



Partnering for Progress

US 50 Corridor East



COLORADO
Department of
Transportation

US 50 Corridor East Tier 1 Final Environmental Impact Statement and Record of Decision

Summary of Preferred
Alternative Impacts
by Location

December 2017

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1. Summary of Preferred Alternative Impacts by Location

This appendix summarizes the resource impacts for the Preferred Alternative by location along the corridor.

For each location, resource effects are described by category:

1. Rural and agricultural environment—agricultural resources
2. Natural environment—wetland and riparian resources, wildlife and wildlife habitat, water resources, and geologic and paleontological resources
3. Community and built environment—historic resources, archaeological resources, land use, parklands and recreational resources, social and economic conditions, Section 6(f) resources, aesthetics and visual resources, air quality, and traffic noise
4. Other—hazardous materials, energy use, and global climate change.

Where effects to a particular resource are not present, that resource has been omitted from the discussion. It should be noted that because no Section 6(f) resource conversions were identified along the entire corridor, that topic is not addressed in this appendix. In addition, because of the sensitive nature of archaeological and paleontological resources, they have been excluded from this appendix.

Transportation effects by location have been excluded from this appendix. A more in-depth study as part of a Tier 2 analysis must be completed to determine how the Preferred Alternative would impact the corridor. In general, the Preferred Alternative would include access control and limit full-movement access to U.S. Highway 50 (US 50), provide a wide refuge median, include a consistent cross-section, and improve safety and mobility for all travelers.

In each location, the Preferred Alternative (hereinafter referred to as the Preferred Alternative) has the potential to positively and negatively affect the natural environment of the Lower Arkansas Valley due to its effect on noxious weeds. The assessment of noxious weed impacts does not vary by location and is therefore not discussed in each individual section. Please refer to Chapter 4, Affected Environment, Environmental Consequences, and Mitigation, of the US 50 Tier 1 Environmental Impact Statement (US 50 Tier 1 EIS) for a full discussion on noxious weeds.

In addition, the majority (61.4 percent) of agricultural land impacted by US 50 is identified as prime and unique (Natural Resources Conservation Service [NRCS] 2005), making it impossible to determine where more or less harm is caused to agricultural resources based upon the location of the highway. To differentiate between potential impacts to agricultural resources, an analysis was performed to determine potential loss in productivity by location along the corridor. A detailed discussion of the reasons for choosing this analysis method is included in the Agricultural Resources Technical Memorandum, located in Appendix A. Additional detail on the resource impacts also can be found in the EIS in Chapter 4, Affected Environment, Environmental Consequences, and Mitigation.

What locations are summarized in this appendix?

Resource impacts are described by the locations listed below:

- Section 1: Pueblo
- Section 2: Pueblo to Fowler
- Section 3: Fowler
- Section 4: Fowler to Manzanola
- Section 5: Manzanola
- Section 6: Manzanola to Rocky Ford
- Section 7: Rocky Ford
- Section 8: Rocky Ford to Swink
- Section 9: Swink
- Section 10: La Junta
- Section 11: La Junta to Las Animas
- Section 12: Las Animas
- Section 13: Las Animas to Lamar
- Section 14: Lamar to Granada
- Section 15: Granada
- Section 16: Granada to Holly
- Section 17: Holly
- Section 18: Holly Transition

Hispanic minority and low-income populations exist throughout the study area. Based on the percentage and distribution of minorities and low-income households, the Preferred Alternative would not directly affect these populations disproportionately in comparison to the entire population on a corridor-wide basis.

The Tier 1 impact analysis for all environmental resources was reviewed to identify the potential for adverse effects and project benefits on all segments of the population, including minority and low-income population groups. Benefits primarily relate to transportation benefits throughout the corridor (improved safety and reliability). Adverse impacts to minority and/or low-income populations are not likely to exceed those of the general population. Assessing the distribution of localized adverse impacts requires more detailed project information (design and construction details) than can be determined at this first tier. The lead agencies recognize this limitation at Tier 1 and commit to conducting more in-depth impact analysis during Tier 2 studies, when more detailed design and construction information has been developed and impacts are evaluated at the local level.

The types of localized impacts that could occur from implementation of the Preferred Alternative in Tier 2 studies include property acquisition for right of way; displacements of businesses and residences; changes in access; localized air, noise, or water pollution; localized disturbance of hazardous wastes, including soil or water contamination; effects to historic properties or community facilities; and changes in public services or facilities relied on by minority or low-income populations.

For all sections of the corridor, noise analyses to be conducted during Tier 2 studies may recommend the construction of sound walls. Sound walls have the potential to negatively affect the views from US 50 around communities, and the views of US 50 from surrounding areas.

1.1. Alternatives Evaluated

In accordance with the National Environmental Policy Act of 1969 (NEPA), a no-build alternative is included to provide a basis for comparison with the Build Alternatives. For US 50, the No-Build Alternative includes ongoing maintenance of pavement and bridges and culverts on the existing US 50 alignment. It also includes ongoing or planned minor safety improvements; routine plowing, sanding, sweeping, and mowing; provision of additional passing lane sections; routine pavement overlays; repair of any weather- or crash-related damage; and Transportation System Management (TSM), such as variable message signs (VMS).

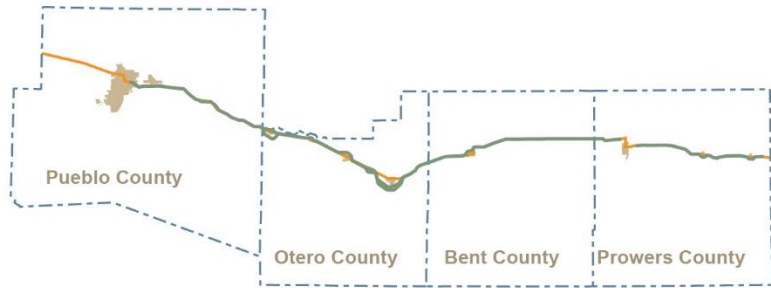
The corridor-wide Preferred Alternative consists of constructing a four-lane expressway (i.e., highway) on or near the existing US 50 alignment between communities, in Pueblo, and around the communities east of Pueblo. It should be noted that the Preferred Alternative is not a final roadway alignment, but is a corridor approximately 1,000 feet wide within which the actual 250-foot roadway alignment will be identified during Tier 2 studies. Within this 1,000-foot-wide corridor, impacts to resources may be able to be avoided depending on the alignment of the various Tier 2 studies. If impacts can't be avoided, mitigation techniques will be evaluated for possible implementation.

The Preferred Alternative specifies general corridor locations (i.e., north or south of town) for most communities, as described in Section 5.2 through Section 5.20, below. Multiple Build Alternatives for three communities—Fowler, Swink, and La Junta—remain under consideration. Figure 1-1 shows the route of the Preferred Alternative with the alternatives in these communities.

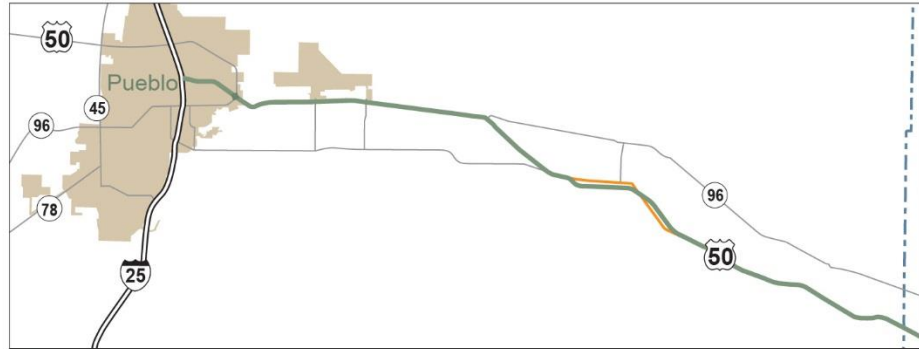
No-Build Alternatives were developed for the town of Lamar. A separate Environmental Assessment (EA), the *US 287 at Lamar Reliever Route Environmental Assessment*, includes both US 50 and U.S. Highway 287 (US 287), since they share the same alignment. The Finding of No Significant Impact (FONSI) for the project was signed November 10, 2014. The EA/FONSI identified a proposed action that bypasses the city of Lamar to the east. The proposed action of the *US 287 at Lamar Reliever Route Environmental Assessment* begins at the southern end of US 287 near County Road (CR) C-C and extends nine miles to State Highway (SH) 196. Therefore, alternatives at Lamar are not considered in this US 50 Tier 1 EIS.

Legend

- Preferred Alternative
- Existing U.S. 50
- City / Town
- County



Pueblo County



Otero County



Bent County



Prowers County

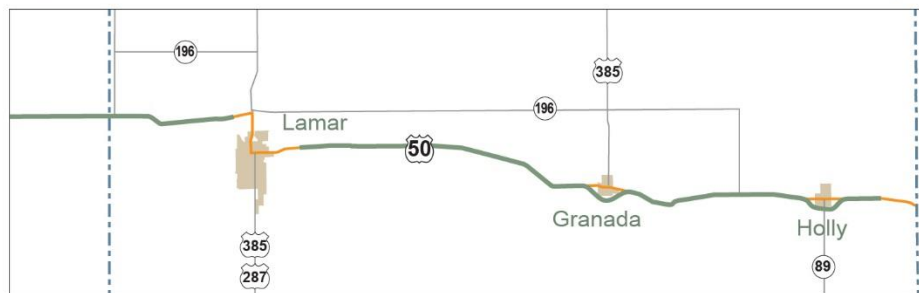


Figure 1-1. Preferred Alternative

The following sections summarize the resource impacts described in Chapter 4, Affected Environment, Environmental Consequences, and Mitigation, by location for the Preferred Alternative. Additional detail on the resource impacts can be found in Chapter 4, including discussion of impacts related to the No-Build Alternative.

1.2. Section 1: Pueblo

The Pueblo section is roughly 12 miles in length and is located at the western border of the project. The Preferred Alternative through Pueblo is proposed along the existing US 50 within the highway's right of way (Alternative 2: Pueblo Existing Alignment). This portion of the highway is already configured in a manner similar to that recommended by the US 50 Tier 1 EIS, so minimal changes to the highway are anticipated in this section. The sections below briefly discuss the effects from the Preferred Alternative on the rural and agricultural environment, natural environment, community and built environment, and other environmental resources.

1.2.1. Rural and Agricultural Environment

Through Pueblo, 131 acres of farmland and ranch lands would be affected by the 1,000-foot-wide Preferred Alternative. Of these areas, 1 percent is alfalfa/corn production (1 acre) and 99 percent is ranch lands (130 acres). Loss of these areas for agricultural use would result in an estimated \$1,000 loss annually in productive value to the agricultural economy of the Lower Arkansas Valley. This would be considered a minor impact, as identified in the Economics Technical Memorandum found in Appendix A of the US 50 Corridor East Tier 1 EIS. For additional information about the productive value of land, see the Agricultural Resources Technical Memorandum, also in Appendix A of the US 50 Corridor East Tier 1 EIS.

The Preferred Alternative through Pueblo is on and near the existing alignment, so the amount of prime farmland affected is minimal. The Preferred Alternative would impact 12 acres of prime farmland, none of which is land classified as farmland of statewide importance by the NRCS.

1.2.2. Natural Environment

Wetlands and Riparian Resources

The Preferred Alternative through Pueblo would affect approximately 60 acres of wetland/riparian areas, with almost all of the impacted acreage (approximately 59 acres) being either Category III or Category IV wetland/riparian zones (low-functionality resources).

Wildlife and Wildlife Habitat

Approximately 310 acres of wildlife habitat would be affected, of which 14 percent is agricultural land, 21 percent is grassland, 2 percent is shrubland, 19 percent is wetlands or riparian areas, and 44 percent is other habitat types (i.e., rural and disturbed). There are eight listed special-status species that could be affected by the Preferred Alternative at Pueblo. They include the black-tailed prairie dog (*Cynomys ludovicianus*) and the species commonly associated with their colonies (i.e., Burrowing Owl [*Athene cunicularia*], Ferruginous Hawk [*Buteo regalis*], and Mountain Plover [*Charadrius montanus*]), Botta's pocket gopher (*Thomomys bottae*), swift fox (*Vulpes velox*), Townsend's big-eared bat (*Plecotus townsendii*), and plains leopard frog (*Rana pipiens*). In the Preferred Alternative, 11 species of noxious weeds were identified, including Canada thistle (*Cirsium arvense*), chicory (*Cichorium intybus*), cutleaf teasel (*Dipsacus laciniatus*), field bindweed (*Convolvulus arvensis*), Johnsongrass (*Sorghum halepense*), musk thistle (*Carduus nutans*), puncturevine (*Tribulus terrestris*), Russian knapweed (*Acroptilon repens*), Russian olive (*Elaeagnus angustifolia*), salt cedar (*Tamarix ramosissima*), and scotch thistle (*Onopordum tauricum*). There are no priority wildlife crossings in the area.

Water Resources

The expansion of the highway footprint through Pueblo has the potential to affect water resources by increasing the amount of transportation-related stormwater pollution runoff. The majority of surface water resources in this area are intermittent creeks, with some canals located within the project area. Impacts to

groundwater are possible when polluted surface water infiltrates into groundwater resources. Shallow alluvial aquifers are the most susceptible to pollutant infiltration, while deep aquifers are less susceptible. Further impacts and the exact amount of impacts to groundwater resources will be assessed during Tier 2 studies.

Geologic Resources

The expansion of the highway footprint has the potential to affect some geologic resources (i.e., soils and mining operations). During Tier 2 studies, when roadway footprints are identified, detailed surveys will be conducted to determine soil-related issues. The Preferred Alternative could affect an existing sand and gravel mining operation by requiring the acquisition of property directly adjacent to US 50.

1.2.3. Community and Built Environment

Historic Resources

The Preferred Alternative through Pueblo could affect up to four resources that may be eligible for listing on the National Register of Historic Places (NRHP), including the Belmont neighborhood (a post-World War II subdivision, no OAHF site number available), the US 50 bridges over Dry Creek (two structures—one carrying westbound traffic and one carrying eastbound traffic, no OAHF site number available), and the BNSF Railway (5PW152). Impacts to linear resources may be avoided or minimized by bridging the resources; this will be determined during Tier 2 studies.

Land Use

The primary land use issue in Pueblo is the Preferred Alternative's compatibility with planning documents covering the area. The 2040 long-range transportation plan prepared for the Pueblo region envisions US 50 as a freeway relocated north of the Pueblo Memorial Airport (Pueblo Area Council of Governments [PACOG] 2015). The Preferred Alternative is not compatible with this plan, since it recommends that US 50 remain on its current route in this location (south of the airport). In and near the city of Pueblo, land is currently zoned for public use (for the highway). East of the airport, it is primarily zoned for agricultural use. Therefore, any property acquired east of the airport would shift from an agricultural to a transportation use.

Property Acquisition

Minimal property acquisition could be needed to build frontage roads if existing accesses to US 50 are eliminated.

Social and Economic Considerations

In Pueblo, the Preferred Alternative would maintain US 50 on or near its current location and in its existing configuration; therefore, minor economic impacts to agricultural production are expected from right-of-way expansion. Potential change in access to properties within the Preferred Alternative's 1,000-foot-wide corridor could result in social impacts; however, specific impacts cannot be determined until Tier 2 studies are conducted to define the actual 250-foot roadway alignment.

Aesthetic and Visual Resources

Since drivers would see the same types of views from the highway that they do today, the character of those views would not change, resulting in no effect to visual resources.

Air Quality

Air quality effects from the Preferred Alternative would include air pollution emissions from combustion of fuel in vehicles, idling of vehicles, particulate matter from brake and tire wear, and fugitive dust resulting from construction activities. An assessment of the level of mobile source air toxic (MSAT) effects will be conducted during Tier 2 studies. The appropriate level of assessment will be determined per 2016 Federal Highway Administration (FHWA) interim guidance. It is anticipated that air quality effects to MSATs in this location will be low level, requiring only a qualitative assessment.

Traffic Noise

The Preferred Alternative could affect 932 noise sensitive receptors; however, these noise sensitive receptors are already affected by traffic noise on US 50 today. The majority, 876, are Noise Abatement Criteria (NAC) B noise sensitive receptors (residential). In addition, there were 11 NAC C noise sensitive receptors identified, which consist of recreation areas, a church, a daycare, and a recreation center. The remaining 45 noise sensitive receptors are NAC E and consist of gas stations, restaurants, businesses, and shopping centers. These noise sensitive receptors would experience increased noise levels as traffic increases on US 50, with or without the Preferred Alternative. The average traffic volume on US 50 in Pueblo (between I-25 and the airport) is expected to increase by approximately 5,500 vehicles between 2011 and 2040 (from roughly 13,500 in 2011 to 19,000 in 2040) (Colorado Department of Transportation [CDOT] 2016). At these traffic volumes, the change in noise levels would be imperceptible; however, the potential remains for future levels of traffic noise to result in noise impacts, especially for areas near a new alignment. A detailed analysis of noise impacts due to traffic will be conducted during Tier 2 studies.

1.2.4. Other

Hazardous Materials

This analysis identified 75 hazardous material sites within the standard half-mile search distance. These sites have the potential to be disturbed under the Preferred Alternative. These sites include five state clean-up list sites, three delisted Superfund sites, two landfills, and three corrective action sites. The remaining 62 sites are tanks, tank leaks, or tank spill sites. All of the hazardous material sites will be screened for designation as Recognized Environmental Conditions (RECs) during Tier 2 studies, and a Phase 1 Environmental Site Assessment (ESA) may be completed at that time.

Additionally, I-25 runs through Pueblo. This interstate—which is both a hazardous materials route and a nuclear materials route—carries far more vehicles than the roadways in the communities to Pueblo's east. With more traffic, it is likely that more vehicles carrying hazardous cargo also are present on this section of US 50.

Energy

The Preferred Alternative would maintain US 50 on or near its current location and in its existing configuration. No changes in energy use are expected because of construction or vehicle use.

1.3. Section 2: Pueblo to Fowler

The Preferred Alternative from Pueblo to Fowler is slightly more than 20 miles in length and consists of constructing a four-lane expressway (i.e., highway) along the existing US 50 between the two communities, except in the Fort Reynolds area. From approximately milepost 333 to milepost 338, the Preferred Alternative realigns the road to minimize potential impacts (referred to as Alternative 2: Fort Reynolds Realignment in the US 50 Tier 1 EIS). The sections below briefly discuss the effects from the Preferred Alternative on the rural and agricultural environment, natural environment, community and built environment, and other environmental resources.

1.3.1. Rural and Agricultural Environment

From Pueblo to Fowler, the Preferred Alternative would impact approximately 642 acres of farmland and ranch lands. These areas are composed of 18 percent alfalfa/corn production (116 acres) and 82 percent ranch lands (526 acres). Loss of these areas for agricultural use would result in an estimated \$50,000 loss per year in productive value to the agricultural economy of the Lower Arkansas Valley. Approximately 377 acres of prime farmland would be impacted. No land at this location is classified as having statewide importance by the NRCS (NRCS 2005).

These impacts would be considered minor, as identified in the Economics Technical Memorandum found in Appendix A of the US 50 Corridor East Tier 1 EIS. For additional information about the productive value of land, see the Agricultural Resources Technical Memorandum, also in Appendix A. The Preferred Alternative

in this area also may affect the Excelsior and Oxford Farmers ditches and the Rocky Ford Highline Canal. It is possible the Preferred Alternative could bridge the canals and have minimal impact; this would be determined during Tier 2 studies.

1.3.2. Natural Environment

Wetland and Riparian Resources

The Preferred Alternative from Pueblo to Fowler would affect 112 acres of wetland/riparian resources, with 70 percent of the impacted acreage (78 acres) being either Category III or Category IV (low-functionality resources) and only 13 percent (14 acres) designated as highly functional resources (Category I).

Wildlife and Wildlife Habitat

Approximately 616 acres of wildlife habitat would be affected. These areas are composed of 36 percent agricultural land, 31 percent grassland, 9 percent shrubland, 18 percent wetlands or riparian areas, and 6 percent other habitat types. In addition, this section of the Preferred Alternative could affect up to 17 special-status species. This includes the Bald Eagle (*Haliaeetus leucocephalus*), Long-Billed Curlew (*Numenius americanus*), black-tailed prairie dog (*Cynomys ludovicianus*) and the species commonly associated with their colonies (i.e., Burrowing Owl [*Athene cunicularia*], Ferruginous Hawk [*Buteo regalis*], and Mountain Plover [*Charadrius montanus*]), Botta's pocket gopher (*Thomomys bottae*), swift fox (*Vulpes velox*), Townsend's big-eared bat (*Plecotus townsendii*), massasauga snake (*Sistrurus catenatus*), Texas horned lizard (*Phrynosoma cornutum*), triploid checkered whiptail (*Cnemidophorus neotesselatus*), yellow mud turtle (*Kinosternon flavescens*), Couch's spadefoot toad (*Scaphiopus cauchii*), plains leopard frog (*Rana blairi*), Arkansas darter (*Etheostoma cragini*), and southern redbelly dace (*Phoxinus erythrogaster*). There are three high priority wildlife crossings that would be affected located between milepost 330 and milepost 332, milepost 334 and milepost 336, and milepost 347 and milepost 349. In addition, 11 species of noxious weeds also were identified, including Canada thistle (*Cirsium arvense*), cutleaf teasel (*Dipsacus laciniatus*), field bindweed (*Convolvulus arvensis*), Johnsongrass (*Sorghum halepense*), musk thistle (*Carduus nutans*), perennial pepperweed (*Lepidium latifolium*), prickly lettuce (*Lactuca serriola*), puncturevine (*Tribulus terrestris*), Russian knapweed (*Acroptilon repens*), Russian olive (*Elaeagnus angustifolia*), and salt cedar (*Tamarix ramosissima*).

Water Resources

The expansion of the highway footprint from Pueblo to Fowler has the potential to affect water resources by increasing the amount of transportation-related pollutant runoff. The exact amount of increase in stormwater pollutant runoff will be calculated during Tier 2 studies, when roadway footprints are identified.

US 50 currently crosses the Arkansas and Huerfano Rivers in this section. The crossing of the Arkansas River would be maintained; however, the Preferred Alternative would shift the Huerfano River crossing south to correct a horizontal curve and to avoid adverse effects to the historic Huerfano bridge. Surface water resources in this area are mostly intermittent creeks with three perennial creeks (Chico Creek, Chicosa Creek, and the Thompson Arroyo). The existing highway crosses three canals: the Excelsior Ditch, the Rocky Ford Highline Canal, and the Oxford Farmers Ditch. Crossings of creeks and canals would be maintained at the same locations.

Impacts to groundwater are possible when polluted surface water infiltrates into groundwater resources. Shallow alluvial aquifers are the most susceptible to pollutant infiltration, while deep aquifers are less susceptible. Impacts to groundwater resources will be assessed further during Tier 2 studies when a 250-foot project alignment is known.

Geologic Resources

The expansion of the highway footprint has the potential to affect some geologic resources (i.e., soils and mining operations). During Tier 2 studies, detailed surveys will be conducted to determine soil-related issues. The Preferred Alternative could affect the Murillo gravel pit—an existing surface mining operation—by requiring the acquisition of property directly north of US 50.

1.3.3. Community and Built Environment

Historic Resources

Thirteen historic resources could be affected, including two known historic resources and 11 that may be eligible for listing on the NRHP. These resources include five buildings associated with farms or ranches, four bridges, the BNSF Railway (5PW152), and three irrigation canals or ditches. The bridges include two US 50 bridges over Chico Creek (one for eastbound traffic and one for westbound traffic, no OAH site number available), the Ordnance Depot Road interchange over US 50 (no OAH site number available), the US 50 bridge over the Huerfano River (5PE.302), and the US 50 bridge over the Rocky Ford Highline Canal (no OAH site number available). The irrigation canals or ditches that could be affected are the Excelsior Ditch (no OAH site number available), Rocky Ford Highline Canal (no OAH site number available), and Oxford Farmers Ditch (no OAH site number available). However, impacts to linear resources may be avoided or minimized by bridging the resources, which will be determined during Tier 2 studies.

Land Use

Between Pueblo and Fowler, this portion of the Preferred Alternative could affect up to three conservation easements. The two easements managed by The Greenlands Reserve are located between milepost 335 and milepost 343. The other easement is managed by the Otero County Land Trust and is located near milepost 349 on the west side of Fowler. In addition, the Preferred Alternative would affect three public properties, all managed by the Colorado State Lands Board. All of these properties are located between milepost 335 and milepost 343.

From Pueblo to Fowler, land on either side of US 50 is zoned mostly for agricultural use (primarily for ranching). Therefore, most land acquired for the Preferred Alternative would shift from agricultural use to a transportation use. This alternative would require approximately 619 acres of land, which includes 616 acres of agricultural land, two acres of commercial property, and one acre of public land to be converted to a transportation use.

Property Acquisition

Close to Pueblo in this area, US 50 is already four lanes and is configured in the manner recommended by the Preferred Alternative (approximately between milepost 327 and milepost 332). Therefore, no substantial property acquisition would occur. However, property could be needed to build frontage roads if existing accesses to US 50 are eliminated. The remainder of US 50 between Pueblo and Fowler is two lanes (approximately between milepost 332 and milepost 349). Therefore, additional property adjacent to the highway (either north or south of the existing lanes) would be needed to build the additional two lanes.

Social and Economic Considerations

From Pueblo to Fowler, the Preferred Alternative would maintain US 50 on or near its current location, so no economic effects are expected. Potential change in access to properties within the Preferred Alternative's 1,000-foot-wide corridor could result in social impacts, but specific impacts cannot be determined until Tier 2 project analysis is conducted to define the actual 250-foot roadway alignment.

Aesthetic and Visual Resources

Since drivers would see the same types of views from the highway that they do today, the character of those views would not change, resulting in no effect to them. Views of the highway may change where existing two-lane sections would be expanded to four lanes. Other elements also may be added to the highway in certain locations to improve safety or mobility for drivers, including turn lanes, medians, and wider shoulders. These changes would alter the look of the highway by widening the area of pavement and width of the divided median within the view. This type of change would alter the character of the view for local residents in these areas.

Air Quality

Air quality effects from the Preferred Alternative would include air pollution emissions from combustion of fuel in vehicles, idling of vehicles, particulate matter from brake and tire wear, and fugitive dust resulting from

construction activities. An assessment of the level of MSAT effects will be conducted during Tier 2 studies. The appropriate level of assessment will be determined per 2016 FHWA interim guidance. It is anticipated that air quality effects to MSATs in this location will be low level, requiring only a qualitative assessment.

Traffic Noise

The Preferred Alternative would maintain US 50 on or near its current location between towns, with the exception of the realignment of one horizontal curve. In this location, 73 noise sensitive receptors (72 residential and one school) are likely already affected by traffic noise on US 50, and they will experience increased noise levels as traffic increases on US 50 in the future. Receptors may experience both negative and positive effects, as some would have a reduction in noise because of the existing facility shifting away from them while others may experience an increase in noise as the roadway moves closer. This change is likely to be imperceptible to the human ear; however, the potential remains for future levels of traffic noise to result in noise impacts. A detailed analysis of noise impacts due to traffic will be conducted during Tier 2 studies.

1.3.4. Other

Hazardous Materials

From Pueblo to Fowler, there are four hazardous materials sites, which include two tanks and two tank leaks. These hazardous materials sites would be screened for designation as RECs during Tier 2 studies. A Phase 1 ESA may be completed at that time.

Energy

The Preferred Alternative would reduce the traveling distance on US 50 by approximately 0.1 mile. This is a 4-percent reduction in energy consumption as compared to the existing alignment.

1.4. Section 3: Fowler

The Preferred Alternative consists of constructing a four-lane expressway (i.e., highway) around Fowler, where both Alternative 1: Fowler North and Alternative 2: Fowler South remain under consideration. The rerouting of US 50 around town may increase resource impacts since the facility will be constructed through areas where roadways do not currently exist. The sections below briefly discuss the effects from the Preferred Alternative on the rural and agricultural environment, natural environment, community and built environment, and other environmental resources.

1.4.1. Rural and Agricultural Environment

Approximately 76 acres of prime farmland would be affected by Alternative 1: Fowler North. This is almost half the number of acres of prime farmland impacted by Alternative 2: Fowler South. No land impacted by this alternative is classified as having statewide importance by the NRCS (NRCS 2005). This alternative would affect 89 acres of farmland and ranch lands and incur an estimated loss of \$21,000 of annual productive value. Alfalfa/corn crops account for 98 percent of the loss in productive value (51 acres); the remaining 2-percent loss in annual productive value is due to impacts to ranch lands (38 acres). This would be considered a minor impact, as identified in the Economics Technical Memorandum. This alternative also would affect the Otero Canal.

Approximately 146 acres of prime farmland would be affected by Alternative 2: Fowler South. No land impacted by this alternative is classified as having statewide importance by the NRCS (NRCS 2005). The south alternative would affect 146 acres of farmland and ranch lands and experience an estimated loss of \$58,000 of annual productive value. Alfalfa/corn crops constitute more than 99 percent of the loss in productive value (144 acres). Impacted ranch lands (two acres) would result in less than 1 percent of the loss of annual productive value. This would be considered a minor impact, as identified in the Economics Technical Memorandum. This alternative also would affect the Rocky Ford Highline Canal and Oxford Farmers Ditch.

Overall, Alternative 1: Fowler North would affect fewer agricultural resources than Alternative 2: Fowler South by affecting 57 fewer total acres of farmland and ranch lands and 93 fewer acres of alfalfa/corn production. This would result in a smaller loss in productive value by \$37,000, as well as crossing one less irrigation canal or ditch.

1.4.2. Natural Environment

Wetland and Riparian Resources

Alternative 1: Fowler North would affect nearly 25 acres of wetland/riparian resources, with 16 of these acres being either Category I or Category II (high functioning). The abundance of highly functional wetland/riparian resources within the north alternative is due to the presence of the Arkansas River north of Fowler.

In contrast, Alternative 2: Fowler South would affect approximately 8 acres of wetland/riparian resources, with half of them (four acres) being lower functioning Category III or Category IV wetland/riparian resources.

Wildlife and Wildlife Habitat

Alternative 1: Fowler North comes close to the Arkansas River and would affect approximately 105 acres of wildlife habitat, which is composed of 76 percent agricultural land, 1 percent grasslands, and 23 percent wetlands or riparian areas. In contrast, Alternative 2: Fowler South would affect about 149 acres of wildlife habitat that is composed of 94 percent agricultural land, 5 percent wetlands or riparian areas, and 1 percent other types.

Both alternatives would affect the same special-status species, priority wildlife crossing, and noxious weeds. The special-status species that could be affected include the Bald Eagle (*Haliaeetus leucocephalus*), common king snake (*Lampropeltis getula*), Greater Sandhill Crane (*Grus canadensis tabida*), Long-Billed Curlew (*Numenius americanus*), swift fox (*Culpes velox*), plains leopard frog (*Rana blairi*), and yellow mud turtle (*Kinosternon flavescens*). One high-priority wildlife crossing located between milepost 347 and milepost 349 would be affected. Finally, seven species of noxious weeds were identified within the current CDOT right of way for both alternatives, including field bindweed (*Convolvulus arvensis*), Johnsongrass (*Sorghum halepense*), prickly lettuce (*Lactuca scariola*), puncturevine (*Tribulus terrestris*), Russian knapweed (*Acroptilon repens*), Russian olive (*Elaeagnus angustifolia*), and salt cedar (*Tamarix ramosissima*).

Water Resources

The movement of the highway footprint around Fowler has the potential to affect water resources. Changes in stormwater pollutant runoff will be calculated during Tier 2 studies, when roadway footprints are identified. Both of the around-town alternatives would require new crossings of surface water resources by US 50. Alternative 1: Fowler North would require two new crossings of the Otero Canal and Alternative 2: Fowler South would require two new crossings of the Oxford Farmers Ditch and possibly a new crossing of the Rocky Ford Highline Canal. In addition, Alternative 1: Fowler North crosses once into the Arkansas River 100-year floodplain. Overall, Alternative 1: Fowler North could have less effect on surface water resources, but it would affect floodplains associated with the Arkansas River. In contrast, Alternative 2: Fowler South could add one more crossing of a surface water resource, but it would not affect any floodplains.

Impacts to groundwater are possible when polluted surface water infiltrates into groundwater resources. Shallow alluvial aquifers are the most susceptible to pollutant infiltration. Deep aquifers are less susceptible. Impacts to groundwater resources will be assessed further during Tier 2 studies when a 250-foot project alignment is known.

Geologic Resources

In both alternatives, the movement of the highway footprint has the potential to affect some geologic resources—specifically, soils. During Tier 2 studies, when roadway footprints are identified, detailed surveys will be conducted to determine soil-related issues.

1.4.3. Community and Built Environment

Historic Resources

Alternative 1: Fowler North could affect up to three resources that may be eligible for listing on the NRHP, while Alternative 2: Fowler South would affect two. Resources affected by Alternative 1: Fowler North include a residence, the BNSF Railway (5PW152), and the Otero Canal (no OAHP site number available). Resources affected by Alternative 2: Fowler South include the Rocky Ford Highline Canal (no OAHP site number available) and the Oxford Farmers Ditch (no OAHP site number available). Impacts to linear resources may be avoided or minimized by bridging the resources; this will be determined during Tier 2 studies.

Land Use

Both around-town alternatives would change land zoned for agricultural use to a transportation use. Alternative 1: Fowler North would be consistent with the comprehensive plan adopted by Fowler in 2009. This plan states that if US 50 is realigned, then the town prefers it to be located north of town (Town of Fowler 2009). It also states that, to ensure future redevelopment is consistent with the town's objectives, "no realignment [should] occur to the south of Town" (Town of Fowler 2009). Recent growth in Fowler has occurred south of town and has been residential in nature. If this growth continued to the west, south, and east, it also would be consistent with Alternative 1: Fowler North, which would reroute US 50 away from this area. Both alternatives would change land zoned for agricultural use to a transportation use. Table 1-1 identifies the estimated acres of existing land use to be converted to a transportation use in Section 3 of the project corridor.

Table 1-1. Comparison of Acres to be Converted to a Transportation Use in Section 3

Alternative	Land Use	Acres Converted to Transportation*	Total Acres Converted by Alternative
Alternative 1: Fowler North	Public Use	12.9	104
	Agriculture/Rural	91.2	
Alternative 2: Fowler South	Public Use	0	149
	Agriculture/Rural	148.7	

*Acreage estimates are based on a 1,000-foot-wide corridor multiplied by a conversion factor of 0.25 for new location portions. These conservative acreage estimates are anticipated to be reduced during Tier 2 studies.

Property Acquisition

Both around-town alternatives would potentially affect the use of a conservation easement managed by the Otero County Land Trust (located near milepost 349 on the west side of Fowler) and require acquisition of additional property for the new around-town route (either north of south of town). Alternative 1: Fowler North would require acquisition of a portion of the Cottonwood Links Golf Course. To maintain the course's operations, some of its holes would have to be reconstructed on nearby property. The public and Fowler town officials are aware of possible effects to the course and have suggested modifications that would accommodate Alternative 1.

Parklands and Recreational Resources

Alternative 2: Fowler South would not affect any identified parklands or recreational resources. Alternative 1: Fowler North has the potential to affect the Pronghorn pedestrian (birding) trail and the Cottonwood Links Golf Course by taking a portion of the property currently used for four different holes. The golf course clubhouse, which also is used to hold some town meetings, would not be affected. If other parts of this resource are affected, a Section 4(f) analysis would be required. Additional discussion on Section 4(f) is included in Chapter 5, Section 4(f) Evaluation, in the US 50 Corridor East Tier 1 EIS. Fowler's land use plan comments on the possible future realignment of US 50 by stating that the "[t]own of Fowler is more

supportive of the northern alignment” (Town of Fowler 2009). However, the same plan also shows this golf course at its current location. The public and Fowler town officials are aware of possible effects to the course and have suggested modifications that would accommodate Alternative 1.

Social and Economic Considerations

In Fowler, the Preferred Alternative would reroute US 50 to the north or south of town just outside the currently developed area of the community. Moving traffic from US 50 to a new around-town route would remove long-distance and regional traffic from the US 50 through-town route, making the existing highway easier to cross, especially for pedestrians. Additionally, the Preferred Alternative is likely to affect local businesses in the following ways:

- Convert some residential and agricultural land to highway use
- Affect traveler-oriented businesses, such as lodging and restaurants, depending on their location relative to the new around-town route
- Benefit highway-dependent businesses, including farms and ranches, that rely on the highway to deliver their products to markets outside the Lower Arkansas Valley
- Allow communities to make their downtown areas more pedestrian-friendly
- Move US 50 farther from existing gateways into the communities, thereby potentially decreasing local sales and sales tax revenue, but also creating opportunities for these communities to develop new gateways near the new US 50 connections

Land that would be converted by the Preferred Alternative would have a productive value of approximately \$21,000 per year for Alternative 1: Fowler North and \$59,000 per year for Alternative 2: Fowler South. Alternative 1: Fowler North would have the least impact on the agricultural economy (Tranel 2008a, 2008b). However, Alternative 1: Fowler North has the potential to affect the Cottonwood Links Golf Course.

There is potential for change in access to properties within the Preferred Alternative’s 1,000-foot-wide corridor, which could result in social impacts; however, specific impacts cannot be determined until Tier 2 studies are conducted to define the actual 250-foot roadway alignment.

Aesthetic and Visual Resources

The rerouting of US 50 from its current location through Fowler to the periphery would change views seen by drivers as they travel in these areas. Today, drivers see views of urban development on both sides of the highway. If the Preferred Alternative is implemented, they would see urban development on one side (views toward town) and views similar to the between-town sections on the other side (views away from town). This change would entail exchanging in-town views for views of riparian habitats adjacent to the roadway.

Air Quality

Air quality effects from the Preferred Alternative would include air pollution emissions from combustion of fuel in vehicles, idling of vehicles, particulate matter from brake and tire wear, and fugitive dust resulting from construction activities. Rerouting US 50 to the north or south of town would move traffic and resulting emissions from populated areas in town to less populated areas outside of town. An assessment of the level of MSATs effects will be conducted during Tier 2 studies. The appropriate level of assessment will be determined per 2016 FHWA interim guidance. It is anticipated that air quality effects to MSATs in this location will be low level, requiring only a qualitative assessment.

Traffic Noise

The Preferred Alternative would provide an alternate route for US 50 through-traffic to the north or south of Fowler. This would result in increased noise levels for the noise sensitive receptors located in the vicinity of the new route due to the presence of a highway (and its resulting traffic) that does not currently exist there today. In most cases, noise sensitive receptors impacted by the Preferred Alternative are currently located far from US 50 and many are far from other busy roadways. Alternative 1: Fowler North would impact 14 new noise sensitive receptors, which includes three NAC C receptors (two Colorado Parks and Wildlife birding trails and one golf course). Alternative 2: Fowler South would impact 18 new noise sensitive receptors, all of which are residential. Increases in traffic noise likely would be noticeable for these noise

sensitive receptors. Since through-traffic would have an alternate route around town, traffic levels through Fowler would likely decrease, reducing traffic noise levels where most people are likely to hear it. Detailed analysis of noise impacts due to traffic will be conducted during Tier 2 studies.

1.4.4. Other

Hazardous Materials

Alternative 1: Fowler North has the potential to disturb up to four storage tanks, which includes one leaking tank. However, Alternative 2: Fowler South could disturb one Superfund site (Pueblo 4-F Drum) that is located in Pueblo County just west of town. Superfund sites are likely to affect the location of US 50 (the highway alignment) during projects resulting from Tier 2 studies, while the presence of storage tanks would not. Superfund sites are automatically designated as RECs because of the greater effort required to clean up a Superfund site than to manage storage tanks. Therefore, while Alternative 1: Fowler North has the potential to disturb more sites, those sites would require far less effort to manage than the effort required to remediate (i.e., clean up) the Superfund site located within Alternative 2: Fowler South. Sites not already designated as Superfund sites that have the potential to be disturbed under the Preferred Alternative will be screened for designation as RECs during Tier 2 studies. A Phase 1 ESA may be completed during Tier 2 studies.

Energy

Alternative 1: Fowler North would be 0.1 mile shorter than the existing US 50 route through town. It would result in 1.8 percent lower energy consumption and a positive environmental effect. Alternative 2: Fowler South is about 1.4 miles longer than the existing through-town route. This would result in higher energy consumption by approximately 389 gallons of gasoline per day, which would be a negative environmental effect.

1.5. Section 4: Fowler to Manzanola

The Preferred Alternative from Fowler to Manzanola is approximately six miles in length and consists of constructing a four-lane expressway on the existing US 50 between the communities. Currently, this portion of US 50 is a two-lane section that may experience increased resource impacts as the facility is converted to the four-lane expressway. The sections below briefly discuss the effects from the Preferred Alternative on the rural and agricultural environment, natural environment, community and built environment, and other environmental resources.

1.5.1. Rural and Agricultural Environment

The Preferred Alternative would affect 184 acres of farmland and ranch lands, at an estimated loss of \$82,000 of annual productive value. Losses in productive value are made up of 17 percent from impacts to vegetable farmland (three acres), 83 percent from impacts to alfalfa/corn farmland (171 acres), and a small portion from impacts to ranch lands (10 acres). This would be considered a minor impact, as identified in the Economics Technical Memorandum. The Preferred Alternative would affect approximately 170 acres of prime farmland. It also would affect the Otero and Catlin canals.

1.5.2. Natural Environment

Wetland and Riparian Resources

The Preferred Alternative from Fowler to Manzanola would affect 49 acres of wetland/riparian resources, with 63 percent of the impacted acreage (approximately 31 acres) being either Category III or Category IV (low functionality resources) and 38 percent (18 acres) higher functioning resources (Category I or Category II).

Wildlife and Wildlife Habitat

Nearly 186 acres of wildlife habitat would be affected in the Fowler to Manzanola section, which is comprised of 71 percent agricultural land, 2 percent grassland, 26 percent wetlands/riparian areas, and less than 1

percent other habitat types. This section of the Preferred Alternative also could affect up to seven special-status species, including the Greater Sandhill Crane (*Grus canadensis tabida*), Long-Billed Curlew (*Numenius americanus*), swift fox (*Vulpes velox*), common king snake (*Lampropeltis getula*), yellow mud turtle (*Kinosternon flavescens*), plains leopard frog (*Rana blairi*), and southern redbelly dace (*Phoxinus erythrogaster*). One high-priority wildlife crossing would be affected at milepost 355 in this alternative. Finally, seven species of noxious weeds were identified within the current CDOT right of way for both alternatives, including field bindweed (*Convolvulus arvensis*), Johnsongrass (*Sorghum halepense*), prickly lettuce (*Lactuca serriola*), puncturevine (*Tribulus terrestris*), Russian knapweed (*Acroptilon repens*), Russian olive (*Elaeagnus angustifolia*), and salt cedar (*Tamarix ramosissima*).

Water Resources

The expansion of the highway footprint from Fowler to Manzanola has the potential to affect water resources by increasing the amount of transportation-related pollutant runoff. Changes in stormwater pollutant runoff will be calculated during Tier 2 studies when roadway footprints are identified. The existing highway consists of three crossings of the Otero Canal, a crossing of Smith Hollow, and a crossing of the Apishapa River. Crossings of these resources would remain in the same locations under the Preferred Alternative.

Impacts to groundwater are possible when polluted surface water infiltrates into groundwater resources. Shallow alluvial aquifers are the most susceptible to pollutant infiltration. Deep aquifers are less susceptible. Impacts to groundwater resources will be assessed further during Tier 2 studies when a 250-foot project alignment is decided upon.

Geologic Resources

The expansion of the highway footprint has the potential to affect some geologic resources—specifically, soils. During Tier 2 studies, when roadway footprints are identified, detailed surveys will be conducted to determine soil-related issues.

1.5.3. Community and Built Environment

Historic Resources

Up to four resources that may be eligible for listing on the NRHP could be affected by the Preferred Alternative, including a US 50 bridge over the Otero Canal (no OAHP site number available), the BNSF Railway (5PW152), Catlin Canal (5OT120), and Otero Canal (no OAHP site number available). Impacts to linear resources, such as the railway, may be avoided or minimized by bridging the resources; this will be determined during Tier 2 studies.

Land Use

Between Fowler and Manzanola, the Preferred Alternative could affect the use of a conservation easement managed by the Otero County Land Trust located between milepost 353 and milepost 354. Property would be acquired south of the existing lanes, because the railroad that is located on the north side of US 50 creates a barrier to expanding the highway in that direction. Currently, land south of the highway is zoned for agricultural use. Therefore, the Preferred Alternative would convert up to 186 acres in this area from an agricultural use to a transportation use.

Property Acquisition

From Fowler to Manzanola, the Preferred Alternative would require property acquisition to expand this two-lane section of US 50 to four lanes. Property would be acquired south of the existing lanes because the railroad located on the north side of US 50 creates a barrier to expanding the highway in that direction.

Parklands and Recreational Resources

The Preferred Alternative has the potential to affect the Pronghorn pedestrian (birding) trail in this section of the corridor. The trail would be crossed by the Preferred Alternative and could be affected by new access limitations onto or off of US 50.

Social and Economic Considerations

From Fowler to Manzanola, the Preferred Alternative would maintain US 50 on or near its current location; therefore, no significant economic effects are expected. There is potential for change in access to properties within the Preferred Alternative's 1,000-foot-wide corridor, which could result in social impacts; however, specific impacts cannot be determined until Tier 2 studies are conducted to define the actual 250-foot roadway alignment.

Aesthetic and Visual Resources

Because the alignment of the highway does not change from the existing location in the Preferred Alternative, drivers would see the same types of views from the highway that they do today. Views of the highway may change where existing two-lane sections would be expanded to four lanes; however, road and canal crossings would not change from the existing conditions and would not create new visual impacts. Other elements also may be added to the highway in certain locations to improve safety or mobility for drivers, including turn lanes, medians, and wider shoulders. These changes would alter the look of the highway by widening the area of pavement and width of the divided median within the view. This type of change would alter the character of the view for local residents in these areas.

Air Quality

Air quality effects from the Preferred Alternative would include air pollution emissions from combustion of fuel in vehicles, idling of vehicles, particulate matter from brake and tire wear, and fugitive dust resulting from construction activities. An assessment of the level of MSATs effects will be conducted during Tier studies. The appropriate level of assessment will be determined per 2016 FHWA interim guidance. It is anticipated that air quality effects to MSATs in this location will be low level, requiring only a qualitative assessment.

Traffic Noise

The Preferred Alternative would maintain US 50 on or near its current location between towns. In these locations, 21 noise sensitive receptors (20 residential and one Colorado Division of Wildlife birding trail) are already affected by traffic noise on US 50. They will experience increased noise levels as traffic increases on US 50 in the future. This change is likely to be imperceptible to the human ear; however, the potential remains for future levels of traffic noise to result in noise impacts. A detailed analysis of noise impacts due to traffic will be conducted during Tier 2 studies.

1.5.4. Other

Hazardous Materials

From Fowler to Manzanola, there are three hazardous materials sites—two storage tanks and one tank leak—located within the standard half-mile search distance. These sites have the potential to be disturbed under the Preferred Alternative and may be screened for designation as RECs during a Phase 1 ESA under Tier 2 studies.

Energy

The Preferred Alternative would maintain US 50 on or near its current location and in its existing configuration; therefore, no changes in energy use due to construction or vehicle use are expected.

1.6. Section 5: Manzanola

The Preferred Alternative consists of constructing a four-lane expressway to the north of Manzanola (Alternative 1: Manzanola North). The rerouting of US 50 around town may increase resource impacts as the facility will be constructed through areas where roadways do not currently exist. The sections below briefly discuss the effects from the Preferred Alternative on the rural and agricultural environment, natural environment, community and built environment, and other environmental resources.

1.6.1. Rural and Agricultural Environment

The Preferred Alternative would affect 78 acres of farmland and ranch lands and sustain an estimated loss of \$22,000 of annual productive value. Approximately 78 acres of prime farmland would be impacted; none of these lands are classified as being of statewide importance by the NRCS (NRCS 2005). Losses in productive value are made up of more than 99 percent of impacts to alfalfa/corn farmland (56 acres) and less than one percent of impacts to ranch lands (22 acres). Efforts would be made to avoid fragmentation of farmland, which would create uneconomical remainders of farm fields. This would be considered a minor impact, as identified in the Economics Technical Memorandum found in Appendix A of the US 50 Corridor East Tier 1 EIS. Impacts to farmland also would have minor impacts to local irrigation demand of the Otero and Catlin canals.

1.6.2. Natural Environment

Wetland and Riparian Resources

The Preferred Alternative in Manzanola would affect 5 acres of wetland/riparian resources, with 80 percent of the impacted acreage (approximately four acres) being either Category III or Category IV (low functionality resources) and only one acre of higher functioning resources (Category I or Category II).

Wildlife and Wildlife Habitat

Nearly 78 acres of wildlife habitat would be affected by the Preferred Alternative. These areas are composed of 83 percent agricultural land, 6 percent wetlands/riparian areas, and 11 percent other habitat types. There are six special-status species that could be affected by the Preferred Alternative at Manzanola. They include the Greater Sandhill Crane (*Grus canadensis tabida*), Long-Billed Curlew (*Numenius americanus*), swift fox (*Vulpes velox*), common kingsnake (*Lampropeltis getula*), yellow mud turtle (*Kinosternon flavescens*), and plains leopard frog (*Rana blairi*). Seven species of noxious weeds were identified, including field bindweed (*Convolvulus arvensis*), Johnsongrass (*Sorghum halepense*), prickly lettuce (*Lactuca serriola*), puncturevine (*Tribulus terrestris*), Russian knapweed (*Acroptilon repens*), Russian olive (*Elaeagnus angustifolia*), and salt cedar (*Tamarix ramosissima*). No high-priority wildlife crossing was identified.

Water Resources

The movement of the highway footprint around Manzanola has the potential to affect water resources, including surface water and stormwater runoff. The Otero and Catlin Canals are within the project area at this location; however, no new crossings of these resources are anticipated with the Preferred Alternative. Increasing the footprint of the highway would increase the potential for stormwater pollutant runoff in the project area. The exact amount of any increases in stormwater pollutant runoff will be calculated during Tier 2 studies when roadway footprints are identified.

Impacts to groundwater are possible when polluted surface water infiltrates into groundwater resources. Shallow alluvial aquifers are the most susceptible to pollutant infiltration. Deep aquifers are less susceptible. Impacts to groundwater resources will be assessed further during Tier 2 studies when a 250-foot project alignment is identified.

Geologic Resources

The movement of the highway footprint has the potential to affect some geologic resources—specifically, soils. During Tier 2 studies, when roadway footprints are identified, detailed surveys will be conducted to determine soil-related issues.

1.6.3. Community and Built Environment

Historic Resources

Three resources that may be eligible for listing on the NRHP would be affected, including the BNSF Railway (5PW152), Catlin Canal (5OT120), and Otero Canal (no OAHP site number available). Impacts to linear resources may be avoided or minimized by bridging the resources; this will be determined during Tier 2 studies.

Land Use

The primary land use issues in Manzanola involve whether the Preferred Alternative is compatible with future development areas and acquisition of additional property for the new around-town route. Future development areas in Manzanola are likely to occur south of town. The Preferred Alternative would be consistent with that growth if it is residential in nature and inconsistent if it is either commercial or industrial in nature because it would move US 50 farther away from this area. Existing land use along the recommended route around the northern periphery of Manzanola is currently zoned for agricultural use. Therefore, the Preferred Alternative would change approximately 78 acres from agricultural use to a transportation use.

Property Acquisition

The Preferred Alternative recommends a new route for US 50 around the northern periphery of Manzanola. This would require acquisition of property in this area.

Parklands and Recreational Resources

The Preferred Alternative has the potential to affect the Pronghorn pedestrian (birding) trail in this section of the corridor. The trail would be crossed by the Preferred Alternative and could be affected by new access limitations onto or off of US 50.

Social and Economic Considerations

In Manzanola, the Preferred Alternative would reroute US 50 to the north of town just outside the currently developed area of the community. Moving traffic from US 50 to a new around-town route would remove long-distance and regional traffic from US 50 through-town traffic, making the existing highway easier to cross, especially for pedestrians. Additionally, the Preferred Alternative is likely to affect local businesses in the following ways.

- Convert some residential and agricultural land to highway use
- Affect traveler-oriented businesses, such as lodging and restaurants, depending on their location relative to the new around-town route; benefit highway-dependent businesses, including farms and ranches, that rely on the highway to deliver their products to markets outside the Lower Arkansas Valley
- Allow communities to make their downtown areas more pedestrian-friendly
- Move US 50 farther from existing gateways into the communities, which may decrease local sales and sales tax revenue but also create opportunities for these communities to develop new gateways near the new US 50 connections

There is potential for change in access to properties within the Preferred Alternative's 1,000-foot-wide corridor, which could result in social impacts. Specific impacts cannot be determined until Tier 2 studies are conducted to define the actual 250-foot roadway alignment.

Aesthetic and Visual Resources

The rerouting of US 50 from its current location through Manzanola to the periphery would change views seen by drivers as they travel in these areas. Today, drivers see views of urban development on both sides of the highway. If the Preferred Alternative is implemented, they would see urban development on one side (views toward town) and views similar to the between-town sections on the other (views away from town). However, this change would only mean exchanging in-town views for more of the same views drivers already see between towns.

Air Quality

Air quality effects from the Preferred Alternative would include air pollution emissions from combustion of fuel in vehicles, idling of vehicles, particulate matter from brake and tire wear, and fugitive dust resulting from construction activities. Rerouting US 50 to the north of town would move traffic and resulting emissions from populated areas in town to less populated areas north of town. An assessment of the level of MSAT's effects will be conducted during Tier 2 studies. The appropriate level of assessment will be determined per 2016 FHWA interim guidance. It is anticipated that air quality effects to MSATs in this location will be low level, requiring only a qualitative assessment.

Traffic Noise

The Preferred Alternative would provide an alternate route for US 50 through-traffic to the north of Manzanola. The Preferred Alternative would result in increased noise levels for the noise sensitive receptors located in the vicinity of the new routes, including 35 NAC B receptors (residential) and four NAC C receptors (one playground and three CPW birding trails). In most cases, the noise sensitive receptors impacted by the Preferred Alternative are currently located far from US 50, and far from other busy roadways. Traffic noise would be noticeable for these noise sensitive receptors. However, these traffic noise levels would not be substantially different than noise levels that are experienced today along US 50 between communities. Detailed analysis of noise impacts due to traffic will be conducted during Tier 2 studies.

1.6.4. Other

Hazardous Materials

In Manzanola, there are four hazardous materials sites—one tank and three tank leaks—located within the standard half-mile search distance. These sites have the potential to be disturbed under the Preferred Alternative, and will be evaluated further for designation as RECs during Tier 2 studies.

Energy

The Preferred Alternative, routing US 50 to the north of Manzanola, would cause an increase in energy use of 9 percent by vehicles traveling the highway at this location, the equivalent of an increase of 122 gallons of gasoline per day. In the long term, a net energy use reduction could result if increases in operational efficiencies would balance increases in energy consumption due to construction of a new alignment and increases in the highway segment length.

1.7. Section 6: Manzanola to Rocky Ford

The Preferred Alternative from Manzanola to Rocky Ford is 5.4 miles in length and consists of a four-lane expressway that meets American Association of State Highway and Transportation Officials (AASHTO) design and safety standards on the existing US 50 alignment between the communities. Accordingly, the new expressway also would control the number of access points to the route. Currently, this segment of highway is already configured as a four-lane highway. The sections below briefly discuss the effects from the Preferred Alternative on the rural and agricultural environment, natural environment, community and built environment, and other environmental resources.

1.7.1. Rural and Agricultural Environment

Between Manzanola and Rocky Ford, the Preferred Alternative would affect 164 acres of farmland and ranch lands and incur an estimated \$262,000 loss in annual productive value. Approximately 163 acres of prime farmland would be impacted. Lost productive value is made up of 84 percent vegetable production (49 acres), 16 percent alfalfa/corn production (105 acres), and less than one percent ranch lands (10 acres). This would be considered a minor impact as far as acreage goes, as identified in the Economics Technical Memorandum, found in Appendix A of the US 50 Corridor East Tier 1 EIS, but note that the effect on productive value is significant, given that 84 percent of the loss is vegetable production.

It also has the potential to affect Mills Brothers Farm Market and O'Neal Produce (Arkansas Valley Produce). Efforts will be made to avoid direct effects to these permanent roadside produce markets during Tier 2 studies. Impacted businesses would be relocated following provisions of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (Uniform Act), as amended. Indirect effects related to vehicle access from US 50 also will be reviewed in more detail during Tier 2 studies when a final alignment for US 50 in this area has been identified. The Preferred Alternative in this area also would affect the Main Leach Canal.

1.7.2. Natural Environment

Wetland and Riparian Resources

The Preferred Alternative from Manzanola to Rocky Ford would affect one acre of wetland/riparian resources, all of which are Category II.

Wildlife and Wildlife Habitat

The Preferred Alternative would affect approximately 164 acres of wildlife habitat, which is composed of 96 percent agricultural land, 1 percent grasslands, 1 percent wetlands/riparian areas, and 3 percent other habitat types. Six special-status species could be affected between Manzanola and Rocky Ford, including the Greater Sandhill Crane (*Grus canadensis tabida*), Long-Billed Curlew (*Numenius americanus*), swift fox (*Vulpes velox*), common king snake (*Lampropeltis getula*), yellow mud turtle (*Kinosternon flavescens*), and plains leopard frog (*Rana blairi*). No wildlife crossing impacts were identified within this section. Seven species of noxious weeds were identified within the current CDOT right of way for these alternatives, including field bindweed (*Convolvulus arvensis*), Johnsongrass (*Sorghum halepense*), prickly lettuce (*Lactuca serriola*), puncturevine (*Tribulus terrestris*), Russian knapweed (*Acroptilon repens*), Russian olive (*Elaeagnus angustifolia*), and salt cedar (*Tamarix ramosissima*).

Water Resources

The expansion of the highway footprint from Manzanola to Rocky Ford has the potential to affect water resources by increasing the amount of transportation-related pollutant runoff. US 50 currently crosses Smith Hollow in this section, and the crossing would be maintained at the same location. Other surface water resources in this area include an unnamed intermittent creek. The exact amount of any increases in stormwater pollutant runoff will be calculated during Tier 2 studies, when roadway footprints are identified.

Impacts to groundwater are possible when polluted surface water infiltrates into groundwater resources. Shallow alluvial aquifers are the most susceptible to pollutant infiltration. Deep aquifers are less susceptible. Impacts to groundwater resources will be assessed further during Tier 2 studies when a 250-foot project alignment is identified.

Geologic Resources

The expansion of the highway footprint has the potential to affect some geologic resources (i.e., soils and mining operations). The Preferred Alternative could affect Valco, Inc., a sand and gravel surface mining operation, by requiring the acquisition of property directly adjacent to US 50. No potential for paleontological resource impacts were identified. During Tier 2 studies, when roadway footprints are identified, detailed surveys will be conducted to determine soil-related issues.

1.7.3. Community and Built Environment

Historic Resources

Two resources that may be eligible for listing on the NRHP could be affected, including a building ruin (no OAHF site number available), the BNSF Railway (5PW152) and Main Leach Canal (no OAHF site number available). Impacts to linear resources may be avoided or minimized by bridging the resources; this will be determined during Tier 2 studies.

Land Use

The primary land use issue between Manzanola and Rocky Ford is property acquisition. US 50 is already four lanes in this area.

Property Acquisition

From Manzanola to Rocky Ford, property acquisition would occur immediately adjacent to the highway only if certain improvements are needed, such as wider shoulders, turn lanes, or other changes. Since land immediately adjacent to the highway is zoned for agricultural use, the Preferred Alternative would shift some agricultural land to a transportation use.

Parklands and Recreational Resources

The Preferred Alternative has the potential to affect the Pronghorn pedestrian (birding) trail in this section of the corridor. The trail would be crossed by the Preferred Alternative and could be affected by new access limitations onto or off of US 50.

Social and Economic Considerations

From Manzanola to Rocky Ford, the Preferred Alternative would maintain US 50 on or near its current location; therefore, no economic effects are expected. There is potential for change in access to properties within the Preferred Alternative's 1,000-foot-wide corridor that could result in social impacts; however, specific impacts cannot be determined until Tier 2 studies are conducted to define the actual 250-foot roadway alignment.

Aesthetic and Visual Resources

Since drivers would see the same types of views from the highway that they do today, the character of those views would not change, resulting in no effect to them. Views of the highway may change where existing sections would be expanded with wider medians and shoulders. These changes would alter the look of the highway by widening the area of pavement and width of the divided median within the view. This type of change would alter the character of the view for local residents in these areas.

Air Quality

Air quality effects from the Preferred Alternative would include air pollution emissions from combustion of fuel in vehicles, idling of vehicles, particulate matter from brake and tire wear, and fugitive dust resulting from construction activities. An assessment of the level of MSAT effects will be conducted during Tier 2 studies. The appropriate level of assessment will be determined per 2016 FHWA interim guidance. It is anticipated that air quality effects to MSATs in this location will be low level, requiring only a qualitative assessment.

Traffic Noise

The Preferred Alternative would maintain US 50 on or near its current location between towns and could affect 24 noise sensitive receptors, of which 22 are NAC B receptors (residential) and two are NAC C receptors (CPW birding trails). These noise sensitive receptors are already affected by traffic noise on US 50, and they will experience increased noise levels as traffic increases on US 50 in the future. This change is likely to be imperceptible to the human ear; however, the potential remains for future levels of traffic noise to result in noise impacts. A detailed analysis of noise impacts due to traffic will be conducted during Tier 2 studies.

1.7.4. Other

Hazardous Materials

From Manzanola to Rocky Ford, there are two hazardous materials sites—one tank and one tank spill—located within the standard half-mile search distance. These sites have the potential to be disturbed under the Preferred Alternative, so they will be evaluated further for designation as RECs during Tier 2 studies.

Energy

The Preferred Alternative would maintain US 50 on or near its current location and in its existing configuration; therefore, no changes in energy use due to construction or vehicle use are expected.

1.8. Section 7: Rocky Ford

The Preferred Alternative consists of constructing a four-lane expressway to the north of Rocky Ford (Alternative 1: Rocky Ford North). The rerouting of US 50 around town may increase resource impacts, as the facility will be constructed through areas where roadways do not currently exist. The sections below briefly discuss the effects from the Preferred Alternative on the rural and agricultural environment, natural environment, community and built environment, and other environmental resources.

1.8.1. Rural and Agricultural Environment

Approximately 223 acres of prime farmland would be impacted by the Preferred Alternative. No land impacted by this alternative is classified as having statewide importance by the NRCS (NRCS 2005). The Preferred Alternative would affect 236 acres of farmland and ranch lands, incurring an estimated \$765,000 loss in annual productive value. Lost productive value is made up of 99 percent vegetable production (170 acres) and less than one percent ranch lands (66 acres). This is the highest loss in productive value of all the sections by a substantial margin. In fact, it is \$432,000 higher than the next largest loss. The loss is expected to be high because of the large number of highly productive vegetable acres that would be affected.

The Preferred Alternative also could affect Sackett Farm Market and the parking lot of Knapp's Farm Market (both are permanent roadside produce markets). Impacted commercial areas to be acquired would be identified during the final decision and would be relocated according to the Uniform Act. Efforts will be made to avoid direct effects to these facilities during Tier 2 studies. Indirect effects related to vehicle access from US 50 also will be reviewed in more detail during Tier 2 studies after a final alignment for US 50 in this area has been identified. The Preferred Alternative in this area also would affect the Main Leach and Rocky Ford canals.

1.8.2. Natural Environment

Wetland and Riparian Resources

The Preferred Alternative in Rocky Ford would affect 10 acres of wetland/riparian resources, with 60 percent of the impacted acreage (approximately 6 acres) being either Category III or Category IV (low functionality resources) and 40 percent (4 acres) highly functional resources (Category I or Category II).

Wildlife and Wildlife Habitat

The Preferred Alternative would affect approximately 251 acres of wildlife habitat, of which 92 percent is agricultural land, 1 percent is shrublands, 4 percent is wetlands/riparian areas, and 3 percent is other habitat types. There are six special-status species that could be affected by the Preferred Alternative in Rocky Ford, which include the Greater Sandhill Crane (*Grus canadensis tabida*), Long-Billed Curlew (*Numenius americanus*), swift fox (*Vulpes velox*), common kingsnake (*Lampropeltis getula*), yellow mud turtle (*Kinosternon flavescens*), and plains leopard frog (*Rana blairi*). No priority wildlife crossings were identified. Six species of noxious weed could be encountered, including field bindweed (*Convolvulus arvensis*), Johnsongrass (*Sorghum halepense*), puncturevine (*Tribulus terrestris*), Russian knapweed (*Centaurea repens*), Russian olive (*Eleagnus angustifolia*), and salt cedar (*Tamarix ramosissima*).

Water Resources

The movement of the highway footprint to the north of Rocky Ford has the potential to affect water resources by increasing the amount of transportation-related pollutant runoff and by moving the roadway closer to resources. The Preferred Alternative would move the crossing of the Rocky Ford Canal to the north of town and would increase potential impact for two unnamed creeks north of town. Changes in stormwater pollutant runoff will be calculated during Tier 2 studies when roadway footprints are identified.

Impacts to groundwater are possible when polluted surface water infiltrates into groundwater resources. Shallow alluvial aquifers are the most susceptible to pollutant infiltration. Deep aquifers are less susceptible. Impacts to groundwater resources will be assessed further during Tier 2 studies when a 250-foot project alignment is identified.

Geologic Resources

The movement of the highway footprint has the potential to affect some geologic resources. These resources include sandy loam and silty clay soils in the area with no slope up to 5-percent slope. During Tier 2 studies, when roadway footprints are identified, detailed surveys will be conducted to determine soil-related issues. No potential for paleontological resource impacts were identified.

1.8.3. Community and Built Environment

Historic Resources

Up to three resources that may be eligible for listing on the NRHP could be affected: the BNSF Railway (5PW152), Main Leach Canal (no OAHP site number available), and Rocky Ford Canal (no OAHP site number available). Impacts to linear resources may be avoided or minimized by bridging the resources; this will be determined during Tier 2 studies.

Land Use

Future development areas in Rocky Ford could include a golf course or residential development south of the city and an industrial park north of the city. The Preferred Alternative would be compatible with this potential growth because it moves the highway closer to the potential industrial growth area and farther from the potential residential and recreational growth area.

Up to two conservation easements could be affected by this portion of the Preferred Alternative. The easements are both managed by the Otero County Land Trust and are located near SH 71 and County Road (CR) GG on the west side of Rocky Ford.

The Preferred Alternative would require acquisition of property in this area that is currently zoned for agricultural use. Therefore, it would change this existing land use to transportation. Since land immediately adjacent to the highway is zoned for agricultural use, the Preferred Alternative would change approximately 246 acres of this agricultural land to a transportation use as well.

Property Acquisition

The Preferred Alternative would reroute the portion of US 50 that currently goes through the city to a new route around the northern periphery of Rocky Ford. East of the city, the Preferred Alternative could require acquisition of property immediately adjacent to the highway only if certain improvements are needed, such as wider shoulders, turn lanes, or other changes (because US 50 is already four lanes in this area).

Parklands and Recreational Resources

The Preferred Alternative has the potential to affect the Pronghorn pedestrian (birding) trail in this section of the corridor. The trail would be crossed by the Preferred Alternative and could be affected by new access limitations onto or off of US 50.

Social and Economic Considerations

In Rocky Ford, the Preferred Alternative would reroute US 50 to the north of town just outside the currently developed area of the community. Moving traffic from US 50 to a new around-town route would remove long-distance and regional traffic from the US 50 through-town route, making the existing highway easier to cross, especially for pedestrians. Additionally, the Preferred Alternative is likely to affect local businesses in the following ways:

- Convert agricultural land to highway use resulting in productive land value and job loss
- Affect traveler-oriented businesses, such as lodging and restaurants, depending on their location relative to the new around-town route
- Benefit highway-dependent businesses, including farms and ranches, that rely on the highway to deliver their products to markets outside the Lower Arkansas Valley
- Allow communities to make their downtown areas more pedestrian-friendly
- Move US 50 farther from existing gateways into the communities, which may decrease local sales and sales tax revenue; this also potentially creates opportunities for these communities to develop new gateways near the new US 50 connections

There is potential for change in access to properties within the Preferred Alternative's 1,000-foot-wide corridor that could result in social impacts; however, specific impacts cannot be determined until Tier 2 studies are conducted to define the actual 250-foot roadway alignment.

Aesthetic and Visual Resources

The rerouting of US 50 from its current location through Rocky Ford to the periphery would change views seen by drivers as they travel in these areas. Today, drivers see views of urban development on both sides of the highway. If the Preferred Alternative is implemented, they would see urban development on one side (views toward town) and views similar to the between-town sections on the other (views away from town). However, this change would only mean exchanging in-town views for more of the same views drivers already see between towns.

Air Quality

Air quality effects from the Preferred Alternative would include air pollution emissions from combustion of fuel in vehicles, idling of vehicles, particulate matter from brake and tire wear, and fugitive dust resulting from construction activities. Rerouting US 50 to the north of town would move traffic and resulting emissions from populated areas in town to less populated areas outside of town. An assessment of the level of MSAT effects will be conducted during Tier 2 studies. The appropriate level of assessment will be determined per 2016 FHWA interim guidance. It is anticipated that air quality effects to MSATs in this location will be low level, requiring only a qualitative assessment.

Traffic Noise

The Preferred Alternative would provide an alternate route for US 50 through-traffic to the north of Rocky Ford. The Preferred Alternative would result in increased noise levels for 63 noise sensitive receptors. Of these, 59 are NAC B receptors (residential), three are NAC C receptors (two CPW birding trails and one church), and one is an NAC E receptor (business). Noise levels would increase for those noise sensitive receptors that are currently not located near existing US 50 or any other major roadway. The potential remains for future levels of traffic noise to result in noise impacts and a detailed analysis of noise impacts due to traffic will be conducted during Tier 2 studies.

1.8.4. Other

Hazardous Materials

In Rocky Ford, there are nine hazardous materials sites located within the standard half-mile search distance. These include one landfill, five storage tanks, one tank leak, and 2 tank spills. These sites have the potential to be disturbed under the Preferred Alternative, so they will be evaluated further for designation as RECs during Tier 2 studies.

Energy

Rerouting US 50 to the north of town under the Preferred Alternative would cause a 0.7-mile increase in the highway segment length and an increase in energy use equivalent to 602 gallons of gasoline per day. It could be assumed that increases in operational efficiencies would balance increases in energy consumption due to construction of a new alignment and increases in the highway segment length, resulting in a net energy use reduction in the long term.

1.9. Section 8: Rocky Ford to Swink

The Preferred Alternative from Rocky Ford to Swink is 1.3 miles in length, and consists of constructing a four-lane expressway on the existing US 50 between the communities. Currently, this section is already configured as a four-lane divided highway. The sections below briefly discuss the effects from the Preferred Alternative on the rural and agricultural environment, natural environment, community and built environment, and other environmental resources.

1.9.1. Rural and Agricultural Environment

Approximately 24 acres of prime farmland would be impacted by the Preferred Alternative through this section. No land impacted by the Preferred Alternative is classified as having statewide importance by the NRCS (NRCS 2005). The Preferred Alternative would affect 31 acres of farmland and ranch lands and experience an estimated \$112,000 loss in annual productive value. Lost productive value is made up of

close to 99 percent vegetable production (25 acres), one percent alfalfa/corn production (3 acres), and less than one percent ranch lands (3 acres). This would be considered a minor impact, as identified in the Economics Technical Memorandum, found in Appendix A of the US 50 Corridor East Tier 1 EIS. The Preferred Alternative in this area also has the potential to affect a feedlot, which is located west of Swink on the north side of US 50. Efforts will be made to avoid direct effects to this feedlot during Tier 2 studies.

1.9.2. Natural Environment

Wetland and Riparian Resources

The Preferred Alternative from Rocky Ford to Swink would affect three acres of wetland/riparian resources, with two acres being low functioning (Category III or Category IV), and one acre of highly functional resources (Category I or Category II) .

Wildlife and Wildlife Habitat

This section of the Preferred Alternative between Rocky Ford and Swink would affect nearly 38 acres of wildlife habitat. The majority (69 percent) of this habitat is agricultural, with the remainder consisting of 4 percent grassland, 3 percent shrubland, 8 percent wetland/riparian resources, and 16 percent other habitat types. This portion of the Preferred Alternative also could affect up to seven special-status species, including the Greater Sandhill Crane (*Crus canadensis tabida*), Long-Billed Curlew (*Numenius americanus*), swift fox (*Vulpes velox*), common king snake (*Lampropeltis getula*), yellow mud turtle (*Kinosternon flavescens*), plains leopard frog (*Rana blairi*), and the southern redbelly dace (*Phoxinus erythrogaster*). No wildlife crossings would be impacted in this section. Finally, five species of noxious weeds were identified within the current CDOT right of way for both alternatives, including field bindweed (*Convolvulus arvensis*), Johnsongrass (*Sorghum halepense*), puncturevine (*Tribulus terrestris*), Russian olive (*Elaeagnus angustifolia*), and salt cedar (*Tamarix ramosissima*).

Water Resources

The expansion of the highway footprint from Rocky Ford to Swink has the potential to affect water resources by increasing the amount of transportation-related pollutant runoff. Changes in stormwater pollutant runoff will be calculated during Tier 2 studies, when roadway footprints are identified. US 50 currently crosses the Timpas Creek in this section and the highway crossing would be maintained at the same location.

Impacts to groundwater are possible when polluted surface water infiltrates into groundwater resources. Shallow alluvial aquifers are the most susceptible to pollutant infiltration. Deep aquifers are less susceptible. Impacts to groundwater resources will be assessed further during Tier 2 studies when a 250-foot project alignment is identified.

Geologic Resources

The expansion of the highway footprint has the potential to affect some geologic resources (i.e., soils and mining operations). During Tier 2 studies, when roadway footprints are identified, detailed surveys will be conducted to determine soil-related issues. The Preferred Alternative could affect the Murillo gravel pit, a surface mining operation, by requiring the acquisition of property directly adjacent to US 50.

1.9.3. Community and Built Environment

Historic Resources

Two resources that may be eligible for listing on the NRHP could be affected, including the US 50 bridge over Timpas Creek (no OAHF site number available) and the BNSF Railway (5PW152). Impacts to linear resources may be avoided or minimized by bridging the resource; however, this will be determined during Tier 2 studies.

Land Use

The primary land use issue between Rocky Ford and Swink is property acquisition. This portion of US 50 is already four lanes. This land is currently zoned for agricultural use. Therefore, the Preferred Alternative would change this agricultural use to a transportation one.

Property Acquisition

Property acquisition would occur immediately adjacent to the highway (either north or south) only if certain improvements are needed, such as wider shoulders, turn lanes, or other changes.

Social and Economic Considerations

From Rocky Ford to Swink, the Preferred Alternative would maintain US 50 on or near its current location, so no economic effects are expected. There is potential for change in access to properties within the Preferred Alternative's 1,000-foot-wide corridor, which could result in social impacts. However, specific impacts cannot be determined until Tier 2 studies are conducted to define the actual 250-foot roadway alignment.

Aesthetic and Visual Resources

Since drivers would see the same types of views from the highway that they do today, the character of those views would not change, resulting in no effect to them. Views of the highway may change where existing sections would be expanded. Other elements also may be added to the highway in certain locations to improve safety or mobility for drivers, including turn lanes, medians, and wider shoulders. These changes would alter the look of the highway by widening the area of pavement within the view. This type of change would alter the character of the view for local residents in these areas.

Air Quality

Air quality effects from the Preferred Alternative would include air pollution emissions from combustion of fuel in vehicles, idling of vehicles, particulate matter from brake and tire wear, and fugitive dust resulting from construction activities. An assessment of the level of MSATs effects will be conducted during Tier 2 studies and appropriate level of assessment will be determined per 2016 FHWA interim guidance. It is anticipated that air quality effects to MSATs in this location will be low level, requiring only a qualitative assessment.

Traffic Noise

The Preferred Alternative would maintain US 50 on or near its current location between towns. In these locations, eight residential noise sensitive receptors already are affected by traffic noise on US 50, and they will experience increased noise levels as traffic increases on US 50 in the future. This change is likely to be imperceptible to the human ear; however, a detailed analysis of noise impacts due to traffic will be conducted during Tier 2 studies.

1.9.4. Other

Hazardous Materials

From Rocky Ford to Swink, there are no hazardous materials sites located within the standard half-mile search distance.

Energy

The Preferred Alternative would maintain US 50 on or near its current location and in its existing configuration, so no changes in energy use due to construction or vehicle use are expected.

1.10. Section 9: Swink

The Preferred Alternative consists of constructing a four-lane expressway around Swink, where both Alternative 1: Swink North and Alternative 2: Swink South remain under consideration. Rerouting US 50 around town may increase resource impacts, as the facility will be constructed through areas where roadways do not currently exist. The sections below briefly discuss the effects from the Preferred Alternative

on the rural and agricultural environment, natural environment, community and built environment, and other environmental resources.

1.10.1. Rural and Agricultural Environment

Approximately 39 acres of prime farmland would be impacted by Alternative 1: Swink North. No land impacted by this alternative is classified as having statewide importance by the NRCS (NRCS 2005). This alternative would affect 61 acres of farmland and ranch lands, with an estimated \$107,000 loss in annual productive value. Lost productive value is made up of 95 percent vegetable production (23 acres), 5 percent alfalfa/corn production (12 acres), and less than one percent ranch lands (26 acres). This would be considered a minor impact, as identified in the Economics Technical Memorandum. This alternative also would affect (directly or indirectly) a permanent roadside produce market—Mary’s Farm Market (Hanagan Farms). Efforts will be made to avoid direct effects to this market during Tier 2 studies. Impacted businesses would be relocated following provisions of the Uniform Act. In addition, vehicle access to the market from US 50 was considered an indirect effect and also will be reviewed in more detail during Tier 2 studies after a final alignment for US 50 has been identified.

Approximately 71 acres of prime farmland would be impacted by Alternative 2: Swink South. This is almost twice the area of prime farmland estimated to be impacted by Alternative 1: Swink North. No land impacted by this alternative is classified as having statewide importance by the NRCS (NRCS 2005). The Swink South Alternative would affect 76 acres of farmland and ranch lands and incur an estimated \$333,000 loss in annual productive value. Lost productive value is made up of more than 99 percent vegetable production (74 acres) and less than 1 percent ranch lands (two acres). The agricultural land south of Swink has been identified as some of the highest quality farmland in the state of Colorado and is rivaled in quality by only a few small pockets of land in the Midwestern United States (Tranel 2008a). While it is difficult to put a numerical value on this characteristic, this unique quality suggests that these resources be given a higher level of protection than other farmland or ranch lands. The Preferred Alternative in this area also would affect (directly or indirectly) a permanent roadside produce market—Lusk Farms (Grasmick’s Produce). Efforts will be made to avoid direct effects to this market during Tier 2 studies. Vehicle access to it from US 50 was considered an indirect effect, so this also will be reviewed in more detail during Tier 2 studies after a final alignment for US 50 has been identified.

Alternative 1: Swink North would affect fewer agricultural resources than Alternative 2: Swink South by affecting 15 fewer total acres of farmland and ranch lands and 51 fewer acres of vegetable production, which is considered to have relatively high productive value.

1.10.2. Natural Environment

Wetland and Riparian Resources

Alternative 1: Swink North would affect 7 acres of wetland/riparian resources, with 33 percent being low functioning (Category III and Category IV) and 67 percent being high functioning (Category I and Category II). In contrast, Alternative 2: Swink South would affect only one acre of wetland/riparian resources, all of which is Category III.

Wildlife and Wildlife Habitat

Alternative 1: Swink North could affect about 73 acres of wildlife habitat, which is composed of 80 percent agricultural land, 9 percent wetlands/riparian areas, and 12 percent other habitat types. Alternative 2: Swink South could affect approximately 76 acres of wildlife habitat. This habitat is comprised of 98 percent agricultural land and 2 percent wetlands/riparian areas.

Neither alternative at this location would affect any wildlife crossings, but both alternatives have the potential to impact the same six special-status species, which include the Greater Sandhill Crane (*Grus canadensis tabida*), Long-Billed Curlew (*Numerius americanus*), swift fox (*Vulpes velox*), common king snake (*Lampropeltis getula*), yellow mud turtle (*Kinosternon flavescens*), and plains leopard frog (*Rana blairi*). In addition, six species of noxious weeds were identified within the current CDOT right of way for both alternatives, so these have the potential to occur. These species include field bindweed (*Convolvulus*

arvensis), Johnsongrass (*Sorghum halepense*), puncturevine (*Tribulus terrestris*), Russian olive (*Eleagnus angustifolia*), salt cedar (*Tamarix ramosissima*), and scotch thistle (*Onopordum tauricum*).

Water Resources

The movement of the highway footprint around Swink has the potential to affect water resources. The exact amount of any increases in stormwater pollutant runoff will be calculated during Tier 2 studies when roadway footprints are identified. US 50 currently crosses Timpas Creek just west of Swink. Both alternatives have the potential to shift this crossing to another location depending on where the roadway footprint is located during Tier 2 studies. Both alternatives cross into the Timpas Creek floodplain and Alternative 1: Swink North also would cross into the Arkansas River floodplain.

Geologic Resources

The movement of the highway footprint has the potential to affect some geologic resources, including silty clay and clay loam soils with a 0 percent to 5 percent slope. During Tier 2 studies, when roadway footprints are identified, detailed surveys will be conducted to determine soil-related issues. No potential for paleontological resource impacts were identified.

1.10.3. Community and Built Environment

Historic Resources

Both alternatives at Swink would affect the BNSF Railway (5PW152). Impacts to the railway could be avoided or minimized by bridging the railway; however, this will not be determined until Tier 2 studies. Additionally, Alternative 1: Swink North could affect a residence and a business, while Alternative 2: Swink South could affect a residence only. None of these resources are known to be eligible for the NRHP; however, they may be historic.

Land Use

Recent growth in Swink has occurred west of town, and future development (type of development is unspecified) is predicted south and northeast of town. Swink residents also indicated that they would like to build a park in the southern development area. Whether the alternatives are consistent with this growth would depend on what type of development (residential, industrial, etc.) is expected to occur there in the future. Therefore, it is not clear whether either alternative would be compatible with Swink's future development areas. Table 1-2 identifies the estimated acres of existing land use to be converted to a transportation use in Section 9 of the project corridor.

Table 1-2. Comparison of Acres to be Converted to a Transportation Use in Section 9

Alternative	Land Use	Acres Converted to Transportation*	Total Acres Converted by Alternative
Alternative 1: Swink North	Residential	0.8	62
	Agriculture/Rural	60.9	
Alternative 2: Swink South	Residential	0.6	77
	Agriculture/Rural	76.2	

*Acreage estimates are based on a 1,000-foot-wide corridor multiplied by a conversion factor of 0.25 for new location portions. These conservative acreage estimates are anticipated to be reduced during Tier 2 studies.

Alternative 1: Swink North would affect a conservation easement that is managed by the Otero County Land Trust. Land that would be acquired in these areas is currently zoned for agricultural use. Therefore, the

Preferred Alternative would shift some land use from agricultural to transportation, no matter which alternative is identified in Swink.

Property Acquisition

The Preferred Alternative, regardless of which alternative is identified, would require acquisition of additional property for the new around-town route.

Social and Economic Considerations

In Swink, the Preferred Alternative would reroute US 50 to the north or south of town just outside the currently developed area of the community. Moving traffic from US 50 to a new around-town route would remove long-distance and regional traffic from the US 50 through-town route, making the existing highway easier to cross, especially for pedestrians. Additionally, the Preferred Alternative is likely to affect local businesses in the following ways:

- Convert some residential and agricultural land to highway use
- Affect traveler-oriented businesses, such as lodging and restaurants, depending on their location relative to the new around-town route
- Benefit highway-dependent businesses, including farms and ranches, that rely on the highway to deliver their products to markets outside the Lower Arkansas Valley
- Affect some permanent roadside produce markets by acquiring the properties, limiting access to them from US 50, or reducing pass-by traffic
- Allow communities to make their downtown areas more pedestrian-friendly
- Move US 50 farther from existing gateways into the communities, which may decrease local sales and sales tax revenue; this also creates opportunities for these communities to develop new gateways near the new US 50 connections

The land converted by the Preferred Alternative would have a productive value of approximately \$108,000 per year for Alternative 1: Swink North and triple that amount (\$333,000 per year) for Alternative 2: Swink South. Therefore, Alternative 1: Swink North would have less effect on the agricultural economy. The productive value of land in Alternative 2: Swink South is higher because it would convert acres of vegetable production.

There is potential for changes in access to properties within the Preferred Alternative's 1,000-foot-wide corridor that could result in social impacts. However, specific impacts cannot be determined until Tier 2 studies are conducted to define the actual 250-foot roadway alignment.

Aesthetic and Visual Resources

The rerouting of US 50 from its current location through Swink to the periphery would change views seen by drivers as they travel in these areas. Today, drivers see views of urban development on both sides of the highway. With Alternative 1: Swink North, driver views would change from views of town to views of farmland. Drivers on the Alternative 2: Swink South alignment would see views of riparian habitat and farmland.

Air Quality

Air quality effects from the Preferred Alternative would include air pollution emissions from combustion of fuel in vehicles, idling of vehicles, particulate matter from brake and tire wear, and fugitive dust resulting from construction activities. Rerouting US 50 to the north or south of town would move traffic and resulting emissions from populated areas in town to less populated areas outside of town.

Alternative 2: Swink South would reroute US 50 traffic much closer to the public school complex, which includes an elementary school and a junior-senior high school. Schools generally are considered sensitive sites in air quality analyses because of the presence of large numbers of children, who may be more susceptible to the impacts of pollution on human health. Due to the low traffic volumes on US 50, this change is not expected to increase pollutant levels enough to exceed U.S. Environmental Protection Agency (EPA) standards on the school grounds. However, it has the potential to increase pollutant levels (caused by

vehicle emissions) from the levels experienced today. Alternative 1: Swink North would reroute US 50 traffic farther away from the school complex than it is today, potentially reducing pollutant levels at the site.

An assessment of the level of MSATs effects will be conducted during Tier 2 studies. The appropriate level of assessment will be determined per 2016 FHWA interim guidance. It is anticipated that air quality effects to MSATs in this location will be low level, requiring only a qualitative assessment.

Traffic Noise

Alternative 1: Swink North would result in increased noise levels for 36 noise sensitive receptors, of which 34 are NAC B receptors (residential), one is an NAC C receptor (church), and one is an NAC E receptor (business). Alternative 2: Swink South would result in an increase in noise levels for 16 noise sensitive receptors, of which 10 are NAC B receptors (residential) and five are NAC C receptors (Swink High School). In most cases, the noise sensitive receptors are currently located far from US 50 and many are also far from other busy roadways, so traffic noise would be noticeable for these noise sensitive receptors. However, those noise sensitive receptors not currently located near existing US 50 or other major roadways will most likely see noticeable impacts to noise levels from traffic.

1.10.4. Other

Hazardous Materials

Within the standard half-mile search distance, nine hazardous materials sites (six tanks and three tank leaks) could potentially be impacted by Alternative 1: Swink North. In contrast, seven hazardous materials sites (five tanks and two tank leaks) could potentially be impacted by Alternative 2: Swink South. All of these sites have the potential to be disturbed, so they will be evaluated further for designation as RECs during Tier 2 studies.

Energy

Both alternatives in Swink are less than a mile longer than the existing US 50 route through town and would result in slightly increased energy consumption due to increases in highway segment lengths and energy use during construction. Alternative 1: Swink North would cause an increase of about 123 gallons of gasoline per day. Alternative 2: Swink South, which is slightly longer than the North Alternative, would result in an increase of approximately 230 gallons of gasoline. It could be assumed that increases in operational efficiencies would balance increases in energy consumption due to construction of a new alignment and increases in the highway segment length, resulting in a net energy use reduction in the long term.

1.11. Section 10: La Junta

The Preferred Alternative consists of constructing a four-lane expressway around La Junta, where two south-of-town alternatives remain under consideration (Alternative 2: La Junta South and Alternative 3: La Junta South). Alternative 3: La Junta South is located farther from the city and is longer than Alternative 2: La Junta South. Rerouting US 50 around town may increase resource impacts, since the facility will be constructed through areas where roadways do not currently exist. The sections below briefly discuss the effects from the Preferred Alternative on the rural and agricultural environment, natural environment, community and built environment, and other environmental resources.

1.11.1. Rural and Agricultural Environment

Approximately 91 acres of prime farmland would be impacted by Alternative 2: La Junta South. No land impacted by this alternative is classified as having statewide importance by the NRCS (NRCS 2005). Alternative 2: La Junta South would affect 253 acres of farmland and ranch lands, sustaining an estimated \$178,000 loss in annual productive value. Lost productive value is made up of 99 percent vegetable production (39 acres) and less than 1 percent of both alfalfa/corn production (3 acres) and ranch lands (211 acres). This would be considered a minor impact, as identified in the Economics Technical Memorandum. This alternative also would affect the Otero Canal, which is not currently impacted by the existing highway alignment.

Approximately 89 acres of prime farmland would be impacted by Alternative 3: La Junta South. No land impacted by this alternative is classified as having statewide importance by the NRCS (NRCS 2005). Alternative 3: La Junta South would affect 295 acres of farmland and ranch lands and experience an estimated \$216,000 loss in annual productive value. Lost productive value is made up of 99 percent vegetable production (48 acres) and less than one percent of both alfalfa/corn production (one acre) and ranch lands (246 acres). This alternative also would affect the Otero Canal, which is not currently impacted by the existing highway alignment.

Overall, Alternative 2: La Junta South would affect fewer agricultural resources than Alternative 3: La Junta South by affecting 41 fewer total acres of farmland and ranch lands and nine fewer acres of vegetable production, resulting in a smaller loss in productive value by \$40,000 per year.

1.11.2. Natural Environment

Wetland and Riparian Resources

Alternative 2: La Junta South would affect 15 acres of wetland/riparian resources, with 13 acres (87 percent) being Category III and IV (low functioning) and the remaining two acres (13 percent) being Category I and Category II (higher functioning). In contrast, Alternative 3: La Junta South would affect 19 acres, with nine acres (47 percent) being Category III and IV (low functioning) and 10 acres (53 percent) being Category I and II (higher functioning).

Wildlife and Wildlife Habitat

Alternative 2: La Junta South would affect nearly 257 acres of wildlife habitat composed of 49 percent agricultural land, 30 percent grassland, 9 percent shrubland, 6 percent wetlands/riparian areas, and 6 percent other habitat types. Alternative 3: La Junta South would affect nearly 297 acres of wildlife habitat that is composed of 44 percent agricultural land, 44 percent grassland, 6 percent shrubland, and 1 percent wetlands/riparian areas.

Neither alternative would affect any wildlife crossings, but both have the potential to impact the same 15 special-status species, including the Greater Sandhill Crane (*Grus canadensis tabida*), Long-Billed Curlew (*Numenius americanus*), black-tailed prairie dog (*Lepus californicus*), Burrowing Owl (*Athene cunicularia*), Ferruginous Hawk (*Buteo regalis*), Mountain Plover (*Charadrius montanus*), swift fox (*Vulpes velox*), Townsend's big-eared bat (*Plecotus townsendii*), common king snake (*Lampropeltis getula*), massasauga snake (*Sistrurus catenatus*), Texas horned lizard (*Phrynosoma cornutum*), triploid checkered whiptail (*Cnemidophorus neotesselatus*), yellow mud turtle (*Kinosternon flavescens*), Couch's spadefoot toad (*Scaphiopus cauchii*), and plains leopard frog (*Rana blairi*). Both Alternative 2: La Junta South and Alternative 3: La Junta South include five species of noxious weeds within the current CDOT right of way, including field bindweed (*Convolvulus arvensis*), Johnsongrass (*Sorghum halepense*), puncturevine (*Tribulus terrestris*), salt cedar (*Tamarix ramosissima*), and scotch thistle (*Onopordum tauricum*).

Water Resources

The movement of the highway footprint around La Junta has the potential to affect water resources. The exact amount of any increases in stormwater pollutant runoff will be calculated during Tier 2 studies when roadway footprints are identified. Both La Junta alternatives would require new crossings of surface water resources by US 50. Alternative 2: La Junta South would require six new crossings of the Otero Canal, which winds through the land south of the city. Alternative 3: La Junta South would only require three new crossings of that canal. Both alternatives cross into the floodplain associated with the Crooked Arroyo.

Geologic Resources

The movement of the highway footprint has the potential to affect some geologic resources, including silty clay and loam soil types, and paleontological resources. Both alternatives of the Preferred Alternative involve slopes of 0 to 25 percent. During Tier 2 studies, when roadway footprints are identified, detailed surveys will be conducted to determine soil-related issues.

1.11.3. Community and Built Environment

Historic Resources

Both alternatives at La Junta would cross the approximate location of the Santa Fe National Historic Trail (5BN.391), the BNSF Railway (5PW152), and Otero Canal (no OAHF site number available). Alternative 3: La Junta South also could affect an irrigation ditch tunnel. The Santa Fe Trail is known to be historic, and the remainder of the resources may be eligible for listing on the NRHP. The Santa Fe Trail has been designated as a National Historic Trail by the National Park Service (NPS). In La Junta, the approximate location of the trail runs diagonally from northeast to southwest through the city (paralleling SH 350). US 50 crosses the trail currently and any alternative around the city also would cross it. Impacts to linear resources may be avoided or minimized by bridging the resources; this will be determined during Tier 2 studies.

Land Use

The La Junta City Council adopted a resolution endorsing the relocation of US 50 to the extreme southern portion of the city (City of La Junta 2007). Both alternatives within the Preferred Alternative in La Junta would relocate US 50 to the southern portion of the city, but not as far south as is called for in the resolution (i.e., the city-planned route). Even though the exact locations of these routes would differ, all would alter land use in the same way. Both would move US 50 traffic to a new route south of town, removing it from the downtown area, and both would provide the city with a sizable area for future development to the south.

Additionally, future development areas located southwest and west of the city are likely to be residential in nature. Plans for growth to the south are not specific. Since the Preferred Alternative would move US 50 closer to these areas, regardless of which alternative is identified, it would seem to be incompatible with this growth. However, the City's own resolution calls for the highway to be relocated closer to these growth areas.

Land in the areas of both alternatives is mostly zoned for agricultural use. The only difference between the alternatives is that Alternative 3: La Junta South would require the acquisition of more land, thereby changing more agricultural land into a transportation use. Table 1-3 identifies the estimated acres of existing land use to be converted to a transportation use in Section 10 of the project corridor.

Table 1-3. Comparison of Acres to be Converted to a Transportation Use in Section 10

Alternative	Land Use	Acres Converted to Transportation*	Total Acres Converted by Alternative
Alternative 2: La Junta South	Residential	2.3	256
	Agriculture/Rural	253.3	
Alternative 3: La Junta South	Residential	0.7	295
	Agriculture/Rural	293.9	

**Acreage estimates are based on a 1,000-foot-wide corridor multiplied by a conversion factor of 0.25 for new location portions. These conservative acreage estimates are anticipated to be reduced during Tier 2 studies.*

Property Acquisition

Both alternatives would require acquisition of additional property for the new southern route. The only difference between the alternatives is that Alternative 3: La Junta South would require the acquisition of more land.

Parklands and Recreational Resources

Both alternatives would affect the Prairie Canyons and the Plover pedestrian (birding) trails by crossing the trail south of town. If this resource is affected, a Section 4(f) analysis would be required. Additional discussion on Section 4(f) is included in Chapter 5, Section 4(f) Evaluation, in the EIS.

Social and Economic Considerations

In La Junta, both alternatives would reroute US 50 to the south of town just outside the currently developed area of the community. Moving traffic from US 50 to a new around-town route would remove long-distance and regional traffic from the US 50 through-town route, making the existing highway easier to cross, especially for pedestrians. Additionally, the Preferred Alternative is likely to affect local businesses in the following ways:

- Convert some residential and agricultural land to highway use
- Affect traveler-oriented businesses, such as lodging and restaurants, depending on their location relative to the new around-town route
- Benefit highway-dependent businesses, including farms and ranches, that rely on the highway to deliver their products to markets outside the Lower Arkansas Valley
- Allow communities to make their downtown areas more pedestrian-friendly
- Move US 50 farther from existing gateways into the communities, which may decrease local sales and sales tax revenue; this also could create opportunities for these communities to develop new gateways near the new US 50 connections

Alternative 2: La Junta South would convert agricultural land with approximately \$178,000 in annual productive value and Alternative 3: La Junta South would convert land with approximately \$218,000 in annual productive value. Both alternatives would convert agricultural land primarily used for ranching and grazing activities (Tranel 2008a, Tranel 2008b).

There is potential for change in access to properties within the Preferred Alternative's 1,000-foot-wide corridor, which could result in social impacts. Specific impacts cannot be determined until Tier 2 studies are conducted to define the actual 250-foot roadway alignment.

Aesthetic and Visual Resources

The rerouting of US 50 from its current location through La Junta to the periphery would change views seen by drivers as they travel in these areas. Today, drivers see views of urban development on both sides of the highway. If the Preferred Alternative is implemented, they would generally see urban development on one side (views toward town) and views similar to the between-town sections on the other (views away from town). However, this change would only mean exchanging in-town views for more of the same views drivers already see between towns.

Air Quality

Air quality effects from the Preferred Alternative would include air pollution emissions from combustion of fuel in vehicles, idling of vehicles, particulate matter from brake and tire wear, and fugitive dust resulting from construction activities. Rerouting US 50 to the south of town would move traffic and resulting emissions from populated areas in town to less populated areas outside of town. An assessment of the level of MSATs effects will be conducted during Tier 2 studies. The appropriate level of assessment will be determined per 2016 FHWA interim guidance. It is anticipated that air quality effects to MSATs in this location will be low level, requiring only a qualitative assessment.

Traffic Noise

Alternative 2: La Junta South would impact 48 noise sensitive receptors, of which 43 are NAC B receptors (residential) and five are NAC C receptors (CDOW birding trail locations). In contrast, Alternative 3: La Junta South would impact 34 noise sensitive receptors, with 31 being NAC B receptors (residential) and the remaining three being NAC C receptors (CDOW birding trail locations). In most cases, the receptors are currently located far from US 50 and many are also far from other busy roadways. Traffic noise would be noticeable for these receptors; however, these traffic noise levels would not be substantially different than

noise levels that are experienced today along US 50 between communities. The potential remains for future levels of traffic noise to result in noise impacts. A detailed analysis of noise impacts due to traffic will be conducted during Tier 2 studies.

1.11.4. Other

Hazardous Materials

Alternative 2: La Junta South would impact six hazardous material sites (three tanks and three tank leaks), while Alternative 3: La Junta South would impact five hazardous material sites (three tanks and two tank leaks). These sites have the potential to be disturbed under the Preferred Alternative and will be evaluated further for designation as RECs during Tier 2 studies.

Energy

The alternatives considered at this location are located south of the city and are longer than the existing US 50 route through town. Thus, both would increase energy consumption by vehicles traveling on the roadway and have a negative environmental effect. Of all the sections of the Preferred Alternative, these two alternatives result in the highest increase in energy consumption because they are the longest around-town alternatives. Alternative 2: La Junta South is two miles longer than the existing route, which translates into an increase of about 2,206 gallons of gasoline per day. Alternative 3: La Junta South is 3.5 miles longer than the existing route, which equates to an extra 3,601 gallons of gasoline per day. It could be assumed that some increases in operational efficiencies gained with either alternative would balance increases in energy consumption due to construction of new alignments and increases to highway segment lengths, resulting in net energy use reductions in the long term.

1.12. Section 11: La Junta to Las Animas

The Preferred Alternative from La Junta to Las Animas is 14 miles in length and consists of constructing a four-lane expressway (i.e., highway) on existing US 50 between the communities. Currently, this section has 3.3 miles of roadway already configured as a four-lane divided highway. The remaining 10.7 miles are two-lane sections that may increase resource impacts as the facility is converted to the four-lane expressway. The sections below briefly discuss the effects from the Preferred Alternative on the rural and agricultural environment, natural environment, community and built environment, and other environmental resources.

1.12.1. Rural and Agricultural Environment

The Preferred Alternative would impact 230 acres of prime farmland between La Junta and Las Animas. The Preferred Alternative would affect 327 acres of farmland and ranch lands and incur an estimated \$20,000 loss in annual productive value. Lost productive value is made up of 90 percent alfalfa/corn production (46 acres) and 10 percent ranch land production (281 acres). This would be considered a minor impact, as identified in the Economics Technical Memorandum. It also would affect the Consolidated and Jones ditches.

1.12.2. Natural Environment

Wetland and Riparian Resources

The Preferred Alternative from La Junta to Las Animas would affect 20 acres of wetland/riparian resources, with approximately 16 acres of the impacted acreage (80 percent) being either Category III or Category IV (low functionality resources) and the remaining four acres (20 percent) being higher functioning resources (Category II).

Wildlife and Wildlife Habitat

Approximately 431 acres of wildlife habitat would be affected. These areas are composed of 43 percent agricultural land, 48 percent grassland, 5 percent shrubland, and 4 percent wetlands or riparian areas. Fifteen special-status species could be affected between La Junta and Las Animas, including the Greater Sandhill Crane (*Grus canadensis tabida*), Long-Billed Curlew (*Numenius americanus*), black-tailed prairie

dog (*Cynomys ludovicianus*), Burrowing Owl (*Athene cunicularia*), Ferruginous Hawk (*Buteo regalis*), Mountain Plover (*Charadrius montanus*), swift fox (*Vulpes velox*), Townsend's big-eared bat (*Plecotus townsendii*), common king snake (*Lampropeltis getula*), massasauga snake (*Sistrurus catenatus*), Texas horned lizard (*Phrynosoma cornutum*), triploid checkered whiptail (*Cnemidophorus neotesselatus*), yellow mud turtle (*Kinosternon flavescens*), Couch's spadefoot toad (*Scaphiopus couchii*), and plains leopard frog (*Rana blairi*). No priority wildlife crossings were identified. Seven species of noxious weeds were found to be present, including field bindweed (*Convolvulus arvensis*), Johnsongrass (*Sorghum halepense*), puncturevine (*Tribulus terrestris*), Russian knapweed (*Centaurea repens*), Russian olive (*Eleagnus angustifolia*), salt cedar (*Tamarix ramosissima*), and scotch thistle (*Onopordum tauricum*).

Water Resources

The expansion of the highway footprint from La Junta to Las Animas has the potential to affect water resources. The exact amount of any increases in stormwater pollutant runoff with a wider footprint will be calculated during Tier 2 studies, when roadway footprints are identified. US 50 currently crosses the Arkansas River in this section, and the crossing would be maintained at the same location.

Geologic Resources

The movement of the highway footprint has the potential to affect some geologic resources, including clay loam soil types and slopes up to 25 percent, and paleontological resources. During Tier 2 studies, when roadway footprints are identified, detailed surveys will be conducted to determine soil-related issues.

1.12.3. Community and Built Environment

Historic Resources

Up to five resources that may be eligible for listing on the NRHP could be affected, including two US 50 bridges over Thompson Arroyo (one for eastbound traffic and one for westbound traffic, no OAHF site number available), the BNSF Railway (5PW152), the Consolidated Ditch (no OAHF site number available), and the Jones Ditch (no OAHF site number available). Impacts to linear resources may be avoided or minimized by bridging the resources; this will be determined during Tier 2 studies.

Property Acquisition

Additional property adjacent to the highway (either north or south of the existing lanes) would be needed to build the additional two lanes between La Junta and Las Animas. Property could be needed to build frontage roads if existing accesses to US 50 are eliminated in any locations along this portion of the highway.

Land Use

Between La Junta and Las Animas, the Preferred Alternative would affect one public property, which is managed by the Colorado State Land Board, located between milepost 391 and milepost 392 immediately adjacent to US 50 on the south side of the highway. Additional property adjacent to the highway (either north or south of the existing lanes), therefore, would be needed to build the additional two lanes. Up to 431 acres of agriculture/rural land would be converted to a transportation use in this section.

Parklands and Recreational Resources

From La Junta to Las Animas, the Preferred Alternative would affect the Prairie Canyons Trail (birding) and the Plover pedestrian (birding) trail by crossing the trail. If this resource is affected, a Section 4(f) analysis would be required. Additional discussion on Section 4(f) is included in Chapter 5, Section 4(f) Evaluation, in the EIS.

Social and Economic Considerations

From La Junta to Las Animas, the Preferred Alternative would maintain US 50 on or near its current location; therefore, no economic effects are expected. There is potential for change in access to properties within the Preferred Alternative's 1,000-foot-wide corridor, which could result in social impacts; however, specific impacts cannot be determined until Tier 2 studies are conducted to define the actual 250-foot roadway alignment.

Aesthetic and Visual Resources

Since drivers would see the same types of views from the highway that they do today, the character of those views would not change, resulting in no effect to them. Views of the highway may change where existing two-lane sections would be expanded to four lanes. Other elements also may be added to the highway in certain locations to improve safety or mobility for drivers, including turn lanes, medians, and wider shoulders. These changes would alter the look of the highway by widening the area of pavement and width of the divided median within the view.

Air Quality

Air quality effects from the Preferred Alternative would include air pollution emissions from combustion of fuel in vehicles, idling of vehicles, particulate matter from brake and tire wear, and fugitive dust resulting from construction activities. An assessment of the level of MSATs effects will be conducted during Tier 2 studies. The appropriate level of assessment will be determined per 2016 FHWA interim guidance. It is anticipated that air quality effects to MSATs in this location will be low level, requiring only a qualitative assessment.

Traffic Noise

The Preferred Alternative would maintain US 50 on or near its current location between towns. Along this section, 23 noise sensitive receptors were identified, which includes 15 NAC B receptors (residential) and eight NAC C receptors (one historic site, five CPW birding trail locations, and two rest stop areas). These noise sensitive receptors are already affected by traffic noise on US 50 and they will experience increased noise levels as traffic increases on US 50 in the future. This change is likely to be imperceptible to the human ear; however, the potential remains for future levels of traffic noise to result in noise impacts. A detailed analysis of noise impacts due to traffic will be conducted during Tier 2 studies.

1.12.4. Other

Hazardous Materials

From La Junta to Las Animas, there is one hazardous materials site (storage tank) located within the standard half-mile search distance. This site has the potential to be disturbed under the Preferred Alternative and will be evaluated further for designation as RECs during Tier 2 studies.

Energy

The Preferred Alternative would maintain US 50 on or near its current location and in its existing configuration; therefore, no changes in energy use due to construction or vehicle use are expected.

1.13. Section 12: Las Animas

The Preferred Alternative consists of constructing a four-lane expressway to the north of Las Animas (Alternative 1: Las Animas North). Rerouting US 50 around town may increase resource impacts, since the facility will be constructed through areas where roadways do not currently exist. The sections below briefly discuss the effects from the Preferred Alternative on the rural and agricultural environment, natural environment, community and built environment, and other environmental resources.

1.13.1. Rural and Agricultural Environment

The Preferred Alternative would impact approximately 70 acres of prime farmland. No land impacted by the alternative is classified as having statewide importance by the NRCS (NRCS 2005). The Preferred Alternative would affect 101 acres of farmland and ranch lands, incurring an estimated \$14,000 loss in annual productive value. Lost productive value is made up of 97 percent alfalfa/corn production (33 acres), and 3 percent ranch lands (68 acres). This would be considered a minor impact, as identified in the Economics Technical Memorandum. It also would affect the Consolidated and Las Animas Town ditches. Under the Preferred Alternative, efforts would be made to avoid fragmentation of farmland, which would create uneconomical remainders of farm fields.

1.13.2. Natural Environment

Wetland and Riparian Resources

The Preferred Alternative in Las Animas would affect 40 acres of wetland/riparian resources, with 30 acres (75 percent) being either Category III or Category IV (low functionality resources) and 10 acres (25 percent) being highly functional resources (Category I or Category II).

Wildlife and Wildlife Habitat

Approximately 105 acres of wildlife habitat could be affected, of which 56 percent is agricultural land, 2 percent is shrubland, 38 percent is wetlands/riparian areas, and 4 percent is other habitat types. In addition, four species of noxious weeds were identified within the current CDOT right of way for this alternative, so these will have the potential to occur. These four species include field bindweed (*Convolvulus arvensis*), Johnsongrass (*Sorghum halepense*), Russian olive (*Elaeagnus angustifolia*), and salt cedar (*Tamarix ramosissima*). Thirteen special-status species could be present, including the Bald Eagle (*Haliaeetus leucocephalus*), Greater Sandhill Crane (*Grus canadensis tabida*), Long-Billed Curlew (*Numenius americanus*), Western Snowy Plover (*Charadrius alexandrinus*), swift fox (*Vulpes velox*), Townsend's big-eared bat (*Plecotus townsendii*), common king snake (*Lampropeltis getula*), Texas horned lizard (*Phrynosoma cornutum*), yellow mud turtle (*Kinosternon flavescens*), Couch's spadefoot toad (*Scaphiopus couchii*), plains leopard frog (*Rana blairi*), Arkansas darter (*Etheostoma cragini*), and flathead chub (*Platygobio gracilis*).

Water Resources

The movement of the highway footprint around Las Animas has the potential to affect water resources. The exact amount of any increases in stormwater pollutant runoff will be calculated during Tier 2 studies when roadway footprints are identified. US 50 currently crosses the Arkansas River north of Las Animas. This crossing could remain at the existing location or be moved just west of the existing bridge.

Impacts to groundwater are possible when polluted surface water infiltrates into groundwater resources. Shallow alluvial aquifers are the most susceptible to pollutant infiltration. Deep aquifers are less susceptible. Impacts to groundwater resources will be assessed further during Tier 2 studies when a 250-foot project alignment is identified.

Geologic Resources

The movement of the highway footprint has the potential to affect some geologic resources, including clay and sandy loam soil types with slopes of 0 to 3 percent. During Tier 2 studies, when roadway footprints are identified, detailed surveys will be conducted to determine soil-related issues. No potential for paleontological resource effects was identified.

1.13.3. Community and Built Environment

Historic Resources

Up to five resources that may be eligible for listing on the NRHP would be affected, including the BNSF Railway (5PW152), Consolidated Ditch (no OAHP site number available), Las Animas Town Ditch (no OAHP site number available), Arkansas River Levee at Las Animas (no OAHP site number available), and the approximate location of the Santa Fe National Historic Trail (5BN.391). Impacts to linear resources may be avoided or minimized by bridging the resources; this will be determined during Tier 2 studies.

Property Acquisition

The Preferred Alternative recommends a new route for US 50 around the northeastern periphery of Las Animas. This would require acquisition of property in this area.

Land Use

The Bent County/City of Las Animas comprehensive plan calls for the improvement of US 50 along its existing alignment. The Preferred Alternative would relocate the highway to the northwest side of the city, causing the Preferred Alternative to not be compatible with this plan.

Future development areas in Las Animas are likely to occur north and west of the city. Whether the Preferred Alternative would be consistent with that growth would depend on the type of growth expected to occur in these locations; however, that information is unknown. Residents also have plans for a recreational trail along US 50 east to John Martin Reservoir State Park.

The Preferred Alternative recommends a new route for US 50 around the northeastern periphery of Las Animas. This would require acquisition of land primarily zoned for residential (6.6 acres) and agricultural (100.7 acres) use. Therefore, land acquired for the Preferred Alternative would shift these uses to a transportation use.

Parklands and Recreational Resources

The Preferred Alternative recommends a new route for US 50 around the northeastern periphery of Las Animas. This would affect the Plover pedestrian (birding) trail by crossing the trail. If this resource is affected, a Section 4(f) analysis would be required. Additional discussion on Section 4(f) is included in Chapter 5, Section 4(f) Evaluation, in the EIS.

Social and Economic Considerations

In Las Animas, the Preferred Alternative would reroute US 50 to the north of town just outside the currently developed area of the community. Moving traffic from US 50 to a new around-town route would remove long-distance and regional traffic from the US 50 through-town route, making the existing highway easier to cross, especially for pedestrians. Additionally, the Preferred Alternative is likely to affect local businesses in the following ways:

- Convert some residential and agricultural land to highway use
- Affect traveler-oriented businesses, such as lodging and restaurants, depending on their location relative to the new around-town route
- Benefit highway-dependent businesses, including farms and ranches, that rely on the highway to deliver their products to markets outside the Lower Arkansas Valley
- Allow communities to make their downtown areas more pedestrian-friendly
- Move US 50 farther from existing gateways into the communities, which may decrease local sales and sales tax revenue; this also may create opportunities for these communities to develop new gateways near the new US 50 connections.

There is potential for change in access to properties within the Preferred Alternative's 1,000-foot-wide corridor that could result in social impacts; however, specific impacts cannot be determined until Tier 2 studies are conducted to define the actual 250-foot roadway alignment.

Aesthetic and Visual Resources

The rerouting of US 50 from its current location through Las Animas to the periphery would change views seen by drivers as they travel in these areas. Today, drivers see views of urban development on both sides of the highway. If the Preferred Alternative is implemented, they would see urban development on one side (views toward town) and farmlands on the other (views away from town). However, this change would only mean exchanging in-town views for more of the same views drivers already see between towns.

Air Quality

Air quality effects from the Preferred Alternative would include air pollution emissions from combustion of fuel in vehicles, idling of vehicles, particulate matter from brake and tire wear, and fugitive dust resulting from construction activities. Rerouting US 50 to the north of town would move traffic and resulting emissions from populated areas in town to less populated areas outside of town. An assessment of the level of MSATs effects will be conducted during Tier 2 studies. The appropriate level of assessment will be determined per

2016 FHWA interim guidance. It is anticipated that air quality effects to MSATs in this location will be low level, requiring only a qualitative assessment.

Traffic Noise

The Preferred Alternative would result in increased noise levels for 35 noise sensitive receptors, which includes 29 NAC B receptors (residential), four NAC C receptors (CPW birding trail locations), and two NAC E receptors (one hotel and one business). In most cases, the receptors are currently located far from US 50, and many are far from other busy roadways, as well. Traffic noise would be noticeable for these receptors. However, these traffic noise levels would not be substantially different than noise levels that are experienced today along US 50 between communities. The potential remains for future levels of traffic noise to result in noise impacts. A detailed analysis of noise impacts due to traffic will be conducted during Tier 2 studies.

1.13.4. Other

Hazardous Materials

In Las Animas, there are 14 hazardous materials sites—which include six tanks, seven tank leaks, and one tank spill—located within the standard half-mile search distance. These sites have the potential to be disturbed under the Preferred Alternative and will be evaluated further for designation as RECs during Tier 2 studies.

Energy

The Preferred Alternative in Las Animas would reduce the traveling distance on US 50 by close to one mile. With the forecasted traffic volume in 2040, this is projected to be a 21 percent reduction in energy use, the equivalent of 382 gallons of gasoline per day, which would be considered a positive environmental impact.

1.14. Section 13: Las Animas to Lamar

The Preferred Alternative from Las Animas to Lamar is 31.6 miles in length, and consists of constructing a four-lane expressway on the existing US 50 between the communities. Currently, this section has 11 miles of roadway that is already configured as a four-lane divided highway. The remaining 20.6 miles are two-lane sections that may increase resource impacts as the facility is converted to the four-lane expressway. The sections below briefly discuss the effects from the Preferred Alternative on the rural and agricultural environment, natural environment, community and built environment, and other environmental resources.

1.14.1. Rural and Agricultural Environment

Approximately 690 acres of prime farmland would be impacted by the Preferred Alternative from Las Animas to Lamar. This is slightly more than 0.16 percent of the total prime farmland within Bent County. No land impacted by the Preferred Alternative at this location is classified as having statewide importance by the NRCS (NRCS 2005). The Preferred Alternative would affect 733 acres of farmland and ranch lands and incur an estimated \$196,000 loss in annual productive value. Lost productive value is made up of 99 percent alfalfa/corn production (488 acres) and one percent ranch land production (245 acres). This would be considered a minor impact, as identified in the Economics Technical Memorandum. This section affects more acres of farmland and ranch lands than most of the other sections along the US 50 corridor, and it impacts the most acres of alfalfa/corn production. This is because it is one of the longest sections, and, therefore, largest in total area.

The Preferred Alternative in this area also has the potential to affect two feedlots. These facilities are located east of Las Animas on the north side of US 50 near CR 14.5 and CR JJ.5 and west of Lamar on the south side of US 50 near the junction of US 50 and US 287. Efforts will be made to avoid direct effects to these facilities during Tier 2 studies. The Preferred Alternative in this area also would affect seven irrigation canals and ditches, including Amity Canal, Millers Ditch, Lubers Drainage Ditch, McClave Drainage Ditch, Sunflower Ditch, Riverview Ditch, and the Vista Del Rio Ditch.

1.14.2. Natural Environment

Wetland and Riparian Resources

The Preferred Alternative from Las Animas to Lamar would affect 130 acres of wetland/riparian resources, with 91 acres (70 percent) being either Category III or Category IV (low functionality resources) and the remaining 39 acres (30 percent) being highly functional resources (Category I or Category II).

Wildlife and Wildlife Habitat

The Preferred Alternative would affect approximately 777 acres of wildlife habitat. This acreage is composed of 72 percent agricultural land, 9 percent grassland, 1 percent shrubland, 17 percent wetlands/riparian areas, and 1 percent other habitat types. This section of the Preferred Alternative could affect up to 17 special-status species, which include the Bald Eagle (*Haliaeetus leucocephalus*), Greater Sandhill Crane (*Grus canadensis tabida*), Interior Least Tern (*Sterna antillarum althalassos*), Piping Plover (*Charadrius melodus*), Long-Billed Curlew (*Numenius americanus*), Western Snowy Plover (*Charadrius alexandrinus*), black-tailed prairie dog (*Cynomys ludovicianus*) and the species commonly associated with their colonies (i.e., Burrowing Owl [*Athene cunicularia*], Ferruginous Hawk [*Buteo regalis*], and Mountain Plover [*Charadrius montanus*]), swift fox (*Vulpes velox*), common king snake (*Lampropeltis getula*), massasauga snake (*Sistrurus catenatus*), Texas horned lizard (*Phrynosoma cornutum*), yellow mud turtle (*Kinosternon flavescens*), Couch's spadefoot toad (*Scaphiopus couchii*), and plains leopard frog (*Rana blairi*). Two wildlife crossing were identified from Las Animas to Lamar that could be affected. The western-most crossing occurs near Las Animas and has a high-priority rating. The second crossing occurs at Gageby Creek and has a rating of moderate priority. In addition, eight species of noxious weeds were identified within the current CDOT right of way and, therefore, have the potential to occur. These species include field bindweed (*Convolvulus arvensis*), hoary cress (*Cardaria draba*), Johnsongrass (*Sorghum halepense*), prickly lettuce (*Lactuca scariola*), puncturevine (*Tribulus terrestris*), Russian knapweed (*Acroptilon repens*), Russian olive (*Elaeagnus angustifolia*), and salt cedar (*Tamarix ramosissima*).

Water Resources

The existing highway alignment is north of the John Martin Reservoir. The expansion of the highway footprint from Las Animas to Lamar has the potential to affect water resources by increasing the amount of transportation-related pollutant runoff. Potential increases in stormwater pollutant runoff due to a larger highway footprint of the Preferred Alternative are minimal. Changes in stormwater pollutant runoff will be calculated during Tier 2 studies when roadway footprints are identified.

Impacts to groundwater are possible when polluted surface water infiltrates into groundwater resources. Shallow alluvial aquifers are the most susceptible to pollutant infiltration. Deep aquifers are less susceptible. Impacts to groundwater resources will be assessed further during Tier 2 studies once a 250-foot project alignment is known.

Geologic Resources

The expansion of the highway footprint has the potential to affect some geologic resources, including clay and sandy loam soil types with slopes of 0 to 9 percent. During Tier 2 studies, when roadway footprints are identified, detailed surveys will be conducted to determine soil-related issues.

1.14.3. Community and Built Environment

Historic Resources

Up to 20 resources that may be historic could be affected in this corridor section. These include nine buildings associated with farms, three US 50 bridges, two businesses, one residence, the Santa Fe National Historic Trail (5BN.391), and four irrigation canals and ditches. The US 50 bridges cross the McCrae Arroyo (no OAHF site number available), an unnamed draw, and Limestone Creek (no OAHF site number available).

Property Acquisition

Portions of the Preferred Alternative in this area are two lanes and portions are four lanes. The four-lane segments occur near Las Animas and near Lamar, with a two-lane segment in between. In the two-lane segment, property adjacent to the highway (either north or south of the existing lanes) would be needed to build the additional lanes. In the four-lane segments, property acquisition would occur immediately adjacent to the highway only if certain improvements are needed, such as wider shoulders, turn lanes, or other changes.

Land Use

Where US 50 would need to be widened, additional property adjacent to the highway (either north or south of the existing lanes) would be needed for the additional lanes of the Preferred Alternative. Up to 737 acres of agriculture/rural land could be converted to a transportation use.

Up to two conservation easements could be affected between Las Animas and Lamar. Both are managed by The Greenlands Reserve and they are located directly adjacent to US 50 and each other between milepost 429 and milepost 431.

Additionally, up to three public properties could be affected. These properties include two managed by the Colorado State Land Board, which are located along US 50 near milepost 406 and milepost 420. The other property is the John Martin Reservoir, which includes a water storage and flood control facility, state park, and State Wildlife Area. No portion of the actual reservoir would be affected by the Preferred Alternative, only a small amount of land immediately adjacent to US 50 (between milepost 408 and milepost 411) would be affected.

Parklands and Recreational Resources

The Preferred Alternative between Las Animas and Lamar could affect the John Martin Reservoir State Park and State Wildlife Area (see Chapter 5, Section 4(f) Evaluation, of the EIS for further details). While most of the property is located south of the Preferred Alternative, it would cross at two locations along US 50 near milepost 408 and milepost 410. Therefore, effects to the property by the Preferred Alternative would include taking a small amount of land adjacent to the existing highway facility in these two areas. Additionally, the primary entrance to the park is located at the junction of US 50 and CR 24 near Hasty (known locally as School Street). The CPW website lists this route as the only suggested way to access the park (Colorado State Parks 2007). Therefore, changes to the junction of US 50 and CR 24 would need to be evaluated during Tier 2 studies in this area to determine how they might affect travelers going to or coming from the park. Tier 2 studies also would evaluate possible conflicts between the Preferred Alternative and plans for a recreational trail along US 50 east of Las Animas to John Martin Reservoir State Park. Additionally, from Las Animas to Lamar, the Preferred Alternative could affect the Plover pedestrian (birding) trail by crossing the trail.

Social and Economic Considerations

From Las Animas to Lamar, the Preferred Alternative would maintain US 50 on or near its current location; therefore, no economic effects are expected.

There is potential for change in access to properties within the Preferred Alternative's 1,000-foot-wide corridor, which could result in social impacts; however, specific impacts cannot be determined until Tier 2 studies are conducted to define the actual 250-foot roadway alignment.

Aesthetic and Visual Resources

Since drivers would see the same types of views from the highway that they do today, the character of those views would not change, resulting in no effect to them. Views of the highway may change where existing two-lane sections would be expanded to four lanes. Other elements also may be added to the highway in certain locations to improve safety or mobility for drivers, including turn lanes, medians, wider shoulders, and wider bridges where the highway crosses canals and ditches. These changes would alter the look of the highway by widening the area of pavement and width of the divided median within the view. This type of change would alter the character of the view for local residents in these areas.

Air Quality

Air quality effects from the Preferred Alternative would include air pollution emissions from combustion of fuel in vehicles, idling of vehicles, particulate matter from brake and tire wear, and fugitive dust resulting from construction activities. An assessment of the level of MSATs effects will be conducted during Tier 2 studies. The appropriate level of assessment will be determined per 2016 FHWA interim guidance. It is anticipated that air quality effects to MSATs in this location will be low level, requiring only a qualitative assessment.

Traffic Noise

The Preferred Alternative would maintain US 50 on or near its current location between towns. In these locations, 82 noise sensitive receptors—including 77 NAC B receptors (residential) and five NAC C receptors (John Martin Reservoir State Park and four CPW birding trail locations)—are already affected by traffic noise on US 50. They will experience increased noise levels as traffic increases on US 50 in the future. This change is likely to be imperceptible to the human ear; however, the potential remains for future levels of traffic noise to result in noise impacts. A detailed analysis of noise impacts due to traffic will be conducted during Tier 2 studies.

1.14.4. Other

Hazardous Materials

From Las Animas to Lamar, there are four hazardous materials sites (two tanks, one tank leak, and one tank spill) located within the standard half-mile search distance. These sites have the potential to be disturbed under the Preferred Alternative and will be evaluated further for designation as RECs during Tier 2 studies.

Energy

The Preferred Alternative would maintain US 50 on or near its current location and largely in its existing configuration; therefore, no changes in energy use due to construction or vehicle use are expected.

1.15. Section 14: Lamar to Granada

The Preferred Alternative from Lamar to Granada is 14 miles in length and consists of constructing a four-lane expressway on the existing US 50 between the communities. Currently, this portion of the Preferred Alternative is a two-lane section. As the facility is converted to the four-lane expressway needed for the Preferred Alternative, this may increase resource impacts. The sections below briefly discuss the effects from the Preferred Alternative on the rural and agricultural environment, natural environment, community and built environment, and other environmental resources.

1.15.1. Rural and Agricultural Environment

Approximately 280 acres of prime and unique farmland are impacted in this section, of which 112 acres is classified as having statewide importance (NRCS 2005). The Preferred Alternative would affect 423 acres of farmland and ranch lands and sustain an estimated \$138,000 loss in annual productive value. Lost productive value is made up of close to 19 percent vegetable production (6 acres), 81 percent alfalfa/corn production (279 acres), and less than one percent ranch lands (138 acres). This would be considered a minor impact, as identified in the Economics Technical Memorandum. It also would affect the Manvel and Lamar Canals.

1.15.2. Natural Environment

Wetland and Riparian Resources

The Preferred Alternative from Lamar to Granada would affect 108 acres of wetland/riparian resources, with 89 acres (approximately 82 percent) being either Category III or Category IV (low functionality resources) and over the remaining 18 percent (19 acres) highly functional resources (Category I or Category II).

Wildlife and Wildlife Habitat

Approximately 422 acres of wildlife habitat could be affected by the Preferred Alternative. This acreage consists of 64 percent agricultural land, 9 percent shrubland, 26 percent wetlands/riparian areas, and one percent other habitat types. Up to 11 special-status species—including the Bald Eagle (*Haliaeetus leucocephalus*), Greater Sandhill Crane (*Grus canadensis tabida*), Lesser Prairie Chicken (*Tympanuchus pallidicinctus*), Long-Billed Curlew (*Numenius americanus*), swift fox (*Vulpes velox*), common king snake (*Lampropeltis getula*), massasauga snake (*Sistrurus catenatus*), Texas horned lizard (*Phrynosoma cornutum*), yellow mud turtle (*Kinosternon flavescens*), Couch's spadefoot toad (*Scaphiopus couchii*), and plains leopard frog (*Rana blairi*)—could be located in this section. The Preferred Alternative could affect four wildlife crossings in the area, which includes a very high priority crossing between milepost 440 and milepost 442, a high priority crossing between milepost 442 and milepost 444, a very high priority crossing between milepost 444 and milepost 445, and a high priority crossing between milepost 445 and milepost 446. In addition, six species of noxious weeds were identified within the current CDOT right of way and, therefore, have the potential to occur. These include field bindweed (*Convolvulus arvensis*), Johnsongrass (*Sorghum halepense*), prickly lettuce (*Lactuca serriola*), puncturevine (*Tribulus terrestris*), Russian olive (*Elaeagnus angustifolia*), and salt cedar (*Tamarix ramosissima*).

Water Resources

The expansion of the highway footprint from Lamar to Granada has the potential to affect water resources. The exact amount of any increases in stormwater pollutant runoff will be calculated during Tier 2 studies when roadway footprints are identified. The existing roadway currently crosses Clay Creek, Manvel Canal, Wolf Creek, and several unnamed intermittent drainages. Expansion of the highway footprint has the potential to affect other water resources, including Lamar Canal and the Smith Arroyo.

Impacts to groundwater are possible when polluted surface water infiltrates into groundwater resources. Shallow alluvial aquifers are the most susceptible to pollutant infiltration. Deep aquifers are less susceptible. Impacts to groundwater resources will be assessed further during Tier 2 studies when a 250-foot project alignment is identified.

Geologic Resources

The expansion of the highway footprint has the potential to affect some geologic resources, including soil types of clay and silt loam with some sand soil types. Slopes in this area are generally less than 3 percent. During Tier 2 studies, when roadway footprints are identified, detailed surveys will be conducted to determine soil-related issues.

1.15.3. Community and Built Environment

Historic Resources

Up to four resources that may be eligible for listing on the NRHP could be affected, including a building associated with a farm, a US 50 bridge over the Willow Creek overflow (no OAHP site number available), and the Manvel and Lamar Canals (no OAHP site numbers available). Impacts to the canals may be avoided or minimized by bridging the resources; this will be determined during Tier 2 studies.

Property Acquisition

US 50 is only two lanes between Lamar and Granada. Therefore, property adjacent to the highway (either north or south of the existing lanes) would be needed to build the additional two lanes.

Land Use

Between Lamar and Granada, the Preferred Alternative could affect three conservation easements. They are all managed by The Greenlands Reserve and are located near milepost 441, milepost 442, and milepost 448. This portion of the Preferred Alternative also could affect the Mike Higbee State Wildlife Area, which is managed by CPW. Additional property adjacent to the highway (either north or south of the existing lanes) would be needed to construct the Preferred Alternative. Up to 422 acres of agriculture/rural land could be converted to a transportation use.

Parklands and Recreational Resources

The Preferred Alternative in between Lamar and Granada could affect the Mike Higbee State Wildlife Area in the same location that US 50 crosses this facility today. If this resource is affected, a Section 4(f) analysis would be required. Additional discussion on Section 4(f) is included in Chapter 5, Section 4(f) Evaluation, in the EIS. Also, property acquisition would be needed to expand this two-lane section of US 50 to four lanes. Property would be acquired adjacent to the existing lanes (either north or south of the highway).

The Preferred Alternative from Lamar to Granada could affect the Two Buttes pedestrian (birding) trail by crossing the trail.

Social and Economic Considerations

From Lamar to Granada, the Preferred Alternative would maintain US 50 on or near its current location and, therefore, no economic effects are expected. There is potential for change in access to properties within the Preferred Alternative's 1,000-foot-wide corridor, which could result in social impacts; however, specific impacts cannot be determined until Tier 2 studies are conducted to define the actual 250-foot roadway alignment.

Aesthetic and Visual Resources

Since drivers would see the same types of views from the highway that they do today, the character of those views would not change, resulting in no effect to them. Views of the highway may change where existing two-lane sections would be expanded to four lanes. Other elements also may be added to the highway in certain locations to improve safety or mobility for drivers, including turn lanes, medians, and wider shoulders. These changes would alter the look of the highway by widening the area of pavement and width of the divided median within the view. This type of change would alter the character of the view for local residents in these areas.

Air Quality

Air quality effects from the Preferred Alternative would include air pollution emissions from combustion of fuel in vehicles, idling of vehicles, particulate matter from brake and tire wear, and fugitive dust resulting from construction activities. An assessment of the level of MSATs effects will be conducted during Tier 2 studies. The appropriate level of assessment will be determined per 2016 FHWA interim guidance. It is anticipated that air quality effects to MSATs in this location will be low level, requiring only a qualitative assessment.

Traffic Noise

The Preferred Alternative would maintain US 50 on or near its current location between towns. In this area, 17 noise sensitive receptors would be impacted, including 16 NAC B receptors (residential) and one NAC C receptor (CPW birding trail). These noise sensitive receptors are already affected by traffic noise on US 50, and they will experience increased noise levels as traffic increases on US 50 in the future. This change is likely to be imperceptible to the human ear; however, the potential remains for future levels of traffic noise to result in noise impacts. A detailed analysis of noise impacts due to traffic will be conducted during Tier 2 studies.

1.15.4. Other

Hazardous Materials

From Lamar to Granada, there are no hazardous materials sites located within the standard half-mile search distance.

Energy

The Preferred Alternative would maintain US 50 on or near its current location and in its existing configuration; therefore, no changes in energy use due to construction or vehicle use are expected.

1.16. Section 15: Granada

The Preferred Alternative consists of constructing a four-lane expressway to the south of Granada (Alternative 2: Granada South). The rerouting of US 50 around town may increase resource impacts, since the facility will be constructed through areas where roadways do not currently exist. The sections below briefly discuss the effects from the Preferred Alternative on the rural and agricultural environment, natural environment, community and built environment, and other environmental resources.

1.16.1. Rural and Agricultural Environment

The Preferred Alternative would impact approximately 18 acres of prime and unique farmland and 13 acres of farmland of statewide importance (NRCS 2005). The Preferred Alternative would affect 62 acres of farmland and ranch lands and experience an estimated \$67,000 loss in annual productive value. Lost productive value is made up of 99 percent vegetable production (15 acres) and less than one percent of both alfalfa/corn (one acre) and ranch land production (47 acres). This would be considered a minor impact, as identified in the Economics Technical Memorandum. It also would affect the X-Y Canal.

1.16.2. Natural Environment

Wetland and Riparian Resources

The Preferred Alternative in Granada would affect two acres of wetland/riparian resources, of which one acre is Category I and one acre is Category III.

Wildlife and Wildlife Habitat

Approximately 63 acres of wildlife habitat would be affected. These areas are composed of 42 percent agricultural land, 2 percent grassland, 53 percent shrubland, and 3 percent wetlands or riparian areas. Ten special-status species that could be affected include the Greater Sandhill Crane (*Grus canadensis tabida*), Lesser Prairie Chicken (*Tympanuchus pallidicinctus*), Long-Billed Curlew (*Numenius americanus*), swift fox (*Vulpes velox*), common king snake (*Lampropeltis getula*), massasauga snake (*Sistrurus catenatus*), Texas horned lizard (*Phrynosoma cornutum*), yellow mud turtle (*Kinosternon flavescens*), Couch's spadefoot toad (*Scaphiopus couchii*), and plains leopard frog (*Rana blairi*). Both alternatives also have the potential to affect one very high-priority wildlife crossing located between milepost 454 and milepost 458. In addition, six species of noxious weeds were identified within the current CDOT right of way for both alternatives, including field bindweed (*Convolvulus arvensis*), Johnsongrass (*Sorghum halepense*), prickly lettuce (*Lactuca serriola*), puncturevine (*Tribulus terrestris*), Russian olive (*Elaeagnus angustifolia*), and salt cedar (*Tamarix ramosissima*).

Water Resources

The movement of the highway footprint around Granada has the potential to affect water resources. The exact amount of any increases in stormwater pollutant runoff will be calculated during Tier 2 studies when roadway footprints are identified. The existing highway crosses the X-Y Canal in town. The Preferred Alternative would move that crossing to the south and east of town and also increase the potential for impacts to an unnamed drainage southwest of town.

Impacts to groundwater are possible when polluted surface water infiltrates into groundwater resources. Shallow alluvial aquifers are the most susceptible to pollutant infiltration. Deep aquifers are less susceptible. Impacts to groundwater resources will be assessed further during Tier 2 studies once a 250-foot project alignment is known.

Geologic Resources

The movement of the highway footprint has the potential to affect some geologic resources. Soil types in this area are generally clay and fine sandy loam with slopes of less than 3 percent. During Tier 2 studies, when roadway footprints are identified, detailed surveys will be conducted to determine soil-related issues.

1.16.3. Community and Built Environment

Historic Resources

While the X-Y Canal (no OAHP site number available) would be affected, the canal is not currently known to be historic. It may be considered eligible for listing on the NRHP in the future.

Property Acquisition

The Preferred Alternative recommends a new route for US 50 around the southern periphery of Granada. This would require acquisition of property in this area.

Land Use

The Prowers County trails plan identified future routes for pedestrian trails within the county, including trails in Granada. The planned trails would be affected by the Preferred Alternative by crossing the planned trails once. Future development areas in Granada are located southeast or south of town. Compatibility with the Preferred Alternative cannot be determined since the type of growth expected in this area is unknown. The alternative would convert approximately 63 acres of agricultural land to a transportation use.

Parklands and Recreational Resources

The Preferred Alternative in Granada could affect the Granada School District Property by taking a small amount of land from its extreme southeast corner. The Granada portion of the Prowers County planned trail system would be affected by the Preferred Alternative. These locations would require additional coordination with the county to determine how the Preferred Alternative could affect them. If these planned trails are developed by the time Tier 2 studies begin, effects to them would be evaluated in more detail. More information on the Section 4(f) evaluation can be found in Chapter 5, Section 4(f) Evaluation, in the EIS.

Social and Economic Considerations

In Granada, the Preferred Alternative would reroute US 50 to the south of town just outside the currently developed area of the community. Moving traffic from US 50 to a new around-town route would remove long-distance and regional traffic from the US 50 through-town route, making the existing highway easier to cross, especially for pedestrians. Additionally, the Preferred Alternative is likely to affect local businesses in the following ways:

- Convert some residential and agricultural land to highway use
- Affect traveler-oriented businesses, such as lodging and restaurants, depending on their location relative to the new around-town route
- Benefit highway-dependent businesses, including farms and ranches, that rely on the highway to deliver their products to markets outside the Lower Arkansas Valley
- Allow communities to make their downtown areas more pedestrian-friendly
- Move US 50 farther from existing gateways into the communities, which may decrease local sales and sales tax revenue; this also may create opportunities for these communities to develop new gateways near the new US 50 connections

There is potential for change in access to properties within the Preferred Alternative's 1,000-foot-wide corridor, which could result in social impacts; however, specific impacts cannot be determined until Tier 2 studies are conducted to define the actual 250-foot roadway alignment.

Aesthetic and Visual Resources

The rerouting of US 50 from its current location through Granada to the periphery would change views seen by drivers as they travel in these areas. Today, drivers see views of urban development on both sides of the highway. If the Preferred Alternative is implemented, they would see urban development, looking toward town and views similar to the between-town sections on the other (views away from town). This change would mean exchanging in-town views for views of dry ranch scrublands and better views of Camp Amache.

Air Quality

Air quality effects from the Preferred Alternative would include air pollution emissions from combustion of fuel in vehicles, idling of vehicles, particulate matter from brake and tire wear, and fugitive dust resulting from construction activities. Rerouting US 50 to the south of town would move traffic and resulting emissions from populated areas in town to less populated areas outside of town. An assessment of the level of MSATs effects will be conducted during Tier 2 studies. The appropriate level of assessment will be determined per 2016 FHWA interim guidance. It is anticipated that air quality effects to MSATs in this location will be low level, requiring only a qualitative assessment.

Traffic Noise

The Preferred Alternative would provide an alternate route for US 50 through-traffic to the south of Granada. The Preferred Alternative would result in increased noise levels for eight noise sensitive receptors, which includes seven NAC B receptors (residential) and one NAC C receptor (CDOW birding trail). In most cases, the receptors are currently located far from US 50, and many are far from other busy roadways, as well. Traffic noise would be noticeable for these receptors. However, these traffic noise levels would not be substantially different than noise levels that are experienced today along US 50 between communities. The potential remains for future levels of traffic noise to result in noise impacts. A detailed analysis of noise impacts due to traffic will be conducted during Tier 2 studies.

1.16.4. Other

Hazardous Materials

In the Granada South Alternative, there are three hazardous materials sites (one tank and two tank leaks) located within the standard half-mile search distance. These sites have the potential to be disturbed under the Preferred Alternative and will be evaluated further for designation as RECs during Tier 2 studies.

Energy

The Preferred Alternative would increase the length of this section by less than a mile. This would cause an 18 percent increase in energy use, the equivalent of 83 gallons of gasoline per day, which would be a negative environmental effect.

1.17. Section 16: Granada to Holly

The Preferred Alternative from Granada to Holly is 8.6 miles in length and consists of constructing a four-lane expressway on the existing US 50 between the communities. Currently this portion of the Preferred Alternative is a two-lane section. As the facility is converted to the four-lane expressway needed for the Preferred Alternative, this may increase the impacts to resources. The sections below briefly discuss the effects from the Preferred Alternative on the rural and agricultural environment, natural environment, community and built environment, and other environmental resources.

1.17.1. Rural and Agricultural Environment

The Preferred Alternative would impact approximately 208 acres of prime and unique farmland; 19 percent of this area (39 acres) is classified as having statewide importance (NRCS 2005). The Preferred Alternative would affect 248 acres of farmland and ranch lands, with an estimated loss of \$60,000 of annual productive value. Losses in productive value are made up of 99 percent alfalfa/corn farmland production (148 acres) and one percent ranch lands production (100 acres). This would be considered a minor impact, as identified in the Economics Technical Memorandum. It also would affect the X-Y Canal and Granada Ditch.

1.17.2. Natural Environment

Wetland and Riparian Resources

The Preferred Alternative from Granada to Holly would affect 55 acres of wetland/riparian resources with 64 percent of the impacted acreage (approximately 35 acres) being either Category III or Category IV (low

functionality resources) and 36 percent (approximately 20 acres) being higher functioning resources (Category II).

Wildlife and Wildlife Habitat

Nearly 259 acres of wildlife habitat could be affected in the Granada to Holly section of the Preferred Alternative. This habitat is composed of 60 percent agricultural land, 5 percent grassland, 13 percent shrubland, 21 percent wetlands/riparian areas, and 1 percent other habitat types. The Preferred Alternative also could affect up to 13 special-status species, including the Bald Eagle (*Haliaeetus leucocephalus*), Greater Sandhill Crane (*Grus canadensis tabida*), Lesser Prairie Chicken (*Typanuchus pullidicinctus*), Long-Billed Curlew (*Numenius americanus*), swift fox (*Vulpes velox*), common king snake (*Lampropeltis getula*), massasauga snake (*Sistrurus catenatus*), Texas horned lizard (*Phrynosoma cornutum*), yellow mud turtle (*Kinosternon flavescens*), Couch's spadefoot toad (*Scaphiopus couchii*), plains leopard frog (*Rana blairi*), Arkansas darter (*Etheostoma cragini*), and suckermouth minnow (*Phenacobius mirabilis*). Two wildlife crossings also were identified that could be affected: the first is a very high priority crossing located between milepost 454 and milepost 458, and the second is a high priority crossing located between milepost 462 and milepost 463. In addition, six species of noxious weeds were identified within the current CDOT right of way, including field bindweed (*Convolvulus arvensis*), hoary cress (*Cardaria draba*), Johnsongrass (*Sorghum halepense*), puncturevine (*Tribulus terrestris*), Russian olive (*Elaeagnus angustifolia*), and salt cedar (*Tamarix ramosissima*).

Water Resources

The expansion of the highway footprint from Granada to Holly has the potential to affect water resources by increasing the amount of transportation-related pollutant runoff. Changes in stormwater pollutant runoff will be calculated during Tier 2 studies when roadway footprints are identified. US 50 currently crosses the Arkansas River and Granada Creek in this section and the crossings would be maintained at the same locations.

Impacts to groundwater are possible when polluted surface water infiltrates into groundwater resources. Shallow alluvial aquifers are the most susceptible to pollutant infiltration. Deep aquifers are less susceptible. Impacts to groundwater resources will be assessed further during Tier 2 studies once a 250-foot project alignment is known.

Geologic Resources

The expansion of the highway footprint has the potential to affect some geologic resources, including soil types of clay and sandy loam with slopes of less than 3 percent. During Tier 2 studies, when roadway footprints are identified, detailed surveys will be conducted to determine soil-related issues. The alternative could affect the Midwestern Farms Resource—an existing surface mining operation—by requiring the acquisition of property directly adjacent to US 50.

1.17.3. Community and Built Environment

Historic Resources

Up to seven resources that may be eligible for listing on the NRHP could be affected, including a residence, a business (Gateway Downs, a former horse racing track, no OAHP site number available), a US 50 bridge crossing Granada Creek (no OAHP site number available), a US 50 overpass of the BNSF Railway, the BNSF Railway (5PW152), X-Y Canal (no OAHP site number available), and Granada Ditch (no OAHP site number available). Impacts to linear resources may be avoided or minimized by bridging the resources; this will be determined during Tier 2 studies.

Property Acquisition

Property acquisition would be needed to expand this two-lane section of US 50 to four lanes. Property would be acquired adjacent to the existing lanes (either north or south of the highway).

Land Use

Between Granada and Holly, the Preferred Alternative could affect the use of a conservation easement managed by The Greenlands Reserve land trust (located adjacent to US 50 near milepost 462). It also would affect the Granada State Wildlife Area in the same location that US 50 crosses this facility today. The Preferred Alternative would convert approximately 254 acres of agricultural land to a transportation use.

Parklands and Recreational Resources

The Preferred Alternative could affect the Granada State Wildlife Area. Effects to the property would include taking a small amount of land adjacent to the existing highway facility. The Preferred Alternative from Granada to Holly also could affect the Two Buttes pedestrian (birding) trail by crossing the trail. More information on the Section 4(f) evaluation can be found in Chapter 5, Section 4(f) Evaluation, in the EIS.

Social and Economic Considerations

From Granada to Holly, the Preferred Alternative would maintain US 50 on or near its current location; therefore, no economic effects are expected. There is potential for change in access to properties within the Preferred Alternative's 1,000-foot-wide corridor, which could result in social impacts; however, specific impacts cannot be determined until Tier 2 studies are conducted to define the actual 250-foot roadway alignment.

Aesthetic and Visual Resources

Since drivers would see the same types of views from the highway that they do today, the character of those views would not change, resulting in no effect to them. Views of the highway may change where existing two-lane sections would be expanded to four lanes. Other elements may also be added to the highway in certain locations to improve safety or mobility for drivers, including turn lanes, medians, and wider shoulders. These changes would alter the look of the highway by widening the area of pavement and width of the divided median within the view. This type of change would alter the character of the view for local residents in these areas.

Air Quality

Air quality effects from the Preferred Alternative would include air pollution emissions from combustion of fuel in vehicles, idling of vehicles, particulate matter from brake and tire wear, and fugitive dust resulting from construction activities. An assessment of the level of MSATs effects will be conducted during Tier 2 studies. The appropriate level of assessment will be determined per 2016 FHWA interim guidance. It is anticipated that air quality effects to MSATs in this location will be low level, requiring only a qualitative assessment.

Traffic Noise

The Preferred Alternative would maintain US 50 on or near its current location between towns. The Preferred Alternative would result in increased noise levels for 11 noise sensitive receptors, which includes nine NAC B receptors (residential) and two NAC C receptors (CDOW birding trail locations). These noise sensitive receptors are already affected by traffic noise on US 50, and they will experience increased noise levels as traffic increases on US 50 in the future. This change is likely to be imperceptible to the human ear; however, the potential remains for future levels of traffic noise to result in noise impacts. A detailed analysis of noise impacts due to traffic will be conducted during Tier 2 studies.

1.17.4. Other

Hazardous Materials

From Granada to Holly, there are no hazardous materials sites located within the standard half-mile search distance.

Energy

The Preferred Alternative would maintain US 50 on or near its current location and in its existing configuration; therefore, no changes in energy use due do construction or vehicle use are expected.

1.18. Section 17: Holly

The Preferred Alternative consists of constructing a four-lane expressway to the south of Holly (Alternative 2: Holly South). The rerouting of US 50 around town may increase resource impacts as the facility will be constructed through areas where roadways do not currently exist. The sections below briefly discuss the effects from the Preferred Alternative on the rural and agricultural environment, natural environment, community and built environment, and other environmental resources.

1.18.1. Rural and Agricultural Environment

Approximately 58 acres of prime and unique farmland would be impacted by the Preferred Alternative. Of this area, 3 percent is classified as having statewide importance (two acres) (NRCS 2005). The Preferred Alternative would affect 63 acres of farmland and ranch lands and sustain an estimated loss of \$8,000 of annual productive value. Losses in productive value are made up of 96 percent alfalfa/corn farmland production (20 acres) and 4 percent ranch lands production (43 acres).

1.18.2. Natural Environment

Wetland and Riparian Resources

The Preferred Alternative in Holly would affect 20 acres of wetland/riparian resources with approximately 90 percent of the impacted acreage (approximately 18 acres) being Category III and Category IV (low functionality resources).

Wildlife and Wildlife Habitat

Nearly 65 acres of wildlife habitat could be affected by the Preferred Alternative, of which 67 percent is agricultural land, 7 percent is shrubland, 25 percent is wetlands/riparian areas, and 1 percent represents other habitat types. The Preferred Alternative also could affect up to nine special-status species, which include the Bald Eagle (*Haliaeetus leucocephalus*), Greater Sandhill Crane (*Grus canadensis tabida*), Long-Billed Curlew (*Numenius americanus*), swift fox (*Vulpes velox*), common king snake (*Lampropeltis getula*), yellow mud turtle (*Kinosternon flavescens*), Couch's spadefoot toad (*Scaphiopus couchii*), plains leopard frog (*Rana blairi*), and the Arkansas darter (*Etheostoma cragini*). The wildlife crossing that would be affected is located between milepost 462 and milepost 463 and is a moderate-priority crossing. In addition, six species of noxious weeds were identified within the current CDOT right of way for both Alternatives, and, therefore, these have the potential to occur. These include field bindweed (*Convolvulus arvensis*), hoary cress (*Cardaria draba*), Johnsongrass (*Sorghum halepense*), puncturevine (*Tribulus terrestris*), prickly lettuce (*Lactuca serriola*), and salt cedar (*Tamarix ramosissima*).

Water Resources

The movement of the highway footprint around Holly has the potential to affect water resources. Moving the highway to the south under the Preferred Alternative has the potential to increase impacts to the Arkansas River. Changes in stormwater pollutant runoff will be calculated during Tier 2 studies when roadway footprints are identified.

Impacts to groundwater are possible when polluted surface water infiltrates into groundwater resources. Shallow alluvial aquifers are the most susceptible to pollutant infiltration. Deep aquifers are less susceptible. Impacts to groundwater resources will be assessed further during Tier 2 studies when a 250-foot project alignment is identified.

Geologic Resources

The movement of the highway footprint has the potential to affect some geologic resources, including sand and clay loam soil types with slopes of 0 percent to 3 percent. During Tier 2 studies, when roadway footprints are identified, detailed surveys will be conducted to determine soil-related issues.

1.18.3. Community and Built Environment

Historic Resources

The BNSF Railway (5PW152) could be affected. The Railway is not currently known to be historic, but may be considered eligible for listing on the NRHP in the future. Impacts to the railway may be avoided or minimized by bridging the resources; this will be determined during Tier 2 studies.

Property Acquisition

The Preferred Alternative recommends a new route for US 50 around the southern periphery of Holly. This would require acquisition of property in this area.

Land Use

The Preferred Alternative would convert approximately 63 acres of agricultural land to a transportation use. This section of the Preferred Alternative is not incompatible with planning documents or future development areas. The Prowers County trails plan identified future routes for pedestrian trails within the county, including trails in Holly. The planned trails would be affected by the Preferred Alternative, which recommends a new route for US 50 on the southern periphery of the town. In these planned trail locations, zoning includes agriculture and planned commercial. In addition, this section would affect one conservation easement, which is managed by The Greenlands Reserve. The easement is located on the west side of Holly near milepost 462.

Holly residents indicated that their best farmland is located north of town; therefore, it is unlikely that future development would take place there. Future development areas are listed below. Some of this potential growth is compatible with the Preferred Alternative, and some is not, as indicated:

- Commercial growth west of town near US 50—The Preferred Alternative would be compatible with this growth since it would not move the highway closer or farther from this development area.
- Residential growth northeast of town—The Preferred Alternative would be compatible with this growth, since it would move the highway farther from this development area.
- Industrial growth northwest of town—The Preferred Alternative would be incompatible with this growth, since it would move the highway away from this development area.

Parklands and Recreational Resources

In the case of the Holly State Wildlife Area (HSWA), the Preferred Alternative crosses the property in two locations. West of Holly, the alternative crosses the property in the same general location as an existing US 50 crossing. However, the Preferred Alternative has the potential to affect the property by requiring an upgraded or new crossing of the State Wildlife Area (by US 50) in this location. The Preferred Alternative also could affect the property at its southern end by requiring the acquisition of some of this land. Running parallel to the HSWA, the Preferred Alternative could reduce hunting within the wildlife area. If this resource is affected, a Section 4(f) analysis would be required. Additional discussion on Section 4(f) is included in Chapter 5, Section 4(f) Evaluation, of the EIS. The Preferred Alternative around Holly also could affect the Prowers County (planned) trail and the Two Buttes pedestrian (birding) trail by crossing the trail.

Social and Economic Considerations

In Holly, the Preferred Alternative would reroute US 50 to the south of town just outside the currently developed area of the community. Moving traffic from US 50 to a new around-town route would remove long-distance and regional traffic from the US 50 through-town route, making the existing highway easier to cross, especially for pedestrians. Additionally, the Preferred Alternative is likely to affect local businesses in the following ways:

- Convert some residential and agricultural land to highway use
- Affect traveler-oriented businesses, such as lodging and restaurants, depending on their location relative to the new around-town route

- Benefit highway-dependent businesses, including farms and ranches, that rely on the highway to deliver their products to markets outside the Lower Arkansas Valley
- Allow communities to make their downtown areas more pedestrian-friendly
- Move US 50 farther from existing gateways into the communities, which may decrease local sales and sales tax revenue; this also may create opportunities for these communities to develop new gateways near the new US 50 connections

There is potential for change in access to properties within the Preferred Alternative's 1,000-foot-wide corridor, which could result in social impacts; however, specific impacts cannot be determined until Tier 2 studies are conducted to define the actual 250-foot roadway alignment.

Aesthetic and Visual Resources

The rerouting of US 50 from its current location through Holly to the periphery would change views seen by drivers as they travel in these areas. Today, drivers see views of urban development on both sides of the highway. If the Preferred Alternative is implemented, they would see urban development on one side (views toward town) and views similar to the between-town sections on the other (views away from town). However, this change would only mean exchanging in-town views for more of the same views drivers already see between towns.

Air Quality

Air quality effects from the Preferred Alternative would include air pollution emissions from combustion of fuel in vehicles, idling of vehicles, particulate matter from brake and tire wear, and fugitive dust resulting from construction activities. Rerouting US 50 to the south of town would move traffic and resulting emissions from populated areas in town to less populated areas outside of town. An assessment of the level of MSATs effects will be conducted during Tier 2 studies. The appropriate level of assessment will be determined per 2016 FHWA interim guidance. It is anticipated that air quality effects to MSATs in this location will be low level, requiring only a qualitative assessment.

Traffic Noise

The Preferred Alternative would provide an alternate route for US 50 through-traffic to the south of Holly. The Preferred Alternative would result in increased noise levels for two residential receptors (NAC B) and one recreational facility (NAC C) located in the vicinity of the new route. In most cases, the receptors are currently located far from US 50, and many are far from other busy roadways. Traffic noise would be noticeable for these receptors. However, these traffic noise levels would not be substantially different than noise levels that are experienced today along US 50 between communities. The potential remains for future levels of traffic noise to result in noise impacts. A detailed analysis of noise impacts due to traffic will be conducted during Tier 2 studies.

1.18.4. Other

Hazardous Materials

In Holly, there are nine hazardous materials sites located within the standard half-mile search distance. This includes one delisted Superfund site, one corrective action site, three tanks, three tank leaks, and one tank spill. These sites have the potential to be disturbed under the Preferred Alternative and will be evaluated further for designation as RECs during Tier 2 studies.

Energy

The Preferred Alternative would increase the length of this section by slightly more than two miles. This would cause a 25 percent increase in energy use—the equivalent of 173 gallons of gasoline per day—which would be a negative environmental effect.

1.19. Section 18: Holly Transition

The Preferred Alternative from Holly to the vicinity of the Colorado-Kansas state line consists of constructing a four-lane expressway on the existing US 50. This section begins approximately one mile east of Holly and extends to the vicinity of the Colorado-Kansas state line. The transition limits of this section will be determined during Tier 2 studies. Currently, this section of the Preferred Alternative is a two-lane section. As the facility is converted to the four-lane expressway needed for the Preferred Alternative, this may increase resource impacts. The sections below briefly discuss the effects from the Preferred Alternative on the rural and agricultural environment, natural environment, community and built environment, and other environmental resources.

1.19.1. Rural and Agricultural Environment

Approximately 71 acres of prime and unique farmland would be impacted by Section 18, of which three acres are classified as having statewide importance (NRCS 2005). The Preferred Alternative would affect 110 acres of farmland and ranch lands and experience an estimated loss of \$18,000 of annual productive value. Losses in productive value are made up of 97 percent alfalfa/corn farmland production (44 acres) and 3 percent ranch lands production (66 acres). This would be considered a minor impact, as identified in the Economics Technical Memorandum. It also would affect the Buffalo Canal and Holly Ditch.

1.19.2. Natural Environment

Wetland and Riparian Resources

The Preferred Alternative east of Holly would affect 22 acres of wetland/riparian resources, with 32 percent of the impacted acreage (approximately 7 acres) being either Category III or Category IV (low functionality resources), 64 percent being Category II (14 acres), and less than 4 percent (one acre) being highly functional resources (Category I).

Wildlife and Wildlife Habitat

Approximately 110 acres of wildlife habitat could be affected by the Preferred Alternative in this section of the corridor. This acreage is composed of 66 percent agricultural land, 10 percent grassland, 2 percent shrubland, 20 percent wetlands/riparian areas, and 1 percent other habitat types. There were no priority wildlife crossings identified in this section. The Preferred Alternative could affect up to 12 special-status species, including the Greater Sandhill Crane (*Grus canadensis tabida*), Long-Billed Curlew (*Numenius americanus*), black-tailed prairie dog (*Cynomys ludovicianus*) and the species commonly associated with their colonies (i.e., Burrowing Owl [*Athene cunicularia*], Ferruginous Hawk [*Buteo regalis*], and Mountain Plover [*Charadrius montanus*]), swift fox (*Vulpes velox*), common king snake (*Lampropeltis getula*), yellow mud turtle (*Kinosternon flavescens*), Couch's spadefoot toad (*Scaphiopus couchii*), plains leopard frog (*Rana blairi*), and Arkansas darter (*Etheostoma cagini*). In addition, five species of noxious weeds were identified within the current CDOT right of way, so these have the potential to occur. These include field bindweed (*Convolvulus arvensis*), hoary cress (*Cardaria draba*), Johnsongrass (*Sorghum halepense*), puncturevine (*Tribulus terrestris*), and salt cedar (*Tamarix ramosissima*).

Water Resources

The expansion of the highway footprint east of Holly has the potential to affect water resources, including groundwater sources that are supplied by infiltration from the Buffalo Canal and Holly Ditch. The exact amount of any increases in stormwater pollutant runoff will be calculated during Tier 2 studies when roadway footprints are identified.

Geologic Resources

The expansion of the highway footprint has the potential to affect some geologic resources, including silt loam and sand substratum. The Penrose Road outcropping creates slopes up to 9 percent in certain locations. During Tier 2 studies, when roadway footprints are identified, detailed surveys will be conducted to determine soil-related issues.

1.19.3. Community and Built Environment

Historic Resources

Up to four resources that may be eligible for listing on the NRHP could be affected, including the Hadley rest area (no OAHP site number available), Holly Ditch (no OAHP site number available), Buffalo Canal (no OAHP site number available), and approximate location of the Santa Fe National Historic Trail (5BN.391). Impacts to linear resources may be avoided or minimized by bridging the resources; this will be determined during Tier 2 studies.

Property Acquisition

US 50 is only two lanes in this area. Therefore, property adjacent to the highway (either north or south of the existing lanes) would be needed to build the additional two lanes.

Land Use

The primary land use issue in this section of the US 50 corridor is property acquisition. This land is currently being used for agricultural activities. Therefore, the Preferred Alternative would change up to 110 acres of agricultural use to transportation use.

Social and Economic Considerations

East of Holly, the Preferred Alternative would maintain US 50 on or near its current location and, therefore, no economic effects are expected. There is potential for change in access to properties within the Preferred Alternative's 1,000-foot-wide corridor, which could result in social impacts; however, specific impacts cannot be determined until Tier 2 studies are conducted to define the actual 250-foot roadway alignment.

Aesthetic and Visual Resources

Since drivers would see the same types of views from the highway that they do today, the character of those views would not change, resulting in no effect to them. Views of the highway may change where existing two-lane sections would be expanded to four lanes. Other elements also may be added to the highway in certain locations to improve safety or mobility for drivers, including turn lanes, medians, and wider shoulders. The addition of wider medians would increase views of grasses separating the eastbound lanes from the westbound lanes. This type of change would alter the character of the view for local residents in these areas.

Air Quality

Air quality effects from the Preferred Alternative would include air pollution emissions from combustion of fuel in vehicles, idling of vehicles, particulate matter from brake and tire wear, and fugitive dust resulting from construction activities. An assessment of the level of MSATs effects will be conducted during Tier 2 studies. The appropriate level of assessment will be determined per 2016 FHWA interim guidance. It is anticipated that air quality effects to MSATs in this location will be low level, requiring only a qualitative assessment.

Traffic Noise

The Preferred Alternative would maintain US 50 on or near its current location between towns. In these locations, 7 noise sensitive receptors may be impacted, including five NAC B receptors (residential) and two NAC C receptors (rest areas). These noise sensitive receptors are already affected by traffic noise on US 50 and they will experience increased noise levels as traffic increases on US 50 in the future. This change is likely to be imperceptible to the human ear; however, the potential remains for future levels of traffic noise to result in noise impacts. A detailed analysis of noise impacts due to traffic will be conducted during Tier 2 studies.

1.19.4. Other

Hazardous Materials

From Holly to the Colorado-Kansas state line, there are six hazardous materials sites (one delisted Superfund site, one corrective action site, three tank leaks, and one tank spill) located within the standard

half-mile search distance. These sites have the potential to be disturbed under the Preferred Alternative and will be evaluated further for designation as RECs during Tier 2 studies.

Energy

The Preferred Alternative would maintain US 50 on or near its current location and in its existing configuration; therefore, no changes in energy use due do construction or vehicle use are expected.

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Appendices

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Appendix A. Abbreviations & Acronyms

AASHTO	American Association of State Highway and Transportation Officials
BNSF	Burlington Northern Santa Fe Railway
CDOT	Colorado Department of Transportation
CDOW	Colorado Division of Wildlife
CPW	Colorado Parks and Wildlife
CR	County Road
EA	Environmental Assessment
EIS	Environmental Impact Statement
EPA	U.S. Environmental Protection Agency
ESA	Environmental Site Assessment
FHWA	Federal Highway Administration
FONSI	Finding of No Significant Impact
MSAT	Mobile source air toxic
NAC	Noise Abatement Criteria
NEPA	National Environmental Policy Act of 1969
NPS	National Park Service
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
PACOG	Pueblo Area Council of Governments
RECs	Recognized Environmental Conditions
SH	State Highway
TSM	Transportation system management
US 287	U.S. Highway 287
US 50	U.S. Highway 50
US 50 Tier 1 EIS	United States Highway 50 Tier 1 Environmental Impact Statement
Uniform Act	Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970
VMS	Variable message signs

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