Changes From The 2001 ROD

Impact to PMJM habitat has been avoided or minimized where possible. The I-25 Corridor is realigned to the east between Liggett Road and Wolfensberger Road to avoid impacts to PMJM habitat. Impacts to PMJM habitat are also minimized by widening I-25 to the inside, adjusting sideslopes to 3:1 and 2:1 grades instead of the typical 4:1 grades used on transportation projects, by minimizing construction zones and access roads, by scheduling construction in these areas during the hibernation period (November 1 to April 30), and by not permitting night-time work. Compensatory mitigation for the PMJM habitat will include:

- Restoring habitat that will be temporarily disturbed during construction (on-site restoration). General restoration measures will include in-kind replacement of disturbed vegetation and reconstruction of original slope contours where this would benefit restoration efforts.
- Restoring or enhancing habitat (i.e., check dams on East Plum Creek) that has been degraded by non-project actions.
- Protecting habitat of off-site areas within Douglas County.

PMJM habitat mitigation along East Plum Creek consists of a series of nine check dams. These check dams have already been constructed. The check dams are designed to reconnect the water table to the surrounding floodplain and riparian vegetation. The nine check dams are located at the newly constructed 5th Street Bridge, just below where the Town of Castle Rock sewer line crosses the stream, and another at midpoint between these two fixed points. Installation of the check dams prior to the anticipated impact eliminates the temporal loss of PMJM habitat that can occur from this type of project.

Potential PMJM habitat may be present at Happy Canyon Creek east of the east-side frontage road connection with the Schweiger Underpass. It is recommended that a presence or absence survey be conducted in this area prior to construction. If it is determined that there are no feasible alternatives to avoid impacts to the PMJM habitat, compensatory mitigation will be implemented as described above.

The *Preble's Meadow Jumping Mouse Biological Assessment for the South I-25 Corridor and US 85 Corridor Environmental Impact Statement*, October 2000, contains more detailed information on PMJM mitigation. A revised Biological Assessment will be completed, if necessary, during final design to ensure all impacts are mitigated.

Impacts to Black-tailed prairie dog colonies were reduced along US 85 by minimizing ROW take along the entire alignment; this involved adjusting sideslopes and incorporating guardrails and retaining walls into the design. Compensatory mitigation for Black-tailed prairie dog habitat conversion might include:

- Relocating Black-tailed prairie dogs, where possible, to inactive colonies within the APE, or relocating a colony in accordance with Senate Bill 99-111 requirements.
- Purchasing or otherwise protecting (e.g. conservation easement) land, where possible, containing active Black-tailed prairie dog colonies adjacent to undisturbed habitat.

Protected Black-tailed prairie dog habitats should be equal in size to habitat lost from the Revised Selected Alternative.

- Contributing financially or in-kind services for the preservation of Black-tailed prairie dog habitat equal in size to habitat lost from the Revised Selected Alternative. Work with Douglas County Open Space, Chatfield Basin Conservation Network, and CDOW to identify key parcels for protection.
- Black-tailed prairie dogs may be turned over to the United States Fish and Wildlife Service (USFWS).

Prior to construction, the USFWS and the CDOW will review the final mitigation measures for species under their respective jurisdictions. Final mitigation measures may include additional information on timing of construction activities, steeper sideslopes, or other means of reducing impacts.

5.10 HISTORIC RESOURCES

This Section Has Minor Changes From The 2001 ROD

In April 2002, one additional historic resource was identified just outside the APE for the I-25 Corridor, known as the Happy Canyon Ranch. A historic assessment was prepared and the resource found to be eligible for the National Register. However, neither the August 2001 ROD Selected Alternative nor the Revised Selected Alternative affect this resource, directly or indirectly. A no-effect determination has been filed with the SHPO.

CDOT remains committed to the following mitigation measures for historic resources.

5.10.1 Denver and Rio Grande Railroad (5DA921.1)

This Section Is Unchanged From The 2001 ROD

The segment of the D&RG Railroad impacted by the project will be recorded prior to the beginning of construction on the I-25 Corridor, and prior to the demolition of the property so that there will be a permanent record of its present appearance in history. Recordation shall consist of Level II documentation as determined in consultation with the SHPO. All documentation must be accepted by the SHPO prior to the start of construction. Copies of documentation will be provided to the SHPO and to a local archive designated by the State Historic Preservation Officer (SHPO). Information will include historic research and documentation and archivally-stable photographs of the property.

5.10.2 Cherokee Ranch Historic District (5DA708)

This Section Is Unchanged From The 2001 ROD

The historic gate and segment of Rattlesnake Road impacted by the project will be recorded prior to the beginning of construction on the US 85 Corridor, and prior to the demolition or displacement of the properties so that there will be a permanent historic record of their present appearance. Recordation shall consist of Level II documentation as determined in consultation with the SHPO. All documentation must be accepted by the SHPO prior to the start of construction. Copies of the documentation will be provided to the SHPO, the Cherokee Ranch and Castle Foundation, and to a local archive designated by the SHPO. Information will include historic research and documentation and archivally-stable photographs of the property.

Once the above-mentioned documentation is complete, the original Main Gate to Cherokee Ranch will be moved to a new location on Rattlesnake Road. The final location of the gate will be determined through consultation with the Cherokee Ranch and Castle Foundation Board of Directors, and the SHPO.

5.11 SECTION 4(f) PROPERTIES

This Section Is Unchanged From The 2001 ROD

A discussion of mitigation measures for impacts to Section 4(f) properties is included in Chapter 4.0, *Section 4(f) Properties*. These measures will be adopted by the FHWA with the completion of the Revised South I-25 Corridor and US 85 Corridor ROD.

5.12 ARCHAEOLOGICAL RESOURCES

This Section Has Minor Changes From The 2001 ROD

Should any evidence of archaeological resources be discovered during construction, work in that vicinity will be stopped until the CDOT staff archaeologist can completely evaluate the significance of the finding according to criteria established for the National Register of Historic Places (NRHP).

During the preparation of this Revised Record of Decision, further archaeological investigations were conducted at prehistoric sites 5DA1000 and 5DA1008, both of which were identified in the FEIS. Limited archaeological test excavations at the sites in 2002 revealed the presence of substantial intact buried cultural deposits, and the SHPO subsequently evaluated the sites as eligible for listing on the NRHP based on these results. Data recovery excavations are necessary at both localities in order to mitigate proposed adverse effects. In addition to the SHPO, the Advisory Council on Historic Preservation (ACHP) will be consulted regarding the data recovery work, per federal mandate. Four Native American tribes with an established historical and/or ancestral interest in Douglas County have expressed a desire to be consulting parties under Section 106 of the National Historic Preservation Act, and they will also be involved in all future actions associated with 5DA1000 and 5DA1008, at their discretion.

Another prehistoric site, 5DA380, was discovered near the I-25 APE, but is not affected.

5.13 PALEONTOLOGICAL RESOURCES

This Section Has Minor Changes From The 2001 ROD

Construction of the Revised Selected Alternative will adversely affect, in part by construction excavation and in part possibly by burial, the presently known areal extent of plant fossil locality DMNH 1200, but all reasonable and prudent efforts will be made to avoid such adverse affects to the extent possible. To mitigate for reasonably unavoidable construction affects to fossil locality DMNH 1200, in May of 2002, CDOT executed a contract with the Denver Museum of Nature and Science (DMNS) to conduct salvage excavation of a statistically valid, scientifically representative sample of the fossil rainforest flora preserved at fossil locality DMNH 1200. This effort is currently in progress.

Effects to plant fossil locality DMNH 2542, recorded in November of 2000, which lies across the interstate from and may have at one time been continuous with fossil locality DMNH 1200, will be mitigated by avoidance or by salvage excavation of a statistically valid, scientifically representative sample of the paleoflora preserved at that location as part of the contracted salvage excavation of DMNH 1200.

Construction of the US 85 elements of the Revised Selected Alternative adversely affects fossil locality University of Colorado Museum (UCM) 92164. Adverse affects to UCM 92164 were mitigated by the Denver Museum of Nature and Science's August 1, 2001, salvage excavation of a statistically valid, scientifically representative sample of the paleoflora preserved at that location.

Once the design plans for the Revised Selected Alternative are finalized, the CDOT staff paleontologist will examine them to estimate the required scope of construction monitoring work, if any.

If any paleontological resources are uncovered along the alignment corridor during construction, work in the immediate vicinity will cease. The CDOT staff paleontologist will be notified, and the material will be evaluated by a qualified paleontologist and coordinated with the SHPO.

5.14 PRIME AND UNIQUE FARMLAND

This Section Is Unchanged From The 2001 ROD

Prime and unique farmland does not exist within the area of potential effect (APE). Statewide important farmland soil does exist. By minimizing sideslope grades, impacts to these areas of High Potential Dry Cropland along US 85 have been minimized by the Revised Selected Alternative. Increased farmland fragmentation along US 85 will be avoided by maintaining existing underpasses used by farm machinery.

5.15 NOISE

This Section Is Unchanged From The 2001 ROD

Noise abatement in the form of noise walls and earthen berms was evaluated along the I-25 Corridor and US 85 Corridor. One noise barrier is recommended along I-25 and will be re-evaluated during final design.

5.16 VISUAL CHARACTER

This Section Is Unchanged From The 2001 ROD

In addition to the effort to minimize roadway width, other measures will be taken to offset potential impacts and potentially enhance the visual quality of the corridor. Landscaping treatments using native grasses and slope flattening will be included in the plans. The roadway is designed to blend with the natural setting, conforming to the line and form of the adjacent terrain and natural setting.

5.17 HAZARDOUS WASTE SITES

This Section Is Unchanged From The 2001 ROD

Further evaluation of potential hazardous waste sites will continue prior to property acquisition and during preliminary highway design. The Revised Selected Alternative will avoid potentially contaminated areas whenever practical. However, where avoidance is not feasible, further site investigation will be required and will be coordinated with the affected property owner. Necessary cleanup plans are coordinated with appropriate agencies and landowners.

The inclusion of environmental specifications in the construction bid package will address worker health and safety during construction and contractor requirements.

5.18 TEMPORARY CONSTRUCTION

This Section Is Unchanged From The 2001 ROD

The following measures are recommended to mitigate temporary construction impacts:

- Working closely with all affected individuals and businesses through a public information program during the project development phase and continuing through construction.
- Encouraging contractors to schedule construction activities during daytime hours to minimize noise impacts, in accordance with Douglas County and Town of Castle Rock noise ordinances. Discouraging weekend work, with the exception of activities best suited for off-peak hours.
- Controlling fugitive dust emissions to within acceptable levels. Contractors will be required to use dust suppression techniques (such as wetting) to prevent excessive releases of fugitive dust.
- Mitigating water quality impacts by adhering to the requirements of stormwater permits issued for the project, through the application of standard CDOT erosion control measures and through the implementation of BMPs (e.g. temporary berms, detention ponds, and settling ponds will be used to control runoff and protect water quality during construction).
- Using temporary erosion control measures during construction and requiring permanent revegetation in disturbed areas.
- Using straw or other mulching material to minimize soil erosion during construction.
- Handling unforeseen construction impacts by using a review process and BMPs.

5.19 CUMULATIVE IMPACTS

This Section Has Minor Changes From The 2001 ROD

Cumulative impacts are impacts on the environment resulting from the incremental impact of a project when added to other past, present, and reasonably foreseeable future actions (regardless of responsible agency or person). As part of the cumulative impacts analysis, nine major transportation improvements by CDOT and local agencies, and five major regional developments were evaluated, including the RidgeGate Development.

Impacts to PMJM habitat, as a result of non-project actions (other projects or cumulative actions), are mitigated by constructing check dams. The check dams have been installed on East Plum Creek. Other habitat restoration in Sellers Gulch, and a former upland grassland along East Plum Creek, are also under consideration as mitigation sites. It is anticipated that the check dams will promote riparian vegetation that serves as PMJM habitat.

Mitigation measures will prevent the projects from further contributing to the cumulative degradation of water quality in the Chatfield and Cherry Creek basins. Proper implementation of construction BMPs and adherence to all applicable regulations will minimize impacts to water quality during the construction phase of the proposed projects. Cross culverts and other drainage structures will be appropriately sized to maintain hydrologic connections across the project corridors. Stormwater detention basins will improve water quality and maintain stormwater runoff to historic levels. Particulates and other contaminants will settle in stormwater detention basins.

Impacts to wetlands from the Revised Selected Alternative increase the total amount of cumulative impact to this resource. However, CDOT's and FHWA's commitment to no net loss minimizes the cumulative loss of wetlands from transportation projects. Similarly, the Revised Selected Alternative contributes to cumulative wildlife habitat loss and fragmentation along the US 85 Corridor. However, the mitigation measures that will be implemented as part of this project minimize these losses to the extent practicable.