



Partnering for Progress

U.S. 50 Corridor East



COLORADO
Department of
Transportation

U.S. 50 Corridor East Tier 1 Draft Environmental Impact Statement

Range of Alternatives
Technical Memorandum

June 2016

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1. Project Overview

The U.S. 50 Corridor East Tier 1 Environmental Impact Statement (U.S. 50 Tier 1 EIS) was initiated by the project's lead agencies, the Colorado Department of Transportation (CDOT) and the Federal Highway Administration (FHWA). The purpose of the Tier 1 EIS is to provide, within the framework of the National Environmental Policy Act (NEPA), a corridor location decision for U.S. Highway 50 (U.S. 50) from Pueblo to the vicinity of the Colorado-Kansas state line that CDOT and the communities can use to plan and program future improvements, preserve right of way, pursue funding opportunities, and allow for resource planning efforts.

The U.S. 50 Tier 1 EIS officially began in January 2006 when the Notice of Intent was published in the Federal Register. The U.S. 50 Tier 1 EIS project area (Figure 1-1) is the area in which U.S. 50 Tier 1 EIS alternatives were assessed. This area traverses nine municipalities and four counties in the Lower Arkansas Valley of Colorado. The nine municipalities include (from west to east) the city of Pueblo, town of Fowler, town of Manzanola, city of Rocky Ford, town of Swink, city of La Junta, city of Las Animas, town of Granada, and town of Holly. The four counties that fall within this project area are Pueblo, Otero, Bent, and Prowers counties.

The project area does not include the city of Lamar. A separate Environmental Assessment (EA), the *U.S. 287 at Lamar Reliever Route Environmental Assessment* (), includes both U.S. 50 and U.S. Highway 287 (U.S. 287) in this area, since they share the same alignment. The Finding of No Significant Impact (FONSI) for the project was signed November 10, 2014. This EA/FONSI identified a proposed action that bypasses the city of Lamar to the east. The proposed action of the *U.S. 287 at Lamar Reliever Route Environmental Assessment* begins at the southern end of U.S. 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 U.S. 50 Tier 1 EIS.



Figure 1-1. U.S. 50 Tier 1 EIS Project Area

2. Topic Definition

More than one potential solution may exist to solve an identified transportation problem. The goal of an EIS is not to support a particular solution from the outset but rather to help decision makers find the most appropriate solution for the problem by considering the feasibility, merits, and environmental consequences of various transportation solutions, referred to as alternatives. Through the process of preparing a Draft EIS and considering public and agency comments, the solution that is found to best address the problem is identified and becomes designated as the “preferred alternative” in the Final EIS.

3. Applicable Laws, Regulations, and Guidance

The following laws, regulations, and guidance were followed during this analysis of cumulative effects. They are described in more detail below.

- Council on Environmental Quality (CEQ) regulations on alternatives
- FHWA Regulations implementing NEPA
- FHWA Guidance on Alternatives for Transportation Projects

3.1. Council on Environmental Quality Regulations on Alternatives

CEQ regulations prescribing consideration of alternatives in an EIS are found in United States Code (USC) Section 40 (Protection of the Environment), Section 1502 (EIS). These regulations are applicable to all Federal actions, not just transportation actions.

Section 1502.1 (Purpose) indicates that an EIS should provide “full and fair discussion of environmental impacts” for a Federal program or action, and “inform decision makers and the public of the reasonable alternatives which would avoid or minimize adverse impacts or enhance the quality of the human environment.”

Section 1502.14 (Alternatives including the proposed action) indicates that the EIS should, “... Rigorously explore and objectively evaluate all reasonable alternatives, and for alternatives which were eliminated from detailed study, briefly discuss the reasons for their having been eliminated.” The same section indicates that the EIS should, “... include the alternative of no action.”

3.2. FHWA Regulations Implementing the National Environmental Policy Act

FHWA regulations implementing the NEPA process are found in USC Title 23 (Highways), Part 771 (Environmental Impact and Related Procedures). Section 771.123(d) indicates that, “The draft EIS shall evaluate all reasonable alternatives to the action and discuss the reasons why other alternatives, which may have been considered, were eliminated from detailed study.”

Additionally, in the case of a tiered EIS, Section 777.111(g) indicates that, “The first tier EIS would focus on broad issues such as general location, mode choice, and area wide air quality and land use implications of the major alternatives. The second tier would address site-specific details on project impacts, costs, and mitigation measures.”

3.3. FHWA Guidance on Alternatives for Transportation Projects

FHWA’s Technical Advisory T 6640.8A (October 1987), Part V (EIS), Section E (alternatives) provides the following additional guidance on transportation alternatives:

“This section of the draft EIS must discuss a range of alternatives, including all ‘reasonable alternatives’ under consideration and those ‘other alternatives’ which were eliminated from detailed study (23 CFR 771.123(c)). The section should begin with a concise discussion of how and why the ‘reasonable alternatives’ were selected for detailed study and explain why ‘other alternatives’ were eliminated. The following range of alternatives should be considered when determining reasonable alternatives:

1. 'No-action' alternative: The 'no-action' alternative (or no-build) normally includes short-term minor restoration types of activities (safety and maintenance improvements, etc.) that maintain continuing operation of the existing roadway.
2. Transportation System Management (TSM) alternative: The TSM alternative includes those activities which maximize the efficiency of the present system. Possible subject areas to include in this alternative are options such as fringe parking, ridesharing, high-occupancy vehicle (HOV) lanes on existing roadways, and traffic signal timing optimization. This limited construction alternative is usually relevant only for major projects proposed in urbanized areas over 200,000 population.
3. While the above discussion relates primarily to major projects in urbanized areas, the concept of achieving maximum utilization of existing facilities is equally important in rural areas. Before selecting an alternative on new location for major projects in rural areas, it is important to demonstrate that reconstruction and rehabilitation of the existing system will not adequately correct the identified deficiencies and meet the project need.
4. Mass Transit: This alternative includes those reasonable and feasible transit options (bus systems, rail, etc.) even though they may not be within the existing FHWA funding authority. It should be considered on all proposed major highway projects in urbanized areas over 200,000 population. Consideration of this alternative may be accomplished by reference to the regional or area transportation plan where that plan considers mass transit or by an independent analysis during early project development.
5. Build alternatives: Both improvement of existing highway(s) and alternatives on new location should be evaluated. A representative number of reasonable alternatives must be presented and evaluated in detail in the draft EIS (40 CFR 1502.14(a)). For most major projects, there is a potential for a large number of reasonable alternatives. Where there are a large number of alternatives, only a representative number of the most reasonable examples, covering the full range of alternatives, must be presented. The determination of the number of reasonable alternatives in the draft EIS, therefore, depends on the particular project and the facts and circumstances in each case."

4. Methodology

Based on the regulations, CDOT developed an alternatives development approach and screening criteria to identify reasonable alternatives for the EIS. These were drafted in consultation with federal and state agencies in the scoping process, and were taken to the public for review and input at public meetings conducted in the various communities along the U.S. 50 corridor in August 2007.

The primary metric for screening potential transportation solutions was whether they would be able to meet the project's purpose and need, which was similarly developed with agency and public consultation. Potential solutions that were found to meet the purpose and need then were examined in terms of the likely environmental impacts of implementing transportation improvements within a general corridor location, in accordance with the tiered EIS regulation cited above 23 USC 777.111(g).

4.1. Use of Screening Criteria Consistent With Tier 1 Analysis

The screening criteria used to compare general corridor locations were consistent with a Tier 1 level of analysis, in which specific alignments are not known and precise impacts cannot be determined. Many of the environmental criteria used to compare general corridor locations thus involved resources that could be estimated or counted using satellite photography and geographic information systems. Wetlands and riparian areas, for example, could be estimated using satellite photography, but could not be differentiated from one another using this approach. Field assessment and delineation of wetland boundaries was not performed for this Tier 1 analysis, but will be accomplished in Tier 2 analyses when specific alignments are proposed for further consideration. This approach was developed and used in consultation with the U.S. Army Corps of Engineers (USACE) and with the U.S. Environmental Protection Agency (EPA).

4.2. Linking Planning and NEPA

Often, an EIS or other NEPA document is initiated following a feasibility study or other planning effort that helped to identify the need for a project and potential solutions. It is logical and efficient to make use of findings from those efforts if they were conducted in a manner consistent with NEPA requirements, especially in terms of providing adequate consultation with affected agencies and the public. These circumstances apply to this U.S. 50 EIS.

The U.S. 50 Tier 1 EIS was preceded by an extensive CDOT planning study that focused on determining an appropriate regional corridor location for U.S. 50 improvements. Entitled *Corridor Selection Study: A Plan for U.S. 50*, this effort was completed in September 2003. This planning study had extensive involvement from citizens in all the cities and towns along U.S. 50. The study culminated in a long-term community-developed vision for the U.S. 50 corridor. The vision called for a safer roadway, on or near the existing U.S. 50, that maintains a reasonable traffic flow and speed for the movement of people and goods along and through the Lower Arkansas Valley while providing flexibility to accommodate future transportation needs.

The 2003 planning study provided two key inputs into the Tier 1 EIS. First, it identified three regional corridor locations for potential transportation improvements, finding strong support for the one regional corridor that would keep improvements "on or near the existing U.S. 50." These three regional corridor locations were considered in the development of alternatives for the EIS, making it unnecessary to start over and reinvent regional corridor locations. Second, the study's vision for the U.S. 50 corridor provided much of the basis for the purpose and need of the Tier 1 EIS, again without the need to start over to identify existing problems and the desired outcomes of the project.

In January 2006, when FHWA published its Notice of Intent to undertake this Tier 1 EIS, the notice specifically referenced the vision statement and the preferred regional corridor location as elements that would be brought into the NEPA process from the planning study.

5. Alternatives Development Process

Consistent with a Tier 1 level of analysis, alternatives for the U.S. 50 EIS were developed by considering generally what type of transportation action might be undertaken and generally in what location. Transportation, engineering and environmental criteria were used in the screening process to identify reasonable alternatives.

To be considered a reasonable alternative, a potential transportation solution would need to meet the project's purpose and need, be feasible to implement, use a proven technology, comply with federal and state laws and regulations, and not have an exorbitant cost. A potential transportation solution was eliminated if it would not meet the project's purpose and need.

Alternatives development and screening were approached that followed four steps, as diagrammed in Figure 5-1. Each step is discussed below, framed as a question.

- **Step 1: Regional corridor location**—At a regional level, where would transportation improvements be made?
- **Step 2: Transportation mode**—What type(s) or mode(s) of transportation improvements would meet the needs of the corridor (i.e., highway, rail, etc.)?
- **Step 3: Facility type**—What type of facility/facilities would meet the needs of the corridor?
- **Step 4: Through town or around town**—Would transportation improvements be made through communities along the corridor or around them?

Two of these questions focus on what type of transportation action is needed, while the other two focus on where the corridor should be located. Each of these steps in the alternatives development process is discussed in more detail below.

5.1. Regional Corridor Location

As noted above, three potential regional corridor locations for U.S. 50 improvements were identified and evaluated in CDOT's 2003 U.S. 50 planning study, with extensive input from residents of the cities and towns along the highway. These locations included a north regional corridor, an existing regional corridor, and a south regional corridor, each of which are described below and shown in Figure 5-2.

North Regional Corridor—The north regional corridor would be located one to 10 miles north of U.S. 50. It would use other existing roadway corridors, including SH 96, SH 266, and SH 196, as well as portions of U.S. 50. This corridor would remain entirely on the north side of the Arkansas River. Currently, 90 miles of U.S. 50 are located south of the river, as are all of the communities along the U.S. 50 corridor except for portions of Pueblo and Holly.

Existing Regional Corridor—The existing regional corridor would be on or near existing U.S. 50, generally within one mile of the current highway. During the 2003 CDOT planning study, a regional corridor location on

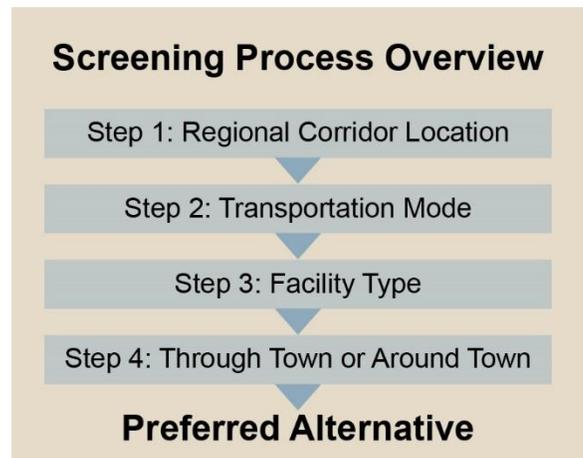
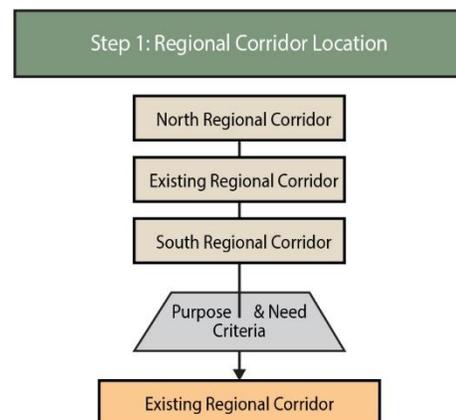


Figure 5-1. Screening Approach Used to Develop the Range of Reasonable Alternatives



or near the existing U.S. 50 received very strong support (76 percent of citizens participating in public meetings).

South Regional Corridor—The south regional corridor would be located one to 10 miles south of the existing U.S. 50 alignment. This corridor would generally follow existing power lines, which are located three to four miles south of U.S. 50 from eastern Pueblo County to La Junta. It would remain south of U.S. 50 to Las Animas. The south regional corridor would then turn north, crossing the Arkansas River to re-join the existing U.S. 50 highway north of the city. It would continue east on the existing U.S. 50 highway to Granada, where it would shift north of that town. From Granada to the vicinity of the Colorado-Kansas state line, the south regional corridor would again follow the existing U.S. 50 highway.



Figure 5-2. Location of the Regional Corridors Considered by the U.S. 50 Tier 1 EIS

None of these locations represent a specific alignment, but instead a corridor generally 1,000 feet wide in which appropriate alignments could be determined in the future. Additionally, deviations outside of these corridors would be considered in the future if needed to avoid sensitive environmental or community resources.

5.1.1. Screening of Regional Corridor Locations

The three regional corridor locations were screened to determine how well each would meet the project's purpose and need, as determined by the following criteria:

- How well each addresses U.S. 50 safety problems
- How well each improves mobility for local users
- How well each improves mobility for regional users
- How well each improves mobility for long-distance users
- How well each balances mobility and access for all users
- How well each provides flexibility to address future travel needs

The results of this screening evaluation are summarized in Table 5-1. A rating system similar to that used in *Consumer Reports* magazine was used to indicate whether the corridor would fully, partially, or not address the need. A corridor was eliminated from further consideration if it failed to address any single criterion and, in some instances, if it only partially addressed criteria. Therefore, the North Regional Corridor and South Regional Corridor were not carried forward in the EIS for use as part of any "reasonable" alternative.

Table 5-1. Regional Corridor Location Screening Results Summary

Screening Criteria	North Regional Corridor	South Regional Corridor	Existing Regional Corridor
Addresses U.S. 50 safety problems	●	●	●
Improves mobility for local users	◐	◐	●
Improves mobility for regional users	◐	◐	●
Improves mobility for long-distance users	●	●	●
Balances mobility and access for all users	●	●	●
Provides flexibility to address future traffic needs	●	●	●

KEY:

○ = does not address the need ◐ = partially addresses the need ● = fully addresses the need

The EIS contains a table summarizing the findings above but not necessarily specifying the rationale for each rating for each corridor. These individual ratings are explained below.

Addresses U.S. 50 Safety Problems

The U.S. 50 project purpose and need identifies a large number of existing safety problems along the corridor, including limited passing opportunities, inadequate clear zones, frequent changes in roadway design, and an excessive number of access points.

- **North Regional Corridor (●)**—The extent to which safety problems would be corrected depends upon what transportation action is taken. However, if a new roadway were constructed, it is assumed a North Regional Corridor would be designated as the new U.S. 50 and the existing U.S. 50 facility would remain in place and relinquished to the city or county. Any new roadway would be constructed to current design standards and would ensure the safe movement of people and goods. In addition, providing transportation services in a North Regional Corridor would potentially divert existing travelers to the new corridor, which may alleviate some safety concerns on the existing U.S. 50 by getting them off the highway.
- **South Regional Corridor (●)**—For the same reasons applicable to the North Regional Corridor, the South Regional Corridor would also address U.S. 50 safety problems.
- **Existing Regional Corridor (●)**—The extent to which existing U.S. 50 safety problems would be corrected depends upon what transportation action is taken. However, actions undertaken on or near the existing U.S. 50 have the potential to fully address these problems.

Improves Mobility for Local Users

Chapter 2 (Purpose and Need) of the U.S. 50 EIS describes various types of users of the existing highway, based on their trip characteristics. Local travelers were described as being those whose trips are made into, out of, or through one town, or in a rural area between towns. Their typical trip lengths are shorter than 15 miles, and often very much shorter. For these travelers, the ability to enter, exit or cross U.S. 50, is particularly important, as is the ability to move along U.S. 50 for short distances, perhaps at moderately low speeds.

- **North Regional Corridor (◐)**—The North Regional Corridor would indirectly benefit local users by diverting long-distance trips away to the new corridor. However, most local trips on U.S. 50 are so short that having to travel one or more miles to or from the north to access the North General Corridor from locations along existing U.S. 50 would be an inconvenient diversion. Local travelers are more likely to use the existing road than to travel to the new corridor, use it, and return. This is because the vast majority of homes and businesses within Bent, Otero and Prowers counties are located along or near the

existing highway. Thus the North Regional Corridor itself would create more out-of-direction travel for local users, but may improve mobility for those taking short local or in-town trips.

- **South Regional Corridor (◐)**—The South Regional Corridor would indirectly benefit local users by diverting long-distance trips away to the new corridor. However, it would also create more out-of-direction travel for local users, as discussed for the North Regional Corridor.
- **Existing Regional Corridor (●)**—The extent to which mobility for local users of U.S. 50 would be improved depends upon what transportation action is taken. However, actions undertaken on or near the existing U.S. 50 have the potential to benefit local users because it is closest to where local users live and work.

Improves Mobility for Regional Users

In Chapter 1 of the U.S. 50 EIS, regional travelers were described as being those whose trips start or end within the U.S. 50 corridor and pass through more than one city or town. Typical regional trips are between 15 and 100 miles long.

- **North Regional Corridor (◐)**—Regional trips include both a non-stop portion and the need to access local communities at the trip origin, destination, or both. The North General Corridor offers the promise of improved mobility in terms of higher average trip speeds because the corridor would not have speed-reduction zones through towns. However, this benefit is partially offset by the need to drive one or more miles out of each town to access the new corridor. As a net effect, longer regional trips (closer to 100 miles long) would benefit much more than shorter regional trips (closer to 15 miles long).
- **South Regional Corridor (◐)**—The South Regional Corridor would offer mixed benefits for regional users for the same reasons discussed immediately above.
- **Existing Regional Corridor (●)**—The extent to which mobility for local users of U.S. 50 would be improved depends upon what transportation action is taken. However, actions undertaken on or near the existing U.S. 50 have the potential to address this need, because they would not necessitate out-of-the-way travel to access the facility, as experienced with new corridors farther from town.

Improves Mobility for Long-distance Users

Chapter 1 of the U.S. 50 EIS describes long-distance users as those who pass through the Lower Arkansas Valley to reach some other destination. Long-distance trips along U.S. 50 extend at least between U.S. 287 and I-25, a distance of about 120 miles.

- **North Regional Corridor (●)**—The North Regional Corridor offers long-distance users improved mobility in terms of higher average trip speeds because the corridor would not have speed-reduction zones through towns.
- **South Regional Corridor (●)**—The South Regional Corridor would benefit long-distance users in the manner described immediately above.
- **Existing Regional Corridor (●)**—The extent to which mobility for long-distance users of U.S. 50 would be improved depends upon what transportation action is taken. However, actions undertaken on or near the existing U.S. 50 have the potential to benefit long-distance users, if the action does not require speed reduction through towns and there is a reduction in the number of intersections..

Balances Mobility and Access for All Users

Chapter 2 of the EIS discusses how the need for access by local and regional users conflicts with the need for mobility by other regional users and by long-distance users. The project purpose and need calls for a solution that balances the needs of all users.

North Regional Corridor (●)—As noted above, the North Regional Corridor offers long-distance users improved mobility in terms of higher average trip speeds and fewer access points by avoiding existing towns, but would create greater out-of-direction travel for local users because of its distance away from existing U.S. 50 communities. However, local users would continue to be able to use existing access on the current U.S. 50 because that roadway would remain in use and mobility may be improved for those making short local or in-town trips. The North Regional Corridor would balance mobility and access for users by providing

a high-speed facility with the more consistent travel speeds desired by long-distance and regional users while maintaining access for local users.

- **South Regional Corridor (●)**—The South Regional Corridor would have the same outcome on balancing user needs as the North Regional Corridor, discussed above.
- **Existing Regional Corridor (●)**—The effect of this corridor on balancing user needs would depend upon what transportation action is taken. However, actions undertaken on or near the existing U.S. 50 have the potential to benefit all user groups, both with regards to mobility and accessibility.

Provides Flexibility to Address Future Traffic Needs

Regardless of which regional corridor is used, transportation improvements could be designed in a manner that would provide flexibility to meet future needs. All three corridors offer this potential.

- **North Regional Corridor (●)**—Could accommodate improvements designed to provide future flexibility
- **South Regional Corridor (●)**—Could accommodate improvements designed to provide future flexibility
- **Existing Regional Corridor (●)**—Could accommodate improvements designed to provide future flexibility

5.1.2. Screening Results for Regional Corridor Location

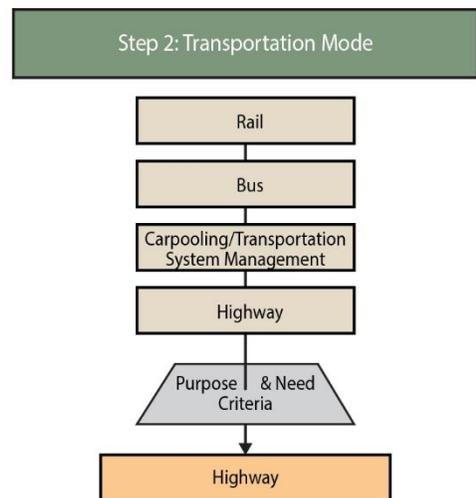
The individual findings for each general corridor for each criterion based on the project’s purpose and need were summarized in Table 5-1 and detailed above. The Existing Regional Corridor was found to have the potential to fully meet all aspects of the purpose and need. The North and South Regional Corridors were less advantageous with regard to three out of the six criteria. Because the North Regional Corridor and South General Corridor could not fully meet the project’s purpose and need, they were eliminated from further consideration.

From this point forward, the alternatives development process focused on transportation solutions that could be implemented in the Existing Regional Corridor, on or near existing U.S. 50.

5.2. Transportation Mode

The FHWA regulations cited earlier in this Technical Memorandum indicated that a Tier 1 EIS should resolve the issue of “mode choice,” which means the type of transportation system that would be used to carry people and/or goods through the corridor. Related FHWA guidance (also cited earlier), indicates that in addition to a “build” alternative (i.e., highway improvements), mass transit and TSM approaches should be considered in urban areas, but typically are not applicable in rural areas. These concepts are examined below, once again using screening criteria based on the project’s purpose and need.

There are a number of ways to improve the movement of people and goods within and through the existing regional corridor. These include a variety of modes (i.e., rail, bus, highway, etc.) as well as strategies such as carpooling and TSM that make more efficient use of existing transportation systems. These modes and strategies are described below.



5.2.1. Rail

Most of the communities along U.S. 50 originally were established as stops along the railroad, serving passengers as well as freight. Today, railroad lines still pass through these communities, carrying freight. There is also daily Amtrak passenger service between Lamar and La Junta, with stops in no other U.S. 50 communities, as shown in Figure 5-3.

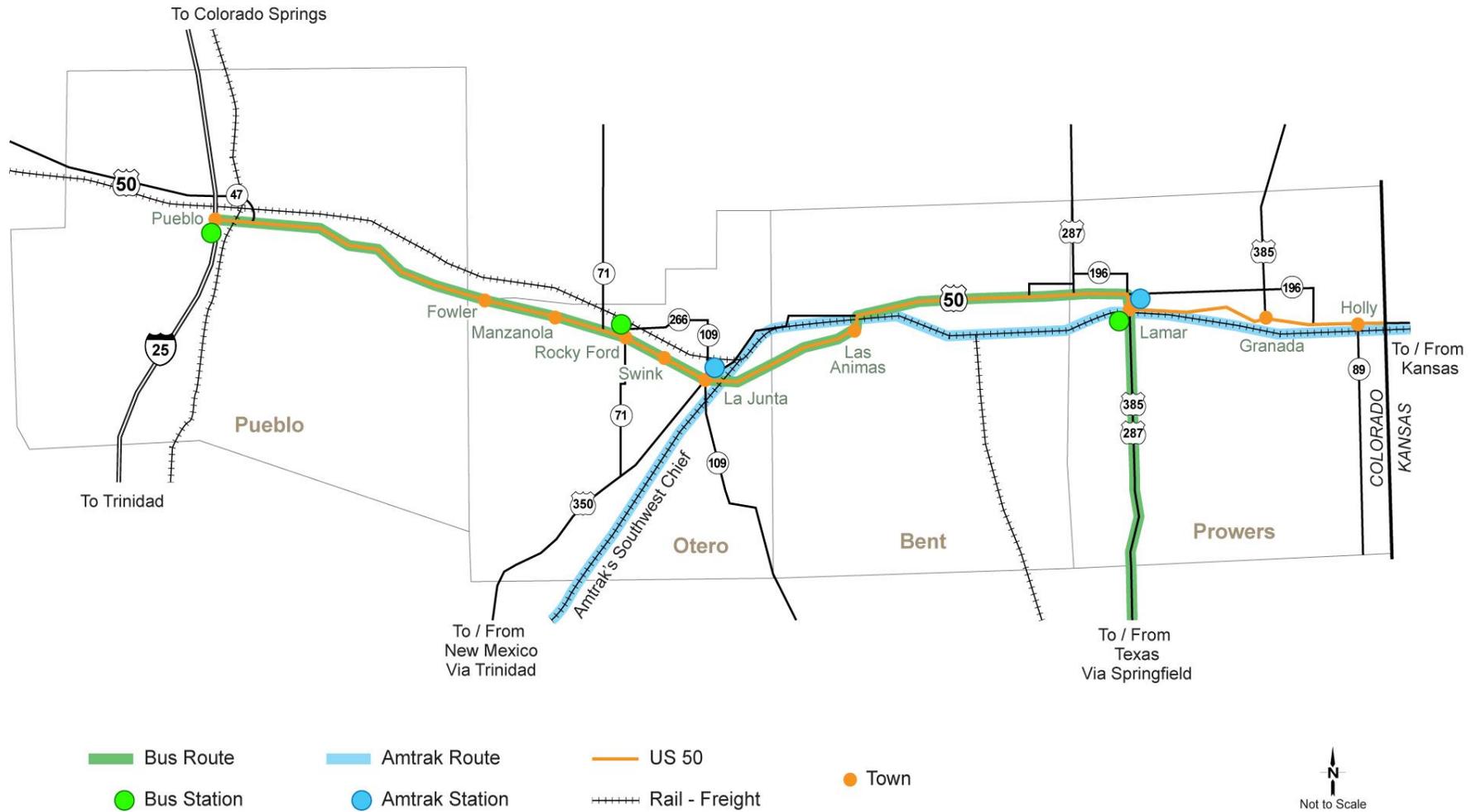


Figure 5-3. Passenger Rail and Bus Services Available within the U.S. 50 Corridor

It is possible that passenger rail service could be re-established along the corridor on existing tracks between Pueblo and La Junta if there were sufficient demand to make the service economically feasible. Also, Amtrak service could be increased, if there were sufficient demand and if additional Federal funding were available. However, the characteristics that make passenger rail service feasible, such as large population centers, high population densities, and major tourist destinations, are not present along the U.S. 50 corridor.

In 1997, CDOT conducted a Statewide Passenger Rail Study, assessing the feasibility of instituting passenger rail service in various corridors around the state. Not surprisingly, the corridors which ranked best in feasibility were all connected to Denver, which has a metro area population of more than 2.5 million. Denver's large population clearly was the key to giving any rail corridor the number of potential customers needed for cost-effectiveness.

The corridor that ranked lowest in the study was the southern-most one that was considered, linking Pueblo with Trinidad. The population in these two cities was not sufficient to offer enough potential customers to make rail service cost-effective, especially in comparison to links between larger cities. Trinidad has a population between 9,000 and 10,000 residents, making it bigger than any single city in the Lower Arkansas Valley. Service to communities in the Lower Arkansas Valley (U.S. 50 corridor) was not considered in the study.

More than 15 years have passed since the Passenger Rail Study was completed, and there is no new passenger rail service anywhere in the state. On the basis of the study results and the slow pace of progress in developing any intrastate rail service (i.e., Colorado service, not Amtrak), the prospects for any such service within the Lower Arkansas Valley in the foreseeable future are clearly minimal.

Rail freight is carried through the Lower Arkansas Valley on BNSF Railway (formerly the Atchison, Topeka, and Santa Fe Railway) tracks that closely parallel U.S. 50. Key factors that decide whether freight travels by truck or rail include the value and perishable nature of the freight, the weight and bulk of the shipment, and the trip distance. For example, coal is shipped by rail because it is low-value, non-perishable, heavy and bulky. A shipment of household goods typically travels by moving van, as it is comparatively valuable, fragile and time-sensitive, and smaller in size.

By the time freight reaches the U.S. 50 corridor from elsewhere, the transportation mode decision has already been made by the shipper. Changes in fuel cost can induce a shift of some freight between these modes, but the other factors discussed above more strongly influence the shipping decision. Therefore it is not likely that a significant shift of freight between trucks and trains will occur in the U.S. 50 corridor in the foreseeable future.

5.2.2. Bus

There is no regional bus transit service provided by either the private or public sectors serving all communities along U.S. 50. Currently, Greyhound Lines offers twice-daily intercity bus service along the U.S. 50 corridor between Pueblo and Lamar with a stop in Rocky Ford, as part of a long-distance route connecting Denver and destinations in Texas. More stops or more frequent service could be added by Greyhound if there were sufficient demand from communities along the route. However, adding stops to the route would increase total trip time, making this mode less attractive for long-distance passengers.

Apart from bus service provided by the private sector, the prospects for provision of any publicly funded service are dim, for the same fundamental reasons that make increased passenger rail service infeasible. Additionally, the Lower Arkansas Valley lacks the population base and economic strength to create a regional transportation district (supported by local sales tax) which is how the state's larger municipalities fund their local transit services.

The largest county-to-county commuter movement reflected in 2000 Census results was 500 employees traveling daily from Otero County (primarily the Town of Fowler) into Pueblo County. If 10 percent of this daily total would shift to transit use in the peak hour, they would fill one 50-passenger bus westbound in the morning and eastbound in the afternoon.

5.2.3. Carpooling/TSM

Carpooling programs, park-and-ride lots, and traffic signal synchronization are not a separate transportation mode but instead are TSM strategies designed to get more efficient use out of existing roadways. These strategies are often used in metropolitan areas where roads are highly congested, with carpooling and park-and-ride lots generally serving the commuter community. In rural areas that lack a major central attraction zone, peak travel usually is multidirectional and highly dispersed across transportation corridors. TSM and carpooling programs provide few benefits in these places. Because the U.S. 50 corridor contains only 13 traffic signals spread across 150 miles and lacks major directional traffic flows, synchronizing the traffic signals or providing other TSM strategies would not make a significant difference in the overall corridor operations. Urban traffic congestion is not one of the problems that comprise the purpose and need for the U.S. 50 Tier 1 EIS.

Carpooling already is prevalent for commuting from Fowler (a “bedroom community”) into Pueblo. According to the 2000 Census, 14.9 percent of Fowler’s workers carpooled to their jobs. This is a higher percentage of carpooling than was prevalent within the State’s large metropolitan areas (Pueblo 13.8 percent, Colorado Springs 11.7 percent, Denver 13.5 percent). Savings in vehicle operating already provide effective carpooling incentives for these regional trips, without the need for carpool promotion programs or park-and-ride lots to promote additional carpooling.

Traffic signalization is not an applicable TSM strategy for the U.S 50 corridor, as there are only 13 signals along the 150-mile corridor and they are so far apart that they cannot be synchronized.

5.2.4. Highway

U.S. 50 is the most-used roadway serving east-west trips through the Lower Arkansas Valley. Typical 2011 traffic volumes on U.S. 50 were approximately 5,500 vehicles per day (vpd). Truck volumes along the U.S. 50 corridor make up 10 percent of the overall corridor volume, including trucks that are typically used for local or regional deliveries and those larger tractor-trailers used for long-distance or regional deliveries (Swenka 2014). Highway use has been the dominant transportation mode in the region for decades, as it is well suited to the types of trips made and the low-density development patterns along the corridor.

5.2.5. Screening of Transportation Modes

The transportation modes described above were examined to determine how well each would meet the project’s purpose and need, using the same screening criteria that were applied to determine a regional corridor location:

- How well each addresses U.S. 50 safety problems
- How well each improves mobility for local users
- How well each improves mobility for regional users
- How well each improves mobility for long-distance users
- How well each balances mobility and access for all users
- How well each provides flexibility to address future travel needs

The results of this screening evaluation are summarized in Table 5-2.

Table 5-2. Transportation Mode Screening Results Summary

Screening Criteria	Rail/Bus Transit	Carpooling/ TSM Strategies	Highway
Addresses U.S. 50 safety problems	○	○	●
Improves mobility for local users	○	○	●
Improves mobility for regional users	◐	◐	●
Improves mobility for long-distance users	◐	○	●
Balances mobility and access for all users	○	○	●
Provides flexibility to address future traffic needs	◐	◐	●

KEY:

○ = does not address the need ◐ = partially addresses the need ● = fully addresses the need

The EIS contains a table summarizing the findings above but not necessarily specifying the rationale for each rating for each corridor. These individual ratings are explained below.

Addresses U.S. 50 Safety Problems

The U.S. 50 project purpose and need identifies a large number of existing safety problems along the corridor, including limited passing opportunities, inadequate clear zones, frequent changes in roadway design, and an excessive number of access points.

- **Rail/Bus Transit (○)**—Providing increased bus or rail service in the Existing Regional Corridor would leave existing U.S. 50 safety problems uncorrected. Slightly fewer motorists would be exposed to existing safety problems, if some traffic diverted to use of rail or bus services. Bus passengers on U.S. 50 would face the same problems as motorists, but in a different type of vehicle.
- **Transportation System Management (○)**—For the same reasons applicable to Rail/Bus Transit, TSM strategies such as carpooling programs and traffic signal synchronization would also not address U.S. 50 safety problems.
- **Highway Improvements (●)**—Corridor-wide highway improvements would be designed in accordance with current safety standards and thus would address U.S. 50 safety problems to the greatest degree practical. Only highway improvements could address these needs on U.S. 50.

Improves Mobility for Local Users

For travelers making short trips on U.S. 50 (e.g., 15 miles or less), the ability to enter, exit, or cross U.S. 50, is particularly important, as is the ability to move along U.S. 50 at moderately low speeds.

- **Rail/Bus Transit (○)**—To provide reasonable average travel speeds for passengers, corridor-level bus or rail service would need to have a minimum number of stops, such as one stop per U.S. 50 community, consistent with the types of service currently offered by the private sector and Amtrak. This means that all users of this mode would be making regional trips. This mode is not suited to accommodate local trips.
- **Transportation System Management (○)**—Carpooling offers no benefit for local trips because they are so short (less than 15 miles, and often much shorter) that the time and distance spent to coordinate the carpool adds a large proportional increase to the amount of time needed to make the trip.
- **Highway Improvements (●)**—The extent to which mobility for local users of U.S. 50 would be improved depends upon what transportation action is taken. However, actions undertaken on or near the existing U.S. 50 have the potential to benefit local users because it is closest to where local users live and work.

Improves Mobility for Regional Users

Regional travelers make trips that start or end within the U.S. 50 corridor and pass through more than one city or town. Typical regional trips are between 15 and 100 miles long.

- **Rail/Bus Transit (◐)**—Rail or bus transit is well suited for regional passenger trips from one U.S. 50 community to another, but not all commutes along U.S. 50 areas are served by regional bus and/or passenger rail. Where there is existing and planned bus or rail service, service would not be offered at intervals frequent enough to be convenient for most trips, including most freight trips. Rail and bus modes would carry regional travelers from one rail station or bus stop to another, but could not be expected to provide door-to-door service between the trip's specific origin and destination. Transit modes would be beneficial for some regional users, but not for all regional users.
- **Transportation System Management (◐)**—Among potential TSM strategies, carpooling is well suited for regional trips, due to the savings in vehicle operating costs available to the user. As with the transit mode, carpooling would be beneficial for some regional users, but not for all, and especially not for freight trips.
- **Highway Improvements (●)**—The extent to which mobility for regional users of U.S. 50 would be improved depends upon what transportation action is taken. However, highway improvements have the potential to improve mobility for all regional trips.

Improves Mobility for Long-distance Users

Chapter 1 of the U.S. 50 EIS describes long-distance users as those who pass through the Lower Arkansas Valley to reach some other destination. Long-distance trips along U.S. 50 extend at least between U.S. 287 and I-25, a distance of about 120 miles.

- **Rail/Bus Transit (◐)**—The region is currently serviced by Greyhound buses and Amtrak long-distance rail service. There are Greyhound stations in the City of Pueblo and the City of Rocky Ford, and Amtrak stations are in the City of Lamar and the City of La Junta. These services currently provide long-distance users with transit service to Denver, Santa Fe, Kansas City, and regions beyond. Adding long-distance transit service along the U.S. 50 corridor would duplicate these existing services. To improve mobility for long-distance users, rail or bus transit service within the U.S. 50 corridor would need to offer convenient connections with similar services connecting to other locations in Colorado and other states (e.g., Amtrak or Greyhound Bus). Adding bus or rail service would not do anything to improve travel time for bus users or for the majority of long-distance users (i.e., those in personal autos), who would still encounter no-passing zones on the highway and speed-reduction zones through towns.
- **Transportation System Management (○)**—TSM strategies are not designed to address long-distance users. They would not reduce travel time for these users for the same reasons mentioned above for rail and bus modes.
- **Highway Improvements (●)**—The extent to which mobility for long-distance users of U.S. 50 would be improved depends upon what transportation action is taken. However, highway improvements have the potential to improve mobility for all long-distance users, either by eliminating speed-reduction zones through towns and reducing the conflicts with other user types.

Balances Mobility and Access for All Users

Chapter 2 of the EIS discusses how the need for access by local and regional users conflicts with the need for mobility by other regional users and by long-distance users. The project purpose and need calls for a solution that balances the needs of all users.

- **Rail/Bus Transit (○)**—As noted above, rail and bus transit would provide very limited mobility benefits for regional users but no improvement for local and long-distance users.
- **Transportation System Management (○)**—As noted above, rail and bus transit would provide very limited mobility benefits for regional users but no improvement for local and long-distance users.
- **Highway Improvements (●)**—The effect of this corridor on balancing user needs would depend upon what transportation action is taken. However, actions undertaken on or near the existing U.S. 50 have

the potential to serve both higher passenger vehicle volumes and reduce conflicts between private, commercial, and agricultural users.

Provides Flexibility to Address Future Traffic Needs

Regardless of which regional corridor is used, transportation improvements could be designed in a manner that would provide flexibility to meet future needs. All three corridors offer this potential.

- **Rail/Bus Transit** (◐)—Rail has the flexibility to carry increased ridership in the future, but cannot be easily relocated. Bus transit can carry increased ridership and can be re-routed as necessary. However, neither mode is well suited to handle the types of local and regional freight currently carried by trucks on the highway.
- **Transportation System Management** (◐)—TSM strategies are highly flexible but are geared largely toward could accommodate passenger congestion problems and not local and regional freight.
- **Highway Improvements** (●)—Highway improvements offer the flexibility to provide expanded capacity (through future widening) and modified access as needed to meet demands from future development.

5.2.6. Screening Results for Transportation Modes

The individual findings for each transportation mode for each screening criterion based on the project's purpose and need were summarized in Table 5-2 and detailed above. Highway improvements were found to have the potential to fully meet all aspects of the purpose and need. Rail or bus transit and TSM strategies were less advantageous with regard to four out of the six criteria. Their fatal flaw was their inability to address safety problems on the existing U.S. 50. Therefore, the rail/bus and TSM modes were eliminated for further consideration.

From this point forward, the alternatives development process focused on highway improvements that could be implemented in the Existing Regional Corridor, on or near existing U.S. 50.

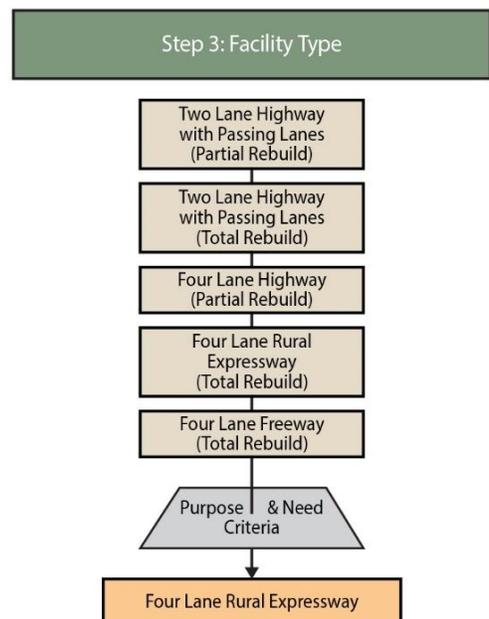
5.3. Facility Type

About two-thirds of the 150-mile U.S. 50 corridor today consists of two-lane highway (one lane each direction), and about one-third has been built as a four-lane highway. Projected traffic volumes along the U.S. 50 corridor could range from 3,000 to 17,500 vpd by the year 2040. These future volumes can be accommodated on a road with two to four through lanes (varying by location), and clearly would not require a six-lane highway. Therefore, consideration was given only to two-lane and four-lane roadways.

The following facility types were considered and are discussed in more detail below:

- Two-lane highway with passing lanes (partial rebuild)
- Two-lane highway with passing lanes (total rebuild)
- Four-lane highway (partial rebuild)
- Four-lane rural expressway (total rebuild)
- Four-lane freeway (total rebuild)

Consistent with the decision to go around towns discussed above, each facility type would be built to go around U.S. 50 communities, except at Pueblo where the existing four-lane highway would remain at its current location. Through towns, the existing road would remain unchanged.



5.3.1. Two-Lane Highway with Passing Lanes (Partial Rebuild)

The approximately 96 miles where U.S. 50 is a two-lane highway would be reconstructed to add intermittent passing lanes. These lanes would be added to enable motorists to avoid having to follow a slow-moving vehicle for an extended time and distance. Extra-wide shoulders (10 – 12 feet) would be provided as well. In addition to making these improvements to the two-lane sections, safety improvements would be made at spot locations on four-lane sections in response to specific safety problems. Existing four-lane sections would remain four lanes. Speed limits would remain the same as they are currently, requiring vehicles to slow down as they approach urban areas and intersections.

5.3.2. Two-Lane Highway with Passing Lanes (Total Rebuild)

The entire U.S. 50 corridor would be reconstructed as a two-lane highway with passing lanes and extra-wide shoulders. Existing four-lane sections of road would be rebuilt as a modern two-lane highway with passing lanes. The reason that all of the highway would be rebuilt in this way is to avoid frequent roadway changes that contribute to driver confusion. It would represent a decrease in the existing number of through lanes for portions of the corridor between towns. Speed limits would remain the same as they are currently, requiring vehicles to slow down as they approach urban areas and intersections.

5.3.3. Four-Lane Highway (Partial Rebuild)

On the 96 miles of U.S. 50 where the highway is currently two lanes, it would be widened to four through lanes (two in each direction), with acceleration and deceleration lanes for turning where appropriate. With the exception of at crossing locations, median types would vary from narrow paved medians to wider grassy medians, depending on location, terrain, and other factors. The highway would have at-grade intersections, not grade-separated interchanges. On rebuilt portions, the posted speed limit would typically be 65 miles per hour, and access to the highway normally would be available at intervals no closer than a half-mile apart.

Compliance with modern design standards generally would require a much wider cross section than the existing CDOT right of way along the corridor. U.S. 50 and all intersecting roadways would meet at grade, requiring signalized intersections where warranted by traffic volumes.

5.3.4. Four-Lane Rural Expressway (Total Rebuild)

U.S. 50 would be reconstructed as an expressway, with a wide median and access provided at a minimum of half-mile spacing. The resulting elimination of numerous existing access points would require that some local trips use other roadways, and in some cases frontage roads, to reach U.S. 50. An expressway would maintain a posted speed limit of 65 miles per hour in most locations, dropping to 50 miles per hour for approaches to signalized intersections.

Grade separations would be provided to minimize the number of signalized intersections needed. Access to the highway would be available at intervals not closer than a half-mile apart and access to communities would be maintained. At locations with at-grade access but not enough traffic to warrant a signalized intersection, unsignalized intersections would be provided. There would be sufficient room in the median for a vehicle to cross one direction of traffic, then wait at a stop sign before crossing the other highway lanes or making a left turn onto the highway.

5.3.5. Four-Lane Freeway (Total Rebuild)

U.S. 50 would be completely reconstructed as a freeway, with no at-grade access and with interchanges typically no closer than three miles apart. The posted speed limit would be 65 miles per hour. To make local trips, motorists would have to use other local streets to reach a grade-separated interchange where U.S. 50 could be accessed or crossed.

5.3.6. Screening of Facility Types

The facility types described above were screened to determine how well each would meet the project's purpose and need for local, regional, and long-distance users of the highway. The results of this screening are summarized in Table 5-3 and are detailed below.

Table 5-3. Summary of Facility Type Screening Results

Screening Criteria	Two-Lane Highway with Passing Lanes		Four-Lane Highway	Four-Lane Rural Expressway	Four-Lane Freeway
	Partial Rebuild	Total Rebuild	Partial Rebuild	Total Rebuild	Total Rebuild
Addresses U.S. 50 safety problems					
Improves mobility for local users					
Improves mobility for regional users					
Improves mobility for long-distance users					
Balances mobility and access for all users					
Provides flexibility to address future traffic needs					

KEY:

= does not address the need = partially addresses the need = fully addresses the need

Addresses U.S. 50 Safety Problems

All rebuilt portions of the highway would be designed and constructed in accordance with modern safety standards. Therefore all facility types would improve safety at least to some degree.

- **Two-Lane Highway with Passing Lanes (Partial Rebuild)** ()—Rebuilding just the existing two-lane portions of U.S. 50 to meet current safety standards would leave existing safety problems uncorrected on the four-lane portions of the highway. This resulting degree of safety improvement would be substantial but not corridor-wide.
- **Two-Lane Highway with Passing Lanes (Total Rebuild)** ()—Passing lanes would offer relief from slow-moving vehicles in one direction at a time. The resulting degree of safety improvement would be substantial but would not accommodate safe passing in both directions on a corridor-wide basis.
- **Four-Lane Highway (Partial Rebuild)** ()—Rebuilding just the existing two-lane portions of U.S. 50 would leave existing safety problems uncorrected on the four-lane portions of the highway. This resulting degree of safety improvement would be substantial but not corridor-wide.
- **Four-Lane Rural Expressway (Total Rebuild)** ()—Total rebuild to a four-lane expressway meeting modern safety standards would enable faster-moving traffic in the left lane to safely pass slower moving traffic in the right lane on a corridor-wide basis.
- **Four-Lane Freeway (Total Rebuild)** ()—Total rebuild to a four-lane freeway meeting modern safety standards would enable faster-moving traffic in the left lane to safely pass slower moving traffic in the right lane on a corridor-wide basis.

Improves Mobility for Local Users

All rebuilt portions of the highway would be designed and constructed to provide better passing opportunities, at least in some locations, which would benefit all users at least to some degree. Additionally, the following effects would result for the respective facility types:

- **Two-Lane Highway with Passing Lanes (Partial Rebuild)** ()—Improved passing opportunities would be beneficial to all users, including local users. However, a two-lane highway with passing lanes would degrade the ability of local users to cross the highway or to make left turns onto the highway, because they would have to cross an additional lane of oncoming traffic to make these maneuvers.

- **Two-Lane Highway with Passing Lanes (Total Rebuild)** (🟢) —Improved passing opportunities would be beneficial to all users, including local users. However, on existing two-lane portions of U.S. 50, conversion to a two-lane highway with passing lanes would degrade the ability of local users to cross the highway or to make left turns onto the highway, because they would have to cross an additional lane of oncoming traffic to make these maneuvers.
- **Four-Lane Highway (Partial Rebuild)** (🟢) —Improved passing opportunities would be beneficial to all users, including local users. However, widening two-lane portions of U.S. 50 to four lanes with no median would make crossing the highway more difficult for local users.
- **Four-Lane Rural Expressway (Total Rebuild)** (🟢) —Improved passing opportunities would be beneficial to all users, including local users. Additionally, an expressway would provide a median so that persons crossing the highway or turning left onto it could cross one direction of traffic safely before having to deal with traffic coming from the other direction.
- **Four-Lane Freeway (Total Rebuild)** (🔴) —Access onto the freeway would be provided only at locations typically spaced several miles apart from one another, thus hindering the ability of local users to access or cross the freeway.

Improves Mobility for Regional Users

All rebuilt portions of the highway would be designed and constructed to provide better passing opportunities, at least in some locations, which would benefit all users at least to some degree. Additionally, the following effects would result for the respective facility types:

- **Two-Lane Highway with Passing Lanes (Partial Rebuild)** (🟢) —Improved passing opportunities would be beneficial to all users, including regional users. However, this would not be as beneficial to regional users as four-lane facility types, on which faster vehicles would have the ability to go around slower-moving vehicles on a corridor-wide basis.
- **Two-Lane Highway with Passing Lanes (Total Rebuild)** (🟢) —Improved passing opportunities would be beneficial to all users, including regional users. However, this would not be as beneficial to regional users as four-lane facility types, on which faster vehicles would have the ability to go around slower-moving vehicles on a corridor-wide basis.
- **Four-Lane Highway (Partial Rebuild)** (🟢) —Mobility for regional users would be improved because faster vehicles would have the ability to go around slower-moving vehicles on a corridor-wide basis.
- **Four-Lane Rural Expressway (Total Rebuild)** (🟢) —Mobility for regional users would be improved because faster vehicles would have the ability to go around slower-moving vehicles on a corridor-wide basis.
- **Four-Lane Freeway (Total Rebuild)** (🟢) —Mobility for regional users would be improved because faster vehicles would have the ability to go around slower-moving vehicles on a corridor-wide basis.

Improves Mobility for Long-distance Users

Adding passing lanes would improve travel times over existing conditions, but four-lane facilities would be more effective at separating fast-moving and slow-moving vehicles on a corridor-wide basis by providing more consistent and higher average travel speeds for long-distance users of U.S. 50. Constructing a full, grade-separated, free flowing freeway facility would provide the best service to long-distance users.

Balances Mobility and Access for All Users

Chapter 1 of the EIS discusses how the need for access by local and regional users conflicts with the need for mobility by other regional users and by long-distance users. The project purpose and need calls for a solution that balances the needs of all users.

- **Two-Lane Highway with Passing Lanes (Partial Rebuild)** (🔴) —Adding passing lanes to a two-lane highway would make it more difficult for local users to cross or turn left onto the highway. This would not result in a balance between mobility and access for all users.

- **Two-Lane Highway with Passing Lanes (Total Rebuild) (○)**—Adding passing lanes to a two-lane highway would make it more difficult for local users to cross or turn left onto the highway. This would not result in a balance between mobility and access for all users.
- **Four-Lane Highway (Partial Rebuild) (○)**—Widening two-lane sections of U.S. 50 to four lanes with no median would make it more difficult for local users to cross or turn left onto the highway. This would not result in a balance between mobility and access for all users.
- **Four-Lane Rural Expressway (Total Rebuild) (●)**—Mobility for regional users would be improved because faster vehicles would have the ability to go around slower-moving vehicles on a corridor-wide basis, and provision of a median would accommodate access to or across the expressway by local users.
- **Four-Lane Freeway (Total Rebuild) (○)**—The spacing of freeway interchanges several miles apart from one another would significantly reduce the ability of local users to access U.S. 50 or to cross it. This would not result in a balance between mobility and access for all users.

Provides Flexibility to Address Future Traffic Needs

Economic diversification is seen as necessary by U.S. 50 communities which have seen four decades of minimal population growth. To meet the U.S. 50 project purpose and need, the corridor needs to be able to accommodate future development, not hinder it. Flexibility is needed to be able to accommodate access changes in the future.

- **Two-Lane Highway with Passing Lanes (Partial Rebuild) (○)**—The limited passing opportunities of a two-lane highway, even with passing lanes, would not accommodate future user demand that might be generated by new development or by increased long-distance truck traffic on U.S. 50.
- **Two-Lane Highway with Passing Lanes (Total Rebuild) (○)**—The limited passing opportunities of a two-lane highway, even with passing lanes, would not accommodate future user demand that might be generated by new development or by increased long-distance truck traffic on U.S. 50.
- **Four-Lane Highway (Partial Rebuild) (●)**—Widening two-lane sections of U.S. 50 to four lanes with no median refuge would not correct the design deficiencies on the existing four-lane sections of the highway. This would not be as beneficial as corridor-wide reconstruction to four lanes meeting current design standards.
- **Four-Lane Rural Expressway (Total Rebuild) (●)**—Corridor-wide reconstruction to a four-lane expressway with a median refuge would provide ample passing opportunities and complete flexibility to address any foreseeable future needs.
- **Four-Lane Freeway (Total Rebuild) (●)**—Corridor-wide reconstruction to a four-lane freeway with a median would provide ample passing opportunities and complete flexibility to address any foreseeable future needs.

5.3.7. Screening Results for Facility Type

As shown earlier in Table 5-3, a four-lane expressway is the only facility type that provides improvement for all of the problems identified in the project's purpose and need. Facility types without a median refuge (i.e., two-lane options and the four-lane highway option) would hinder the ability of local users to cross or turn left onto the highway safely. A freeway would severely limit the number of locations where crossing or local access could be accomplished. Therefore, it was determined that the two-lane highway, four-lane highway (partial rebuild), and four-lane freeway would not meet the purpose and need of the project. The four-lane expressway was identified as the only facility type to be carried forward for further consideration in the alternatives development process because it met all the needs identified along the corridor.

5.3.8. Interim Improvements

Since it is not expected that funding would be available to build the expressway all at one time, it is likely that the expressway would be built in sections and phases over time. As funds become available, highway improvements could be built that would be incorporated into the planned expressway. For example, passing

lanes and wide shoulders could be constructed so that they would become one-half of the future expressway. These issues will be addressed during Tier 2 studies.

5.4. Through Town or Around Town (Bypass)

Corridors through communities and those around them were considered and evaluated in this Tier 1 EIS. This question was critical for a number of reasons. First, in all of the communities east of Pueblo, U.S. 50 is lined with homes and businesses, including many recognized historic sites and other important community resources that could be adversely affected. Second, existing corridor right of way through most of the communities is typically not wide enough to accommodate a highway built to modern safety standards. Third, U.S. 50 functions as the main street in many of these communities. The highway is intersected by numerous cross streets and driveways, and even has roadside parking for businesses. Highway improvements through town would change local access and traffic circulation patterns. Furthermore, with increased traffic in the future, the highway will become even more of a barrier, separating one side of town from the other. Additionally, moving the highway outside of the town centers would reduce the number of intersections and traffic signals, thus reducing delays and speed reductions. This would be especially beneficial to regional and long-distance travellers. These tradeoffs were recognized in the 2003 U.S. 50 planning study. Thus, CDOT worked with the affected communities to identify issues and concerns with through-town corridors, and to identify potential around-town corridors.



It should be noted that, at Pueblo, alignment alternatives—including the existing alignment—are technically within the city of Pueblo; therefore, it is partially inaccurate to describe the alternatives at that location as “around town.” For this reason, the existing alignment was retained as a Build Alternative regardless of the outcome of the screening process for through-town versus around-town corridors.

It also should be noted that, between communities along the U.S. 50 corridor, the highway generally would remain in its current location, with the exception of the merger to a new alignment around towns and correction of one substandard curve.

5.4.1. Through-Town Corridors

Potential through-town corridors were examined that used the existing U.S. 50 right of way plus adjacent land on its north side or south side. CDOT’s existing right of way through towns varies from 60 feet to 80 feet. Based on modern highway design, a minimum of 130 feet would be needed to accommodate through-traffic lanes, a center median, turn lanes, outside shoulders, sidewalks, and clear zones for vehicles to recover. A diagram depicting a 130-foot-wide right of way through a typical town is shown in Figure 5-4.

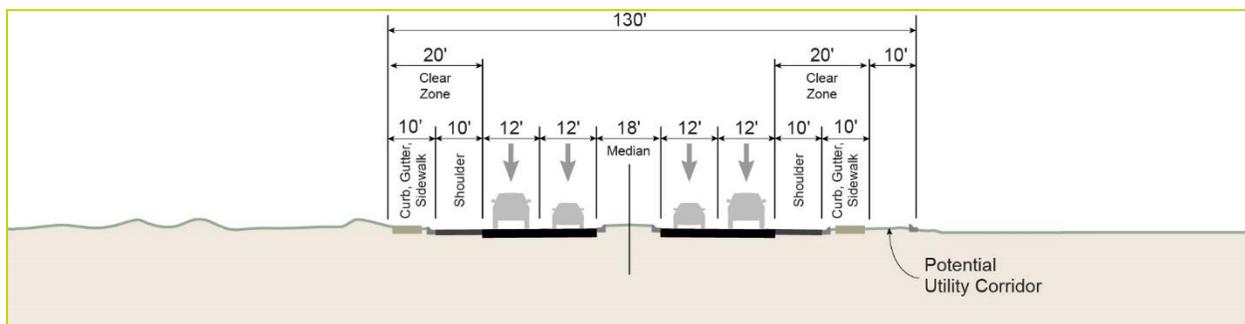
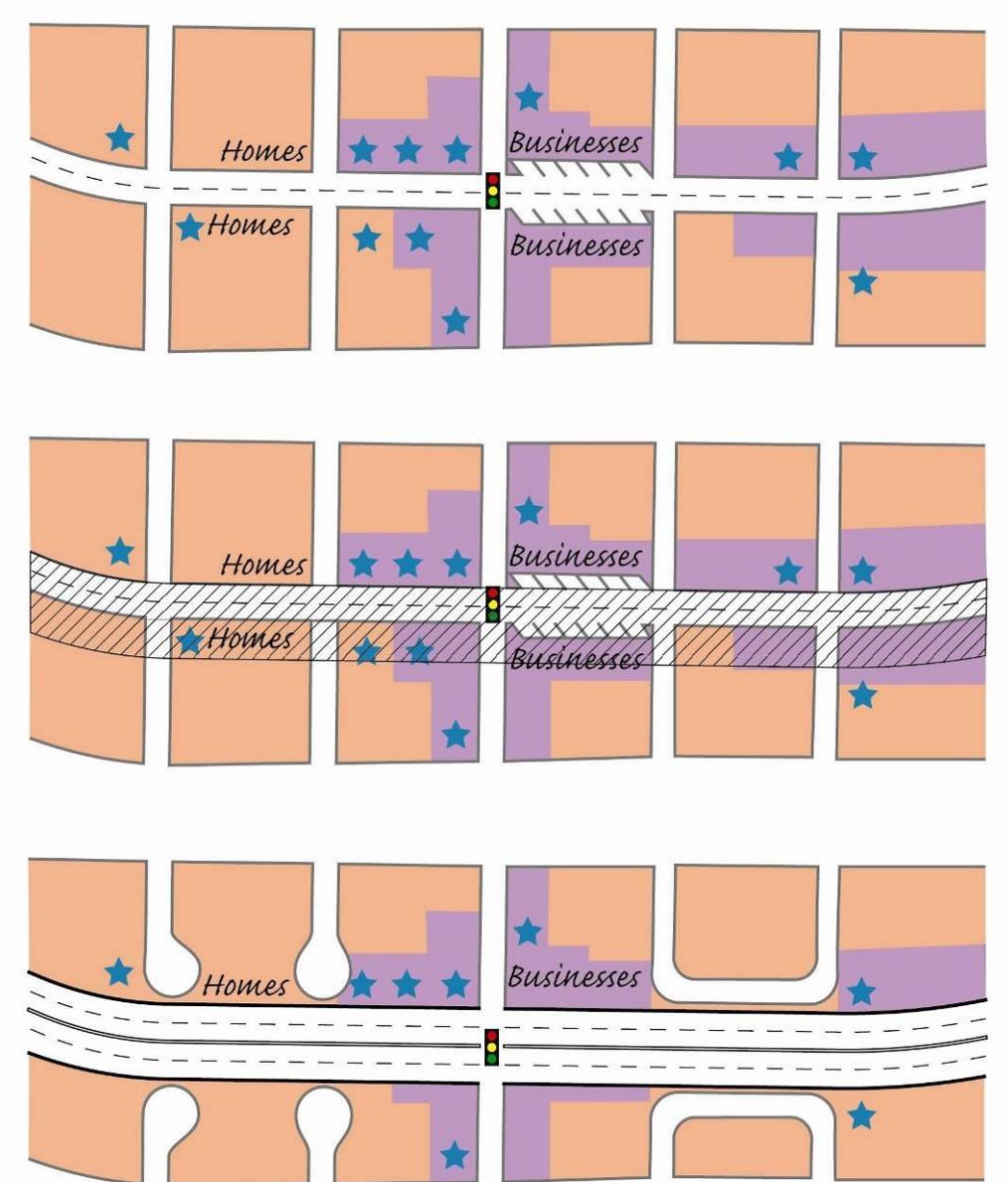


Figure 5-4. Ideal Through-Town Typical Section

Existing non-signalized intersections would be eliminated and the side roads turned into cul-de-sacs or connected together to form loops. No on-street parking would be allowed on the highway. The highway would be designed to carry traffic at posted speed limits of 50 mph. Figure 5-5 shows that homes, businesses, historic resources, and other community assets would be displaced by a through-town corridor location.



TOP VIEW: The existing two-lane highway is lined with homes (orange areas) and businesses (purple areas), some of which are historic sites (stars), and even has some on-street parking; the low-speed (35 miles per hour) highway can be crossed at many cross streets.

MIDDLE VIEW: The cross-hatched area denotes right of way needed for a higher-speed (50 miles per hour), access-controlled highway designed to meet modern safety specifications.

BOTTOM VIEW: A widened, access-controlled highway results in loss of homes, businesses, historic sites, and parking; opportunities to cross the highway are greatly reduced because cross streets are blocked off to improve safety on the highway; local circulation patterns on the municipal street system change, putting more traffic on parallel streets and the major cross-street. A left-turn lane (not shown) would likely be provided on U.S. 50 at the intersection.

Figure 5-5. Typical Right of Way and Access Effects for a Four-Lane Corridor Through a Community

Intersections with U.S. 50 would be limited to other connecting state highways and other major roads, generally no closer together than one-half mile apart, and signalized where warranted. This would significantly reduce the number of places where people could cross U.S. 50 on foot, by bicycle, or even driving. Since streets crossing U.S. 50 would generally be one-half mile apart, local residents would need to travel out of their way to cross the highway.

Obtaining the right of way needed to build a modern highway through town would require removing homes and businesses from one side or both sides of the highway. These alternatives were examined individually for each community along the U.S. 50 corridor. Consideration was also given to new through-town corridors, generally along the north or south side of existing railroad tracks, for the purpose of minimizing impacts to historic resources along U.S. 50. The numbers of potentially affected resources that are reported below reflect the best case and worst case impacts associated with the specific through-town corridors that were developed for consideration in each community.

Depending on the corridors selected, through-town alternatives would unavoidably require removing at least 225 homes and businesses, and possibly as many as 445.

Many homes, businesses, or public buildings that are significant to the history of U.S. 50 communities are located immediately adjacent to the highway, on either side of it. Thus, for example, shifting the highway to one side to avoid a particular historic site would often result in impacting another historic site on the other side of the road. Table 5-4 shows the affects of the through-town corridors on homes, businesses, and historic sites, including those that are listed or eligible for listing on the National Register of Historic Places (NRHP).

Table 5-4. Homes, Businesses, and Historic Resources Potentially Affected by Through-Town Corridors

Attribute	Through-Town Corridors
Ideal right of way needed	130 feet (of the 1,000-foot corridor)
Number of homes and businesses within the corridor ^a	225 to 445 ^b
Number of historic resources within the corridor ^a	150 ^b

^a Ranges reflect best case and worst case corridors through town, excluding resources between communities

^b Resources in through-town corridors mostly cannot be avoided, because the existing highway is surrounded by homes and businesses, many of them historic

5.4.2. Around-Town Corridors

Due to the community disruption of through-town corridors, CDOT explored potential around-town corridors in consultation with local communities. Around-town corridors were developed initially in the U.S. 50 planning study and refined during the U.S. 50 Tier 1 EIS. Corridors going around the north and the south sides of the communities were sketched onto aerial maps, attempting to avoid impacts to community and ecological resources. At the request of the communities, these corridors were kept as close to U.S. 50 as possible, but just far enough around the towns to avoid impacting key resources. Because U.S. 50 connects to I-25 within the city of Pueblo (the western terminus for this Tier I EIS), an around-town corridor alternative was not developed for Pueblo.

The right of way needed for around-town corridors would be up to 250 feet to provide a wide median (typically 100 feet) as a refuge for truck and farm equipment crossing U.S. 50 at crossroads, as shown in Figure 5-6. No sidewalks would be provided in these areas outside of the communities. Around-town corridors would have a posted travel speed of 65 miles per hour. Around-town corridors would allow access only from crossroads, no closer than a half-mile apart. Generally, no direct access would be provided for driveways and field roads.

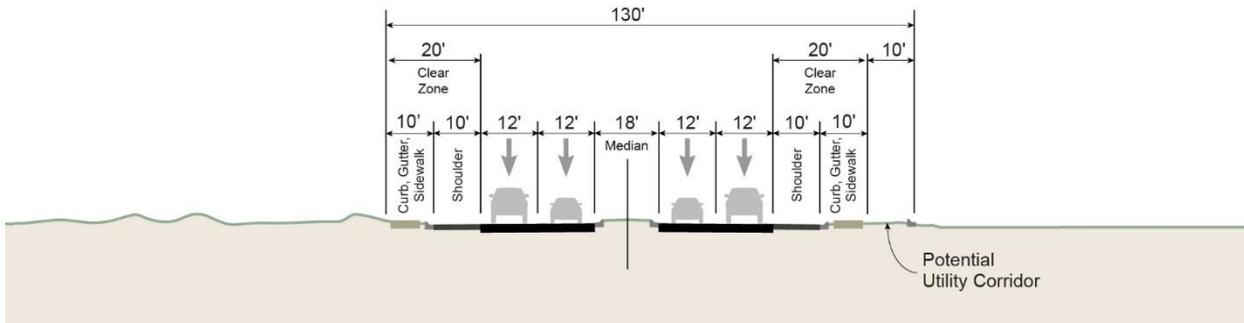


Figure 5-6. Ideal Around-Town Typical Section

Table 5-5 shows the potential effects of the around-town corridors on homes, businesses, and historic sites, including those that are listed or eligible for listing on the NRHP.

Table 5-5. Homes, Businesses, and Historic Resources Potentially Affected by Around-Town Corridors

Attribute	Around-Town Corridors ^a
Ideal right of way needed	250 feet (of the 1,000-foot corridor) ^b
Number of homes and businesses within the corridor ^a	95 to 215 ^c
Number of historic resources within the corridor ^a	69 to 72 ^c

^aRanges reflect best-case and worst-case corridors around town.

^bRight of way required is greater than that of the through-town corridor to accommodate a wider median.

^cResources are probably avoidable to a large degree since they were counted within a 1,000-foot-wide corridor, of which only 250 feet actually will be needed for right of way.

5.4.3. Screening of Through-Town and Around-Town Corridors

Through-town and around-town concepts for corridor locations were screened to determine how well each would meet the project's purpose and need for local, regional, and long-distance users of the highway. In addition to the six criteria that were used in the earlier screening steps, a seventh criterion was used here, due to public concerns about potential community disruption. The seventh criterion addresses how well a through-town or around-town corridor would minimize community impacts. The results of the through-town or around-town screening are summarized in Table 5-6.

Table 5-6. Through-Town or Around-Town Screening Results Summary

Screening Criteria	Through-Town	Around-Town
Addresses U.S. 50 safety problems	●	●
Improves mobility for local users	○	●
Improves mobility for regional users	◐	●
Improves mobility for long-distance users	◐	●
Balances mobility and access for all users	○	●
Provides flexibility to address future traffic needs	○	●
Minimizes community impacts	○	◐

KEY:

○ = does not address the need ◐ = partially addresses the need ● = fully addresses the need

The EIS contains a table summarizing the findings above but not necessarily specifying the rationale for each rating for each corridor. These individual ratings are explained below.

Addresses U.S. 50 Safety Problems

The U.S. 50 project purpose and need identifies a large number of existing safety problems along the corridor, including limited passing opportunities, inadequate clear zones, frequent changes in roadway design, and an excessive number of access points.

- **Through-Town Corridors (●)**—If highway improvements were made through towns, they would be designed and constructed to comply with current safety standards for a design speed of 50 miles per hour.
- **Around-Town Corridors (●)**—If highway improvements were made around towns, they would be designed and constructed to comply with current safety standards for a design speed of 65 miles per hour.

Improves Mobility for Local Users

For travelers making short trips on U.S. 50 (e.g., 15 miles or less), the ability to enter, exit or cross U.S. 50, is particularly important, as is the ability to move along U.S. 50 at moderately low speeds.

- **Through-Town Corridors (○)**—A highway carrying traffic at 50 miles per hour through towns would require eliminating access from residential and commercial driveways, as well as blocking most cross streets. Motorists, bicyclists and pedestrians alike would be channeled to cross the highway at a few or perhaps a single location in town, greatly restricting their current mobility as well as changing local traffic circulation on other local streets.
- **Around-Town Corridors (●)**—A new highway corridor would take through-traffic around towns, The resulting reduction of traffic through towns would make it easier for most local users to access or cross the existing highway, although the new highway would adversely affect mobility for a small number of local trips within the new, around-town corridors. U.S. 50 traffic would be able to enter towns generally where it does today, on the existing roadway, and possibly from one or more major intersecting roadways that already enter the town. Thus there would be minimal disruption to local traffic patterns.

Improves Mobility for Regional Users

Regional travelers make trips that start or end within the U.S. 50 corridor and pass through more than one city or town. Typical regional trips are between 15 and 100 miles long.

- **Through-Town Corridors (◐)**—A highway offering travel at 50 mph through towns would reduce trip time and thereby improve mobility for regional travelers. However, accessing a specific origin or destination within the town would be less convenient since access to adjacent properties and most cross streets would be eliminated.
- **Around-Town Corridors (●)**—Regional users would have the ability to travel around towns at 65 miles per hour on the new highway corridor or to enter town and access a trip origin or destination using the existing highway.

Improves Mobility for Long-distance Users

Long-distance users are those who pass through the Lower Arkansas Valley to reach some other destination. Long-distance trips along U.S. 50 extend at least between U.S. 287 and I-25, a distance of about 120 miles.

- **Through-Town Corridors (◐)**—A highway allowing travel at 50 mph through towns would improve mobility for long-distance users. However these motorists would likely have to stop for one or more traffic signal within each city or town.
- **Around-Town Corridors (●)**—Long-distance users would be able to travel at 65 mph around towns, with even greater mobility improvement than on through-town corridors.

Balances Mobility and Access for All Users

Chapter 1 of the EIS discusses how the need for access by local and regional users conflicts with the need for mobility by other regional users and by long-distance users. The project purpose and need calls for a solution that balances the needs of all users.

- **Through-Town Corridors (◐)**—As noted above, through-town corridors would significantly diminish access to U.S. 50 for the residents of the communities along the highway. This drawback would more than offset the mobility improvement accruing to regional and long-distance users.
- **Around-Town Corridors (●)**—Around-town corridors would maintain existing access and mobility within communities while also improving mobility for regional and long-distance users by enabling them to travel at a high speed on the new corridors.

Provides Flexibility to Address Future Traffic Needs

Economic diversification is seen as necessary by U.S. 50 communities which have seen four decades of minimal population growth. To meet the U.S. 50 project purpose and need, the corridor needs to be able to accommodate future development, not hinder it. Flexibility is needed to be able to accommodate access changes in the future.

- **Through-Town Corridors (◐)**—The through-town corridors examined in this EIS were designed to minimize the need for highway right of way because the existing highway is surrounded by homes, businesses, and community resources, including historic sites. Any needed expansion of through-town corridors for new access, turn lanes, or other roadway modifications would adversely affect additional community resources. Thus the through-town corridors do not offer flexibility to meet future needs.
- **Around-Town Corridors (●)**—The around-town corridors examined in this EIS traverse primarily farmland and other open areas with minimal concentrations of homes, businesses, or historic sites. These corridors offer significant flexibility to accommodate roadway modifications in response to potential future needs.

Minimizes Community Impacts

Five U.S. 50 communities range in population from approximately 500 to 1,200 residents, and four more range in size from 2,700 to 8,900 (source: 2000 Census data). In these small towns and cities, many important community assets are located immediately adjacent to the existing U.S. 50, and some of them are considered historic. Federal laws and regulations prohibit FHWA from taking an action that would adversely affect historic resources, if a reasonable and prudent alternative is available.

- **Through-Town Corridors (○)**—The 130 feet of right of way needed to accommodate a 50 mph highway meeting current safety standards would result in the relocation or loss of at least 225 homes or businesses and 150 historic sites in communities along the U.S. 50 corridor east of Pueblo. Going through towns, it would not be possible to avoid these adverse impacts. As noted earlier, through-town corridors would eliminate direct access for adjacent properties and substantially alter local traffic patterns. These effects would be extremely disruptive to the communities.
- **Around-Town Corridors (●)**—Corridors 1,000 feet wide were identified within which typically 250 feet of right of way would be needed for a 65 mph highway around towns. Within these corridors, 95 to 215 homes and businesses and 69 to 72 historic resources were identified. However, there would be ample room within the 1,000-foot corridor to locate the highway right of way in a manner that would avoid impacts to many of these resources. Around-town corridors also would not disrupt access and traffic patterns within the communities. However, a bypass could also negatively affect the local economic if it diverts traffic far from town. Fewer regional travelers passing through small town business districts could result in reduced retail sales for travel-related businesses, such as hotels/motels, restaurants/bars, convenience stores, grocery stores, gas stations, etc. This criterion is included because of its importance to the public.

5.4.4. Screening Results for Through-Town or Around-Town Corridors

The through-town corridors were eliminated from consideration because they would adversely affect local mobility (limiting access and continued traffic), do not balance mobility and access for all users of U.S. 50, and would not allow for flexibility to address future traffic needs because of the restricted setting within towns. Therefore, they do not meet the purpose and need of the project. In addition, the through-town corridors directly impact community resources (through land and property acquisition), which was a concern for the members of the communities. In Pueblo, however, U.S. 50 already is an expressway, so the existing corridor location was not eliminated.

The around-town corridors were carried forward for further consideration because they would better meet aspects of the purpose and need while also minimizing community impacts.

5.5. Alternatives Carried Forward for Further Consideration

The alternatives development process described previously was undertaken to identify one or more alternative corridor alignments that would meet the project's purpose and need. This process considered:

- Regional corridor locations
- Transportation modes
- Facility types
- Through-town versus around-town corridor locations in communities

It provided Build Alternatives that will be a highway configured as a four-lane expressway located on or near the existing U.S. 50 between communities, and located around the communities east of Pueblo along the U.S. 50 corridor. The Build Alternatives resulting from this process were carried forward for subsequent comparison to the No-Build Alternative. The No-Build and Build Alternatives are described below.

5.5.1. No-Build Alternative

In accordance with NEPA, a no-build alternative is included in this EIS to provide a basis for comparison with the Build Alternatives. The No-Build Alternative includes ongoing maintenance of pavement and bridges on the existing U.S. 50 alignment. It also includes ongoing or planned minor safety improvements, provision of

passing-lane sections, routine pavement overlays, and repair of any weather- or crash-related damage. The No-Build Alternative also would accommodate local agency improvements to the U.S. 50 corridor.

5.5.2. Build Alternatives

The decisions described previously determined that a four-lane expressway on or near the existing U.S. 50 alignment and going around each community, except in Pueblo, would meet the project's purpose and need. Therefore, the Build Alternatives consist of constructing a four-lane expressway on the existing U.S. 50 between the I-25 in Pueblo (milepost 316) to approximately one mile east of Holly (milepost 466).

Access will be restricted by placing access points at least one-half-mile apart. The resulting elimination of numerous existing access points would require that some local travelers use other roadways, and in some cases frontage roads will be added to reach U.S. 50. The access locations will not be determined until the completion of the Tier 2 studies. State highways and major regional roads will take priority as access points to U.S. 50. For example, if multiple access points exist within a one-half-mile segment, access to and from prioritized roads would be retained, while lower-priority access points would be eliminated. Portions of the existing highway that go through communities will remain in place to serve local needs, but will no longer serve as U.S. 50. For such roads, CDOT would relinquish ownership to cities and/or counties through Intergovernmental Agreements (IGAs), as discussed below.

The Build Alternatives would maintain a posted speed limit of 65 mph in most locations, dropping to 50 mph for approaches to signalized intersections. Some grade-separated intersections (where one of the roads crosses over or under the other) would be provided to minimize the number of signalized intersections. At locations with at-grade access but not enough traffic to warrant a signalized intersection, unsignalized intersections would be provided. The Build Alternatives would include a wide median with sufficient room for a vehicle to cross one direction of traffic, then wait at a stop sign before crossing the other highway lanes or making a left turn onto the highway.

It should be noted that the Build Alternatives are not final roadway alignments. Instead, each alternative consists of a corridor measuring approximately 1,000 feet in width and encompassing the actual 250-foot or less roadway alignment (i.e., footprint), which will be identified during Tier 2 studies. Within this 1,000-foot-wide corridor, resources can be avoided during Tier 2 studies. The Build Alternatives consist of constructing a four-lane rural expressway of typical AASHTO standard widths located along or near the existing U.S. 50 highway between and around communities, as previously shown in the facility type selection discussion.

At each community east of Pueblo, there generally are two Build Alternatives that propose re-aligning U.S. 50 around the community. General corridor alignments around each community were developed based on the purpose and need of the project, socioeconomic and environmental constraints, engineering feasibility, and public input. Between communities, the corridor location is generally centered on the existing highway alignment, except between Pueblo and Fowler. For this portion of U.S. 50, a realignment option was developed to avoid property acquisitions and the demolition of the historic Huerfano Bridge. Figure 5-7 provides an overview of the Build Alternatives along the project corridor. As previously mentioned, the existing alignments through each community would be relinquished to the city or county through IGAs. Generally, the process would follow this sequence:

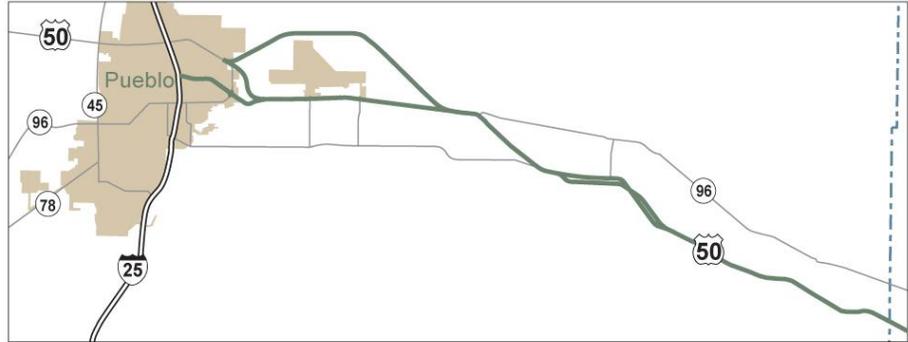
1. Complete U.S. 50 Tier 1 EIS
2. Complete U.S. 50 Tier 2 NEPA documents for each individual project
3. Coordinate with local jurisdiction
4. Develop IGA for right of way, maintenance, and operations
5. Finalize design
6. Formalize IGA and submit to CDOT, Transportation Commission
7. Execute IGA

Legend

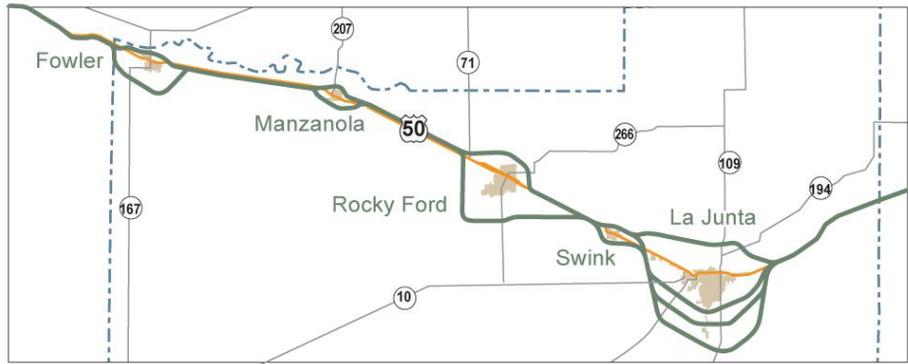
-  Build Alternatives
-  Existing U.S. 50
-  City / Town
-  County



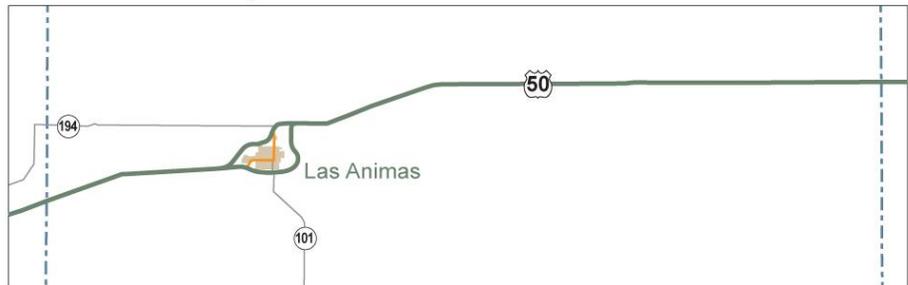
Pueblo County



Otero County



Bent County



Prowers County

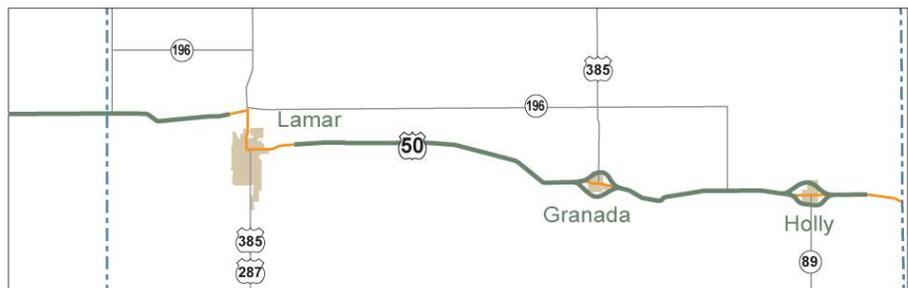


Figure 5-7. Build Alternative and Options

No alternatives were developed for Lamar. Lamar has been studied in a separate EA, titled U.S. 287 at Lamar Reliever Route Environmental Assessment; the FONSI for the project was signed November 10, 2014.

The project corridor consists of 18 sections, which represent the Build Alternatives between communities and around communities. These 18 sections are discussed briefly below in relation to the Build Alternative(s) proposed in each section. Figure 5-8 reflects the location of each of these sections along the existing U.S. 50 corridor. Figures corresponding to each of the Build Alternatives in the around-town sections are located in Section 5.6, Identification of the Preferred Alternative, of this technical memorandum. In Pueblo, three Build Alternatives are proposed that either improve U.S. 50 on its existing alignment and/or reroute it to the north to utilize SH 47. East of Pueblo, generally, there is one Build Alternative alignment between each of the communities along existing U.S. 50 with a north and south around-town Build Alternative at each of the communities.

- 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

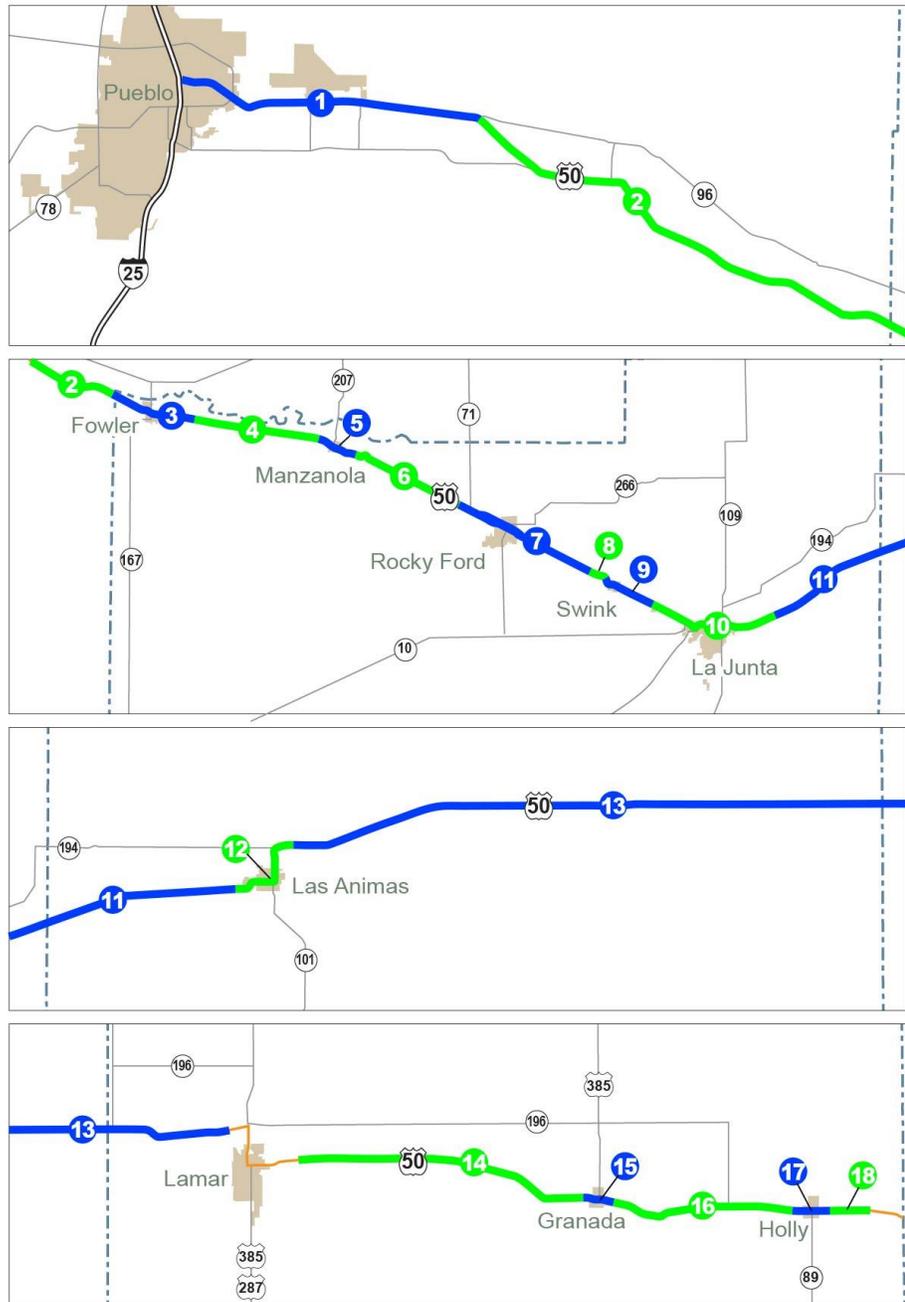


Figure 5-8. Project Corridor Sections Overview

Section 1: Pueblo

Because U.S. 50 connects to I-25 within Pueblo, an around-town Build Alternative was not developed. However, three Build Alternatives within Pueblo are under consideration:

- Alternative 1: Pueblo Airport North
- Alternative 2: Pueblo Existing Alignment
- Alternative 3: Pueblo SH 47 Connection

Alternative 1: Pueblo Airport North consists of relocating U.S. 50 around the north side of the Pueblo Memorial Airport. This alternative was proposed by Pueblo Area Council of Governments (PACOG) and is included in the Region's 2035 Long-Range Transportation Plan. The 7.9-mile corridor would tie into SH 47 approximately 1.5 miles north of U.S. 50 and 4.5 miles east of I-25. This local proposal would redesignate a portion of SH 47 as U.S. 50. Also, as part of this alternative, U.S. 50 would remain in use under its secondary designation of SH 96.

Alternative 2: Pueblo Existing Alignment is under consideration because U.S. 50 in the area of Pueblo is currently a divided, four-lane expressway. This alternative would stay on the existing alignment, but would include some safety improvements to meet current design standards.

Alternative 3: Pueblo SH 47 Connection would include safety improvements like those under Alternative 2, but instead of staying on the existing alignment until the western terminus of the project, it would construct a new segment of highway to connect U.S. 50 to SH 47 west of the airport. This also was a local proposal considered in the CDOT 2003 planning study for U.S. 50.

It should be noted that Alternatives 1 and 3 would move the alignment to be consistent with U.S. 50 west of I-25.

Section 2: Pueblo to Fowler

Between Pueblo and Fowler, two Build Alternatives are under consideration. Alternative 1: Fort Reynolds Existing Alignment consists of a 1,000-foot-wide corridor centered on the existing alignment. Alternative 2: Fort Reynolds Realignment is generally a 1,000-foot-wide corridor centered on the existing alignment except between milepost 333 and milepost 339 near Fort Reynolds. Alternative 2 realigns the highway to the south in this area to minimize the potential acquisition of homes in the Fort Reynolds area. It also has the potential to avoid adverse effects to the historic Huerfano Bridge. The existing U.S. 50 could remain as a frontage road in this alternative, which would require the bridge to be left in place. This will be evaluated further during Tier 2 studies.

Section 3: Fowler

There are two Build Alternatives under consideration around Fowler. Alternative 1: Fowler North is 3.4 miles long and is aligned to minimize or avoid impacts to the BNSF Railway tracks and the Arkansas River. Alternative 2: Fowler South measures slightly less than five miles and extends nearly one mile south of town. This placement is meant to minimize effects to land irrigated by the Oxford Farmers Ditch, a major irrigation canal, and provide for additional development opportunities.

Section 4: Fowler to Manzanola

The Fowler to Manzanola Build Alternative is a 1,000-foot wide corridor on the existing alignment. The width of the corridor extends from the edge of the highway right of way on the north side of U.S. 50 south 1,000 feet to avoid the railroad that parallels the highway to the north.

Section 5: Manzanola

Two Build Alternatives are under consideration around Manzanola. Alternative 1: Manzanola North would require a new railroad crossing west of town and would remain north of the railroad. Alternative 2: Manzanola South would remain south of the tracks until crossing them east of town, as U.S. 50 does today. Each Build Alternative is a little over 2.5 miles long and is situated to remain close to town. Alternative 1 was

aligned to minimize impacts to agricultural land to the north. Similarly, Alternative 2 was developed to avoid bisecting major farmland and to border or minimize impacts to the Otero Canal.

Section 6: Manzanola to Rocky Ford

The Manzanola to Rocky Ford Build Alternative is a 1,000-foot-wide corridor on the existing alignment. The width of the corridor extends from the edge of the highway right of way on the south side of U.S. 50 north 1,000 feet to avoid the railroad that parallels the highway to the south.

Section 7: Rocky Ford

Two Build Alternatives are under consideration around Rocky Ford. Alternative 1: Rocky Ford North is located between the city and the Arkansas River and measures slightly less than seven miles in length. Alternative 2: Rocky Ford South is located approximately one mile south of U.S. 50 and is approximately 8.2 miles long. Based on community input, Alternative 1 is intended to stay close to the city, while Alternative 2 was aligned further south to avoid potential development opportunities south of the city limits.

Section 8: Rocky Ford to Swink

The Build Alternative is a 1,000-foot-wide corridor on the existing alignment. In this section, the existing U.S. 50 alignment parallels the railroad, which is located directly to the south of the highway in this section. To avoid the railroad tracks in this area, the Rocky Ford to Swink Build Alternative extends 500 feet to the north of the railroad tracks (which extends along the existing U.S. 50 alignment) and 500 feet to the south of the railroad tracks. The purpose of dividing the 1,000-foot-wide corridor in half generally was to avoid the railroad and associated right of way to the greatest extent possible. However, if the U.S. 50 alignment is shifted south of the tracks, a new crossing of the railroad could be required.

Section 9: Swink

Two Build Alternatives are under consideration around Swink. Alternative 1: Swink North is located close to the Arkansas River and is 2.4 miles in length, while Alternative 2: Swink South is approximately 2.5 miles in length. Alternative 1 was aligned to avoid impacts to the Arkansas River and wastewater lagoons to the north. Alternative 2 was configured to avoid or minimize impacts to the Swink High School and a future area of development on the southern limits of town, while also remaining close to the town.

Swink to La Junta

Because of the short distance between Swink and La Junta, and the length of the alignment options around La Junta, the transition between the two communities was incorporated into the options for Section 10: La Junta.

Section 10: La Junta

Four Build Alternatives are under consideration around La Junta. The southern alternatives primarily differ by length and proximity to the town. All La Junta Build Alternatives are summarized below:

- Alternative 1: La Junta North bypasses the town to the north and would construct two new bridges over the Arkansas River. It is 8.9 miles in length. This alternative is only viable if Section 9, Alternative 1: Swink North, is selected. An alignment tying to Section 9, Alternative 2: Swink South, was not developed due to having to cross the Fort Lyon Canal.
- Alternative 2: La Junta South is 8.5 miles in length and located approximately two miles south of the existing U.S. 50 alignment in La Junta.
- Alternative 3: La Junta South is 9.8 miles in length and located approximately 2.3 miles south of the existing U.S. 50 alignment in La Junta.
- Alternative 4: La Junta South is 11.9 miles in length and located approximately 3.3 miles south of the existing U.S. 50 alignment in La Junta.

Alternative 1 was developed to provide a northern alternative. Given the proximity of the Arkansas River to the city, the alignment was situated north of the river and in a location to avoid existing development and the Fort Lyon Canal. Alternative 2 was developed to provide a southern route, but also to remain close to the city limits. Alternative 3: La Junta South was developed during public involvement efforts for this document as a

requested compromise between Alternative 2 and Alternative 4—a route closer to town, but farther from the city limits. The Alternative 4 alignment generally reflects a proposed trucking route identified in the La Junta Comprehensive Plan. Alternative 4 generally follows this alignment, with the exception of deviating to the west of La Junta in order to tie into Alternative 1: Swink North and Alternative 2: Swink South in Section 9 of the project corridor.

Section 11: La Junta to Las Animas

The La Junta to Las Animas Build Alternative consists of a 1,000-foot-wide corridor centered on the existing alignment, except in areas where the railroad parallels the highway to the north. In these areas, the 1,000-foot corridor shifts to the south.

Section 12: Las Animas

Two Build Alternatives are under consideration around Las Animas. U.S. 50 crosses the Arkansas River north of the city and either new corridor also would cross the river. Alternative 1: Las Animas North is approximately 3.5 miles long and includes replacement of the existing bridge over the Arkansas River. The alignment is meant to avoid direct effects to community resources, such as the Bent County jail and treatment center, wastewater facilities, and Bent's Fort Inn (which is viewed as an important community gathering place), as well as use the existing U.S. 50 alignment to the greatest extent practicable. Alternative 2: Las Animas South is approximately 4.7 miles long and would include a new bridge crossing over the Arkansas River. This placement stays close to town, while avoiding direct effects to the fairgrounds, which is an important community resource, and the city and county airport.

Section 13: Las Animas to Lamar

The Las Animas to Lamar Build Alternative consists of a 1,000-foot wide corridor centered on the existing alignment.

Section 14: Lamar to Granada

The Lamar to Granada Build Alternative consists of 1,000 feet centered on the existing alignment. However, between Lamar and the U.S. 50 and CR GG.5 intersection, the corridor begins on the north edge of U.S. 50 and extends 1,000 feet south to avoid the railroad on the north side.

Section 15: Granada

Two Build Alternatives are under consideration around Granada. Alternative 1: Granada North is approximately 2.1 miles long, while Alternative 2: Granada South is 2.2 miles long. Both alternatives were intended to minimize or avoid potential effects to Camp Amache National Historic Landmark and/or the Granada State Wildlife Area.

Section 16: Granada to Holly

The Build Alternative between Granada and Holly is an alignment 1,000 feet wide centered on the existing roadway except where the corridor is near enough to the railroad to cause potential impacts. In these cases, the Build Alternative is shifted to the south or north along the existing U.S. 50 alignment.

Section 17: Holly

Two Build Alternatives are under consideration around Holly. Both alternatives are approximately 2.1 miles long. Both Build Alternative alignments were intended to stay close to the existing city limits. Alternative 1 was aligned in a way to avoid potential development to the northwest of town, as well as potential housing development on the northeast of the existing town limits and the cemetery east of town. Community input also identified the best agricultural land as being north of town; keeping the northern alternative close to town was intended to minimize agricultural land impacts. Alternative 2 was aligned between the southern limits of town and the Arkansas River. This alternative has the potential to avoid the Holly State Wildlife Area while Alternative 1 would have unavoidable use of the wildlife area.

Section 18: Holly Transition

The Build Alternative in this section is 1,000 feet wide and centered on the existing alignment. This section begins approximately one mile east of Holly and extends to the vicinity of the Colorado-Kansas state line. The limits of this section will be determined during Tier 2 studies.

5.6. Identification of Preferred Alternative

The decisions described above determined that a four-lane expressway on or near the existing U.S. 50 and going around each community, except at Pueblo, would meet the project's purpose and need. To preliminarily identify a preferred alternative, the Build Alternatives around communities, including the proposed realignment between Pueblo and Fowler, were further screened. For most communities, two around-town alternatives (one northern and one southern) were identified through community involvement and consideration of socioeconomic and environmental constraints. These locations were then evaluated based on criteria consistent with a Tier 1 level of analysis. This evaluation focused on three broad categories that considered effects to the following environment categories:

- Rural and agricultural environment
- Natural environment
- Community and built environment

5.6.1. Screening of Build Alternatives (Around-Town Corridors)

Criteria to screen Build Alternatives were developed based on comments received from agencies and the public, as well as regulatory requirements.

Public workshops were held in each U.S. 50 community to determine what resources were important to the local economy and quality of life. One important local concern was that the corridor location should not be too far away from the community, and it should be supportive of a perceived "gateway" into the community. The purpose of the gateway is to attract through-traffic to local businesses. Impacts to agriculture were also a concern (due to the region's economic dependence on agriculture), especially impacts to highly productive, irrigated lands.

Federal regulations protect certain resources, such as threatened and endangered species, wildlife and waterfowl refuges, wetlands, historic resources, parks, and recreational facilities. Therefore screening criteria were developed to address impacts to these resources, in addition to those resources that were important to, and identified by, the affected communities.

To understand the relationship between the affected resources and community concerns, the screening criteria were grouped together by their potential effects on the rural and agricultural environment, the natural environment, and the community and built environment. These three criteria groups are presented below in Table 5-7, Table 5-8, and Table 5-9, respectively.

Table 5-7. Rural and Agricultural Environment Screening Criteria

Resource	Importance	How Measured
Agricultural Land	Agriculture is the foundation of the regional and local economies.	Quantity and quality of farm/ranch land within the corridor (Most of the land in each 1,000-foot corridor is agricultural, but the 250 feet needed for highway right of way would total only one quarter of this amount; therefore, the reported potential impacts are the farmland in each corridor divided by four.)
Agricultural Operations	Productivity and economies of scale depend on the ability to efficiently irrigate fields and move equipment and livestock, typically on larger, unfragmented parcels of land.	Qualitative determination

Table 5-8. Natural Environment Screening Criteria

Resource	Importance	How Measured
Wetland/ riparian areas	Wetlands are highly beneficial to the ecology and are protected by federal law and presidential executive order.	Quantity (acres) and quality (functional value) of wetland/riparian areas in the corridor (Extensive wetland avoidance will be undertaken in Tier 2 to develop a 250-foot highway right of way within each 1,000-foot corridor; therefore, the reported potential impacts are the wetland/riparian in each corridor divided by four, and this is likely to represent a worst-case assumption.)
Arkansas River	The river and its associated floodplain sustain wetlands and riparian vegetation, wildlife habitat, and movement corridors, and provide a vital water source.	Number of new bridge crossings needed
Wildlife	Threatened and endangered species and their habitat are protected by federal and state laws. Other species are also important to the health of the ecosystem. Hunting, fishing, and bird-watching are important recreational activities in the region.	Potential for occurrence of threatened and endangered species habitat in the corridor; impacts to State Wildlife Areas; proximity to the Arkansas River; qualitative assessment of habitat fragmentation

Table 5-9. Community and Built Environment Screening Criteria

Resource	Importance	How Measured
Historic sites	Historic properties are protected by federal law. Effects to historic properties must be considered under federal regulations. Historic properties are important to the culture of the area and have the potential to boost “heritage tourism.”	Number of historic properties within the corridor; number of times a linear historic resource (i.e., railroads, irrigation canals, the Santa Fe Trail, etc.) is crossed
Homes and businesses	Communities along the U.S. 50 corridor are relatively small and stable, so loss of homes and businesses can disrupt the local economy.	Number of homes and businesses within the 1,000-foot corridor; as it is unlikely that all of these could be impacted by the 250-foot highway right of way, this is a very conservative, worst-case scenario
Public parklands and recreation areas	These amenities are important to communities along the U.S. 50 corridor and also are protected by federal regulations.	Number of parklands and recreational facilities within the corridor affected
Visibility to town from the corridor	If town is not visible from the corridor, through-travelers may be less willing to stop for goods and services.	Distance from U.S. 50 to the new corridor
Compatibility with local land use	Corridor should not disrupt local land use or hamper potential future economic development; it should support, not work against, the “gateway” into town.	Qualitative determination
Air quality	Transportation activities can negatively impact air quality, and reductions in air quality can affect the health of nearby residents and the environment.	Number of sensitive receivers (e.g., schools, day care facilities, senior centers) within the 1,000-foot corridor and within an additional 300 feet outside of the corridor
Noise	Changes to U.S. 50 will affect the way the noise originating from the roadway impacts the community.	Number of homes and businesses within the 1,000-foot corridor and within an additional 300 feet outside of the corridor
Other concerns	In some communities, issues were identified in community workshops.	Qualitative determination

Most of the criteria listed in these tables involved counting the number of units of the resource potentially affected in the corridor (e.g., acres of wetland/riparian vegetation or the number of historic properties). However, considering only the quantity of certain resources, but not the quality, could misrepresent the significance of the impact. Therefore, the quality of these resources was also considered.

5.6.2. Screening of and Decisions Regarding Build Alternatives

The following paragraphs describe and discuss the Build Alternatives around each community and, in one instance, between communities. Key differences between the alternatives are discussed and summarized in a table to show which location would have the least potential effects to the rural and agricultural environment, the natural environment, and the community and built environment. In addition, the ability of the alternatives to meet the purpose and need of the project are discussed where alternatives differ. However, all of the Build Alternatives would meet the purpose and need of the project.

Pueblo Build Alternatives

Figure 5-9 shows the three Build Alternatives considered in Pueblo.

A relocation of U.S. 50 around the north side of the Pueblo Memorial Airport (Alternative 1: Pueblo Airport North) was proposed by local officials and included in the region's 2035 Long Range Transportation Plan. This 12-mile corridor would tie into SH 47 approximately 1.5 miles north of U.S. 50 and 4.5 miles east of I-25. This local proposal would re-designate a portion of SH 47 as U.S. 50. Also, as part of the proposal, U.S. 50 would remain in use under its secondary designation of SH 96.

Another corridor location that could be completed without building a new road was identified by using the existing U.S. 50 corridor (Alternative 2: Pueblo Existing Alignment), which is already a divided, four-lane expressway.

Alternative 1: Pueblo Airport North and a shorter new roadway that would connect U.S. 50 to SH 47 west of the airport (Alternative 3: Pueblo SH 47 Connection) were considered in the CDOT 2003 planning study for U.S. 50. Alternative 3 comprises about two miles of new roadway to tie into SH 47, with the remaining roughly nine miles consisting of minor safety improvements along the existing U.S. 50 alignment.

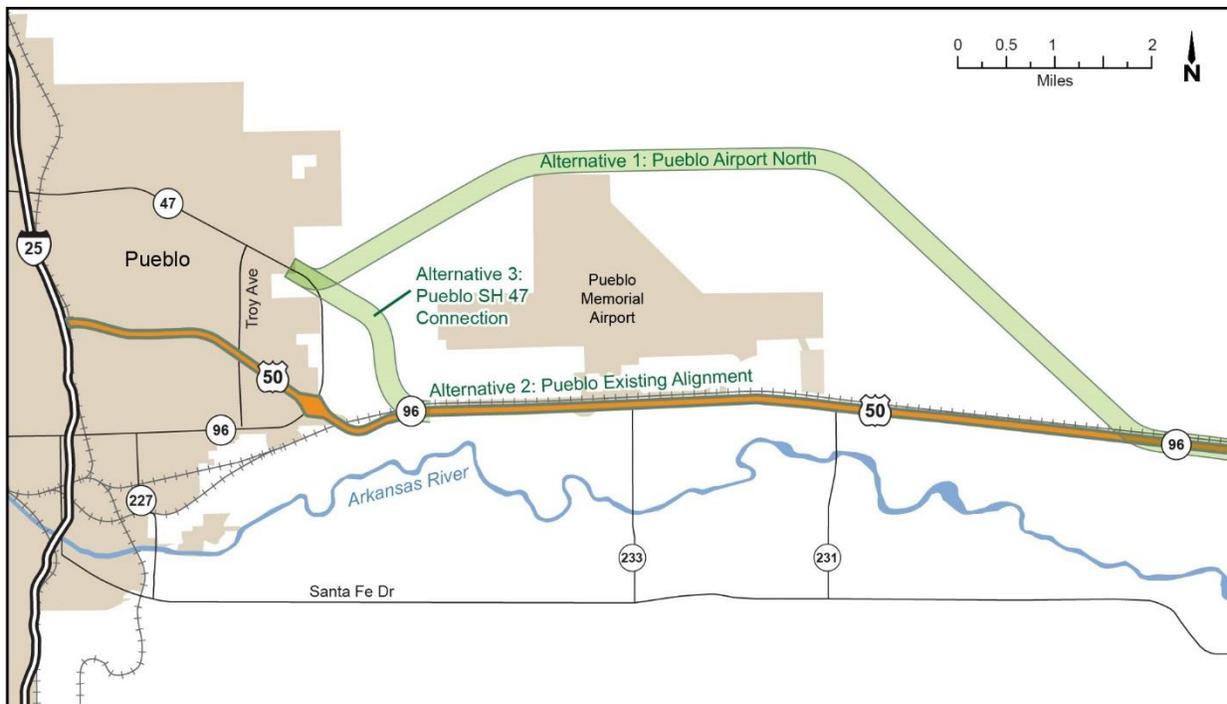


Figure 5-9. Pueblo Build Alternatives

Evaluation of the resources and issues associated with the Build Alternatives in Pueblo resulted in the findings summarized in Table 5-10, Table 5-11, and Table 5-12. Pueblo is different from the other communities examined later in this report because U.S. 50 already exists as a four-lane expressway in Pueblo. Thus, while it is possible to quantify various resources that are located nearby (within Alternative 2), it is unlikely that these would be newly impacted by the project.

Table 5-10. Pueblo Build Alternatives Comparison—Rural and Agricultural Environment

Criteria	Alternative 1: Pueblo Airport North	Alternative 2: Pueblo Existing Alignment	Alternative 3: Pueblo SH 47 Connection	Assessment
Agricultural land (25 percent of resource within the 1,000-foot corridor)	2 acres of corn/alfalfa farmland 350 acres of grazing land Total: 352 acres	1 acre of corn/alfalfa farmland 130 acres of grazing land Total: 131 acres	0 acre of corn/alfalfa farmland 103 acres of grazing land Total: 103 acres	Alternative 1: Pueblo Airport North has the most impacts because it is an entirely new alignment. Impacts to farmlands for Alternative 2 and Alternative 3 are much the same, since their corridor alignments are similar.
Impacts on agricultural operations	Grazing land would be fragmented by new highway	No ag land would be newly fragmented	No ag land would be newly fragmented	Alternative 1 fragmentation could leave isolated remnants not usable for grazing.
Corridor with Least Impacts on Rural and Agricultural Environment		✓ (tie)	✓ (tie)	No substantive difference between Alternative 2 and Alternative 3. Alternative 1 corridor would have adverse impacts.

Table 5-11. Pueblo Build Alternatives Comparison—Natural Environment

Criteria	Alternative 1: Pueblo Airport North	Alternative 2: Pueblo Existing Alignment	Alternative 3: Pueblo SH 47 Connection	Assessment
Wetland/ riparian areas (25 percent of the resource within the 1,000-foot corridor)	Acres by category I (best): 0 II: 1 III: 9 IV: 3 Total: 13	Acres by category I (best): 0 II: 0 III: 23 IV: 37 Total: 60	Acres by category I (best): 0 II: 0 III: 21 IV: 27 Total: 48	Although Alternative 2 has a large wetland/riparian acreage, U.S. 50 already exists as an expressway and thus would not newly impact any wetland/riparian areas. Similarly, much of Alternative 3 is the existing U.S. 50. Despite having the least amount of wetland/riparian resources, Alternative 1 has a greater potential for wetland/riparian impacts because of constructing a new roadway.
Arkansas River	No new crossings needed	No new crossings needed	No new crossings needed	No differences.
Wildlife	Roughly 9 miles of new road would fragment largely undisturbed short-grass prairie (total of 276 acres)	Would not newly fragment any wildlife habitat because the expressway already exists	About 2 miles of new road would cut through short-grass prairie in/through the Airport Business Park (total of 24 acres).	Alternative 2 will not newly impact any wildlife habitat. Other corridors, which add new roadway sections, would have adverse effects; although Alternative 3 would have fewer adverse effects than Alternative 1 given that it shares much of its proposed alignment with the existing U.S. 50 expressway.
Corridor with Least Impacts on Natural Environment		✓		Alternative 2 is least impactful as it would not newly consume or fragment the natural environment.

Table 5-12. Pueblo Build Alternatives Comparison—Community and Built Environment

Criteria	Alternative 1: Pueblo Airport North	Alternative 2: Pueblo Existing Alignment	Alternative 3: Pueblo SH 47 Connection	Assessment
Historic sites	2 resources: would add a crossing of a historic railroad and a ditch	4 resources: would modify an existing railroad crossing, 2 bridges, and a historic district	1 resource; would add a crossing of a historic railroad	Alternative 2 (existing expressway) is unlikely to newly impact any sites. Impacts to historic properties would be minimal by Alternative 2 in comparison to new railroad and ditch crossings by the other options.
Homes and businesses	None	8	9	Since U.S. 50 is already an expressway, it is anticipated that Alternative 2 would result in no change to nearby resources.
Public parks and recreation areas	None	A baseball field at 28th Lane is nearby but would not be affected	None	No difference.
Visibility to town from the corridor	New corridor is isolated from existing development	Would not change the existing route into Pueblo	Corridor leads to northern Pueblo, not around the entire city	Not a key factor for Pueblo, since all three corridors lead to the city.
Compatibility with local land use	Proposed as a freeway on Pueblo's 2035 "Preferred" Plan, but not funded	Existing expressway is consistent with the region's adopted 2035 Regional Transportation Plan	<i>Not</i> consistent with the adopted 2035 Regional Transportation Plan	While Alternative 1 is preferred in the 2035 long-range plan, it is not funded and is anticipated to have a notable impact on existing land use by converting agricultural land to a transportation use. Alternative 2 is the existing expressway and is already configured to meet the project purpose and need and would change local land use the least.
Air quality effects	Would shift traffic away from U.S. 50 corridor to SH 47 corridor	U.S. 50 project would not increase traffic along existing expressway corridor	Would shift traffic away from U.S. 50 corridor to SH 47 corridor	Alternative 2 would not change existing conditions. The other corridors would shift traffic and emissions to affect different neighborhoods.
Noise effects	Would shift traffic away from U.S. 50 corridor to SH 47 corridor.	U.S. 50 project would not increase traffic along existing expressway corridor	Would shift traffic away from U.S. 50 corridor to SH 47 corridor.	Alternative 2 would not change existing conditions. The other corridors would shift traffic noise to affect different neighborhoods.

Criteria	Alternative 1: Pueblo Airport North	Alternative 2: Pueblo Existing Alignment	Alternative 3: Pueblo SH 47 Connection	Assessment
Other concerns	Would add one new railroad crossing	The existing, flood-prone railroad crossing may need to be rebuilt	Would replace one existing railroad crossing	No key differences. Coordination with railroad would be needed for any option.
Corridor with Least Impacts on Community and Built Environment		✓		The existing U.S. 50 corridor (Alternative 2) is already fully integrated with the Pueblo area road network. The other alternatives would newly shift traffic-related impacts to neighborhoods along SH 47.

Alternative 2: Pueblo Existing Alignment consistently had the fewest potential effects, or was equivalent to the other options, in the three categories of the screening criteria. This is primarily because it would not construct new roadway segments, which would reduce the potential for effects. In addition, it better meets the purpose and need as it is already a divided, four-lane expressway and would need minimal improvements. For these reasons, it is preliminarily identified as the Preferred Alternative at this location. The two other Build Alternatives were not preferred because of greater potential for environmental effects resulting from construction of new roadway to connect U.S. 50 and SH 47. In addition, Alternative 1 would result in greater out-of-direction travel for local and regional users, which does not improve mobility as well as Alternatives 2 or 3.

Pueblo to Fowler Build Alternatives

The two Build Alternatives under consideration in this section are largely the same; however, Alternative 2: Fort Reynolds Realignment has been proposed to minimize potential impacts (Figure 5-10). Improvements to meet design standards for a four-lane rural expressway along the existing alignment in Fort Reynolds would result in numerous home acquisitions in the immediate area and removal of the historic Huerfano Bridge. The realignment has the potential to minimize or avoid impacts to residences and the bridge.

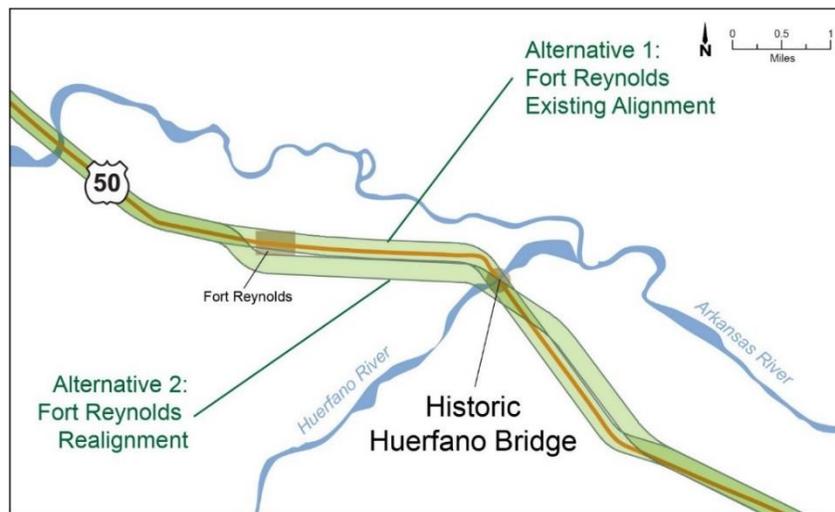


Figure 5-10. Pueblo to Fowler Build Alternatives

Evaluation of the resources and issues associated with the Build Alternatives between Pueblo and Fowler resulted in the findings summarized in Table 5-13, Table 5-14, and Table 5-15.

Table 5-13. Pueblo to Fowler Build Alternatives Comparison—Rural and Agricultural Environment

Criteria	Alternative 1: Fort Reynolds Existing Alignment	Alternative 2: Fort Reynolds Realignment	Assessment
Agricultural land (25 percent of resource within the 1,000-foot corridor)	86 acres of corn/alfalfa farmland 533 acres of grazing land Total: 619 acres	117 acres of corn/alfalfa farmland 499 acres of grazing land Total: 616 acres	The total impact to agricultural land is comparable. Alternative 2 has more ranching/grazing lands, while effects of Alternative 1 have a higher impact to productive value due to more alfalfa/corn farmland.
Impacts on agricultural operations	No ag land would be newly fragmented	Minimal ag land fragmentation	Alternative 2 would have minimal fragmentation due to realignment. It is expected to not be substantial, since it remains close to the existing alignment.
Corridor with Least Impacts on Rural and Agricultural Environment	✓ (tie)	✓ (tie)	Impacts to the rural and agricultural environment are comparable.

Table 5-14. Pueblo to Fowler Build Alternatives Comparison—Natural Environment

Criteria	Option 1: Fort Reynolds Existing Alignment	Option 2: Fort Reynolds Realignment	Assessment
Wetland/ riparian areas (25 percent of the resource within the 1,000-foot corridor)	Acres by category I (best): 14 II: 22 III: 63 IV: 27 Total: 126	Acres by category I (best): 14 II: 20 III: 54 IV: 24 Total: 112	Each alternative has comparable functioning wetlands. Alternative 2 has fewer wetland impacts, but Alternative 1 is on the existing alignment which would minimize new fragmentation.
Arkansas River	No new crossing, but replacement of existing bridge over Huerfano River (tributary to the Arkansas River)	No new crossing of the Arkansas river, but new crossing of the Huerfano River (tributary to the Arkansas River)	Comparable impacts, as both would require some level of disturbance to the valley, but no direct disturbance or new crossings of the Arkansas River.
Wildlife	Mix of primarily agricultural, grassland, and riparian/wetland areas	About 3 miles of new road would cut through primarily agricultural land	While Alternative 2 would require new disturbance off alignment, it is in an area already fragmented by the existing U.S. 50 alignment, local roadways, and human development. Agricultural land is likely to be taken. However, impacts to wildlife and associated habitat is likely to be a negligible difference between the two options.
Corridor with Least Impacts on Natural Environment	✓ (tie)	✓ (tie)	Impacts to the natural environment are comparable.

Table 5-15. Pueblo to Fowler Build Alternatives Comparison—Community and Built Environment

Criteria	Alternative 1: Fort Reynolds Existing Alignment	Alternative 2: Fort Reynolds Realignment	Assessment
Historic sites	15 resources: potential effects to 4 linear and 11 non-linear historic resources, including the historic Huerfano Bridge	12 resources: potential effects to 4 linear and 8 non-linear historic resources	Alternative 2 would avoid replacing the Huerfano bridge and has a greater potential to avoid effects to non-linear historic resources.
Homes and businesses	86 homes and businesses	45 homes and businesses	Based on upgrades to a four-lane expressway, Alternative 1 has a greater potential to require the acquisition of homes. Alternative 2 contains fewer homes, which is one of the purposes of its proposed alignment.
Public parks and recreation areas	No parkland or recreational resources would be affected	No parkland or recreational resources would be affected.	No key differences.
Visibility to town from the corridor	Not applicable, this option does not bypass a town.	Not applicable, this option does not bypass a town.	Not applicable to this section of the corridor.
Compatibility with local land use	Compatible, as it would improve on the existing alignment.	Generally compatible; the realignment would not be substantial and would remain close to the existing alignment.	No key differences.
Air quality effects	No known sensitive receivers are within the 1,000-foot corridor or 300 feet beyond	No known sensitive receivers are within the 1,000-foot corridor or 300 feet beyond	No difference.
Noise effects	116 noise-sensitive receptors are within the 1,000-foot corridor or 300 feet beyond	73 noise-sensitive receptors are within the 1,000-foot corridor or 300 feet beyond	These receptors are likely already experiencing traffic noise; however, Alternative 2 has a greater potential to shift traffic noise away from noise-sensitive receptors.
Other concerns	Would not improve the horizontal curve	Would correct the horizontal curve	Alternative 2 would better improve safety along the corridor, in keeping with the purpose and need of the project, by correcting a horizontal curve at an accident-prone intersection.

Criteria	Alternative 1: Fort Reynolds Existing Alignment	Alternative 2: Fort Reynolds Realignment	Assessment
Corridor with Least Impacts on Community and Built Environment		✓	Alternative 2 would improve safety while also minimizing potential impacts to the community and built environment by having greater opportunity to avoid the acquisition of homes and businesses, shift traffic away from noise-sensitive receptors, and avoid adversely affecting the historic Huerfano Bridge.

The two Build Alternatives in this section of the corridor do not differ greatly because they generally follow the same alignment until near the Fort Reynolds area. However, Alternative 2: Fort Reynolds Realignment, has the ability to better meet the purpose and need of the project while also minimizing impacts to the community and built environment. Therefore, it was preliminarily identified as the Preferred Alternative at this location.

Fowler Build Alternatives

The two Build Alternatives considered around Fowler are shown in Figure 5-11. Both alternatives were developed with community input. Alternative 1: Fowler North would be located between the BNSF Railway tracks and the Arkansas River. Alternative 2: Fowler South extends nearly a mile south of town to stay south of Oxford Farmers Ditch, a major irrigation canal.

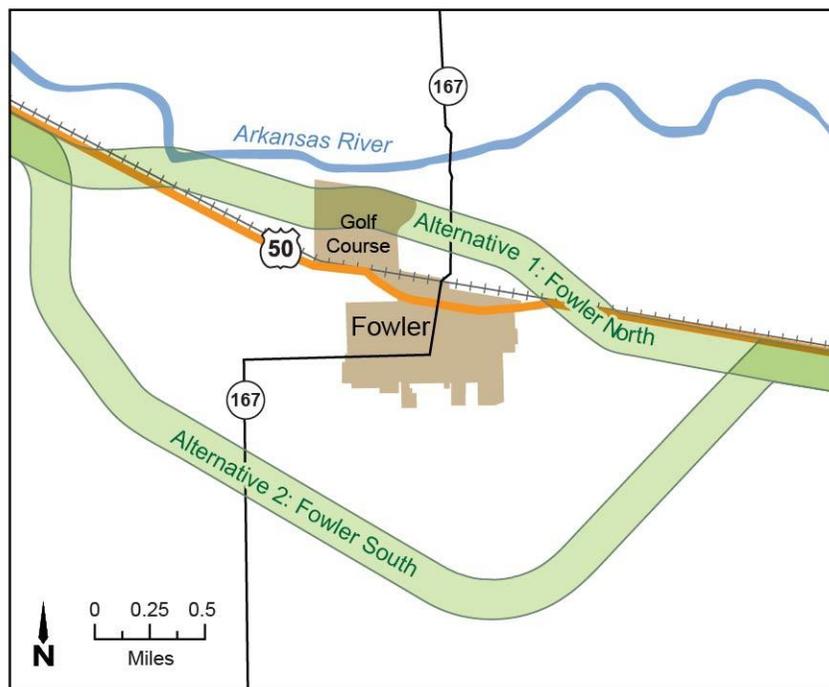


Figure 5-11. Fowler Build Alternatives

Alternative 1: Fowler North is closer to town, and thus would provide a much more convenient and visible gateway into town. In a community workshop, Fowler residents indicated that they would like the corridor to go north, through floodplains with limited development potential, rather than go south, which would result in a loss of highly productive farmland and ranch lands. However; because Alternative 1 is located close to the Arkansas River, there would be much greater impacts to wetland/riparian areas, amounting to approximately

25 acres. Alternative 1 crosses through a 100-year floodplain, which would increase the risk of flooding of the road and surrounding resources such as residences. Additionally, Alternative 1 would be situated to cross through the Cottonwood Links Golf Course. The public and Fowler town officials were aware of possible effects to the nine-hole, publicly owned Cottonwood Links Golf Course and suggested modifications to the course that would accommodate the north corridor.

Alternative 2: Fowler South would affect more agricultural land than the north corridor, in part because the south corridor is nearly 1.5 miles longer. Also, the quality of the agricultural land is better south of town than it is to the north. In a community workshop, Fowler residents indicated that they would like the corridor to go north, through floodplains with limited development potential, rather than go south with the resulting loss of farmland.

Ecologically, the north corridor would affect more wetland/riparian areas and floodplains because it is much closer to the Arkansas River.

Alternative 1: Fowler North would likely require land from several holes on the nine-hole, publicly owned Cottonwood Links Golf Course. Town officials indicated their willingness to accept modifications to the course to accommodate the north corridor.

Evaluation of the resources and issues identified for these Build Alternatives in Fowler resulted in the findings summarized in Table 5-16, Table 5-17, and Table 5-18.

Table 5-16. Fowler Build Alternatives Comparison—Rural and Agricultural Environment

Criteria	Alternative 1: Fowler North	Alternative 2: Fowler South	Assessment
Agricultural land (25 percent of the resource within the 1,000-foot corridor)	51 acres of corn/alfalfa farmland 38 acres of grazing land Total: 89 acres	144 acres of corn/alfalfa farmland 2 acres of grazing land Total: 146 acres	Alternative 1 would pass through agricultural land in less quantity and of lower quality than the much longer Alternative 2.
Impacts on agricultural operations	Grazing land would be fragmented by new highway	Would cross many fields diagonally, rather than along their boundary lines, resulting in field fragmentation	Alternative 1 would be less likely to interfere with agricultural operations than the south corridor, due to the diagonal orientation of the latter.
Corridor with Least Impacts on Rural and Agricultural Environment	✓		Alternative 1 would consume less farm land and result in less fragmentation of fields.

Table 5-17. Fowler Build Alternatives Comparison—Natural Environment

Criteria	Alternative 1: Fowler North	Alternative 2: Fowler South	Assessment
Wetland/ riparian areas (25 percent of the resource within the 1,000-foot corridor)	Acres by category I (best): 11 II: 5 III: 7 IV: 2 Total: 25	Acres by category I (best): 2 II: 1 III: 1 IV: 3 Total: 1	There is more acreage of wetland and riparian areas in Alternative 1, and it appears to be of higher quality, than Alternative 2. The likelihood of avoiding impacts is better by going south.
Arkansas River	No new crossings needed, but the North corridor would locate the highway closer to the river than it is today	No new crossings needed	Due to the potential for indirect, proximity effects to the Arkansas River, although minimal, Alternative 2 would be preferable with regard to this criterion.
Wildlife	Majority (76 percent) of potential wildlife habitat impact is to areas agricultural land, with 23 percent being to wetland/ riparian areas; would also be closer to the Arkansas River, slightly increasing roadkill potential	No known issues; majority (93 percent) of potential habitat is agricultural land.	Not a key consideration because wildlife presence and road mortality is minimal around this long-established farming community. However, Alternative 1 has a greater potential for impact to more valuable wildlife habitat because of a greater presence of wetland/ riparian areas.
Corridor with Least Impacts on Natural Environment	Alternative 1 is located in a 100-year floodplain, and has far more acres of wetland/riparian areas than Alternative 2.	✓	Alternative 2 has fewer acres of wetland/riparian areas, and this acreage is of lesser ecological value than the acreage in the north corridor, which is very close to the Arkansas River.

Table 5-18. Fowler Build Alternatives Comparison—Community and Built Environment

Criteria	Alternative 1: Fowler North	Alternative 2: Fowler South	Assessment
Historic sites	3 resources: corridor includes a house built in 1894; would add two crossings of the historic railroad and also cross the Otero Canal twice	2 resources: would cross the historic Oxford Farmers' Ditch twice and the Highline Canal once	Adverse effects to the house may be avoidable, but crossings of canals and railroads likely cannot be avoided. The effects for each alternative are relatively minimal and comparable.
Homes and businesses	7 homes and businesses are within the 1,000-foot corridor	11 homes and businesses are within the 1,000-foot corridor	No difference. Most of these resources likely can be avoided when a 250-foot highway right of way is determined. Fowler is a community with an estimated 597 homes/housing units (2010 Census).
Public parks and recreation areas	Includes the town's public golf course, and is likely to require land from several of its holes	None	Impacts to this nine-hole golf course will be avoided, minimized and mitigated, but the net effect cannot be determined at the level of analysis of this Tier 1 EIS. Alternative 2 would avoid any direct impacts to this resource.
Visibility to town from the corridor	The north corridor is close to town, providing an effective "gateway" into town	The south corridor is about a mile out of town, <u>not</u> providing an effective "gateway"	Alternative 1 is preferable with regard to this criterion.
Compatibility with local land use	Would consume land with limited development potential due to adjacent floodplains	Would consume land that has better development potential	Alternative 1 is preferable with regard to this criterion.
Air quality effects	No known sensitive receivers are within the 1,000-foot corridor or 300 feet beyond	No known sensitive receivers are within the 1,000-foot corridor or 300 feet beyond	These comparable effects do not favor one alternative over the other. The town has no major air quality problems. Either alternative would take through-traffic away from the main populated area. Because it is longer, Alternative 2 would slightly increase vehicular emissions.
Noise effects	14 homes and businesses and a golf course are within the 1,000-foot corridor or 300 feet beyond	18 homes and businesses are within the 1,000-foot corridor or 300 feet beyond	The difference in the number of potential noise receivers is not a key consideration in this community of 597 homes (2010 Census). With either location, through-traffic would be relocated away from the main populated area.

Criteria	Alternative 1: Fowler North	Alternative 2: Fowler South	Assessment
Other concerns	Two new railroad crossings would be needed	No new railroad crossings will be added	The two new crossings needed for Alternative 1 would add project expense and time needed for coordination with the railroad.
Corridor with Least Impacts on Community and Built Environment	✓ (tie)	✓ (tie)	Alternative 1 is much closer and more visible to town (i.e., provides a better gateway to town). Alternative 2 avoids impacts to the publicly owned golf course, as well as the need for two costly crossings of a historic railroad.

Alternative 1 would have fewer adverse impacts on agriculture, while Alternative 2 would have fewer effects on the natural environment. The two Build Alternatives are comparable in their effects on the community and built environment, as well as their ability to meet the purpose and need of the project. As each alternative has its tradeoffs in the three categories, no Preferred Alternative could be preliminarily identified at this location and both Build Alternatives are carried forward for Tier 2 analysis.

Manzanola Build Alternatives

Figure 5-12 shows the two Build Alternatives considered around Manzanola. Alternative 1: Manzanola North would require a new railroad crossing west of town and remain north of the railroad tracks east of the town. Alternative 2: Manzanola South would remain south of the tracks until crossing them east of town as U.S. 50 does today. Both Build Alternatives are of comparable length at a little over 2.5 miles long and comparable distance from the existing highway.

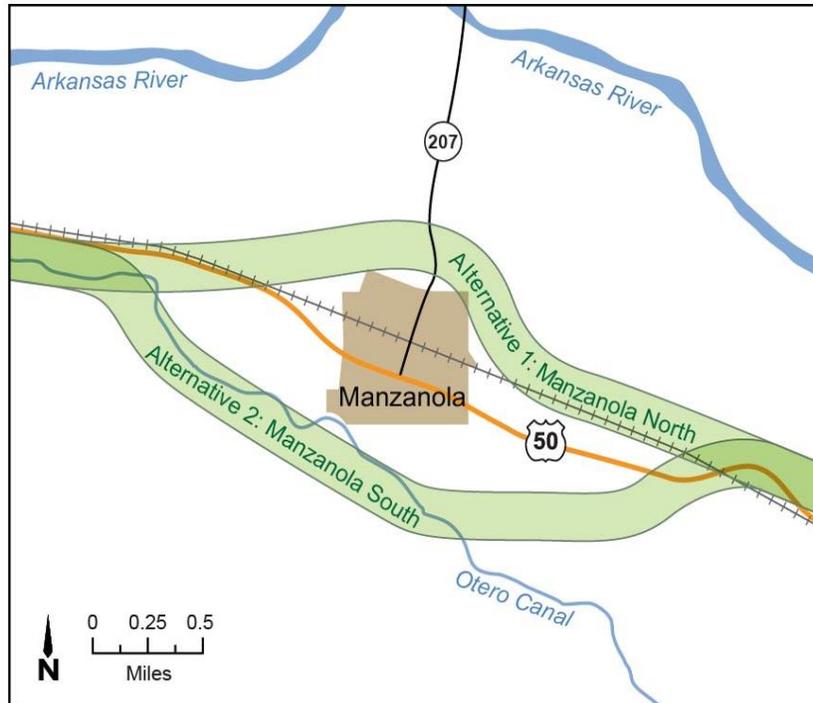


Figure 5-12. Manzanola Build Alternatives

The acreage of potentially affected farm/ranch land and riparian/wetland area is comparable for the two corridors, but Alternative 1: Manzanola North contains less productive agricultural land.

In a community workshop, Manzanola residents indicated that they would like the corridor to be located north, in part because they felt that the community’s potential future growth was likely to occur south of town.

Evaluation of the resources and issues identified for these Build Alternatives in Manzanola resulted in the findings summarized in Table 5-19, Table 5-20, and Table 5-21.

Table 5-19. Manzanola Build Alternatives Comparison—Rural and Agricultural Environment

Criteria	Alternative 1: Manzanola North	Alternative 2: Manzanola South	Assessment
Agricultural land (25 percent of the resource within the 1,000-foot corridor)	0 acres of vegetable farmland 56 acres of corn/alfalfa farmland 22 acres of grazing land Total: 78 acres	14 acres of vegetable farmland 58 acres of corn/alfalfa farmland 5 acres of grazing land Total: 77 acres	Both alternatives would pass through a comparable total amount of agricultural land, but Alternative 1 includes lower-quality grazing land while Alternative 2 includes higher-quality vegetable farmland. Therefore Alternative 1 would be preferable in terms of agricultural productivity.
Impacts on agricultural operations	Would cross some fields diagonally, possibly leaving unusable remnants	Would cross some fields diagonally, possibly leaving unusable remnants	No key differences.
Corridor with Least Impacts on Rural and Agricultural Environment	✓		Each option includes approximately the same amount of agricultural land, but the acreage in Alternative 1 is less productive than that in Alternative 2.

Table 5-20. Manzanola Build Alternatives Comparison—Natural Environment

Criteria	Alternative 1: Manzanola North	Alternative 2: Manzanola South	Assessment
Wetland/ riparian areas (25 percent of the resource within the 1,000-foot corridor)	Acres by category I (best): 1 II: 0 III: 2 IV: 2 Total: 5	Acres by category I (best): 3 II: 1 III: 0 IV: 0 Total: 4	There is comparable acreage of wetland and riparian areas in the two corridors, but the resources in Alternative 2 appear to be of slightly higher quality than those in Alternative 1.
Arkansas River	No new crossings needed	No new crossings needed	No difference.
Wildlife	Majority (82 percent) of habitat impacts to agricultural land; no known issues	Majority (91 percent) of habitat impacts to agricultural land; no known issues	No difference; both make comparable impacts to low-quality wildlife habitat.
Corridor with Least Impacts on Natural Environment	✓ (tie)	✓ (tie)	Each alternative includes approximately the same amount of wetland/riparian area, and would have relatively equal impacts to the natural environment. No key differences.

Table 5-21. Manzanola Build Alternatives Comparison—Community and Built Environment

Criteria	Alternative 1: Manzanola North	Alternative 2: Manzanola South	Assessment
Historic sites	3 resources: corridor includes a historic railroad trestle; would add a new crossing of a historic railroad and of the Catlin Canal	2 resources: would newly cross the Catlin Canal once and the Otero Canal twice	With Alternative 1, the trestle likely can be avoided, but canals and railroads likely must be crossed. The effects for each alternative are relatively minimal and comparable.
Homes and businesses	14 homes and businesses are within the 1,000-foot corridor	8 homes and businesses are within the 1,000-foot corridor	Most of these resources likely can be avoided when a 250-foot highway right of way is determined. Alternative 1 is slightly preferable. Manzanola has only 198 homes/housing units (2010 Census).
Public parks and recreation areas	Would cross Pronghorn Trail	Would cross Pronghorn Trail	No difference.
Visibility to town from the corridor	Is close enough to provide an effective “gateway” into town	Is close enough to provide an effective “gateway” into town	No difference.
Compatibility with local land use	Development potential north of town is limited by floodplains	Land south of town has better development potential	The town does not have an adopted land use plan. Citizen comments at open house meeting indicated preference for north corridor as the town is more likely to grow to the south.
Air quality effects	No known sensitive receivers are within the corridor or 300 feet beyond	One sensitive receiver is within this corridor or 300 feet beyond	These comparable effects do not favor one alternative location over the other. The town has no major air quality problems. Either alternative would take through-traffic away from the main populated area.
Noise effects	39 homes and businesses are within the corridor or 300 feet beyond	21 homes and businesses are within the corridor or 300 feet beyond	With either location, through-traffic would be relocated away from the main populated area.
Other concerns	Two new railroad crossings needed	No new railroad crossings needed	The two new crossings for Alternative 1 would add project expense and time needed for coordination with the railroad.
Corridor with Least Impacts on Community and Built Environment	✓		Alternative 1 is slightly preferable based on community impacts, including consideration of citizen input.

Differences between the Build Alternatives were slight; however, Alternative 1: Manzanola North has fewer potential effects to agricultural productivity and the community and built environment. In addition, Alternative 1 better meets the purpose and need. Although both Build Alternatives are comparable in their improvements to safety, Alternative 1 maintains flexibility to accommodate future travel, since it contains fewer homes and is less likely to be the direction of future town expansion, and had greater public support. Therefore, Alternative 1: Manzanola North was preliminarily identified as the Preferred Alternative in this location.

Rocky Ford Build Alternatives

The Build Alternatives considered around Rocky Ford are shown in Figure 5-13. Both options increase the travel distance through the area. Alternative 1: Rocky Ford North is between the city and the Arkansas River. It is nearly two miles shorter and closer to the community than Alternative 2: Rocky Ford South, which is located approximately one mile south of U.S. 50, creates travel distance of approximately 8.5 miles. Alternative 2 follows existing county roads to minimize fragmentation of farm/ranch land. Both Build Alternatives were developed with input from the community.

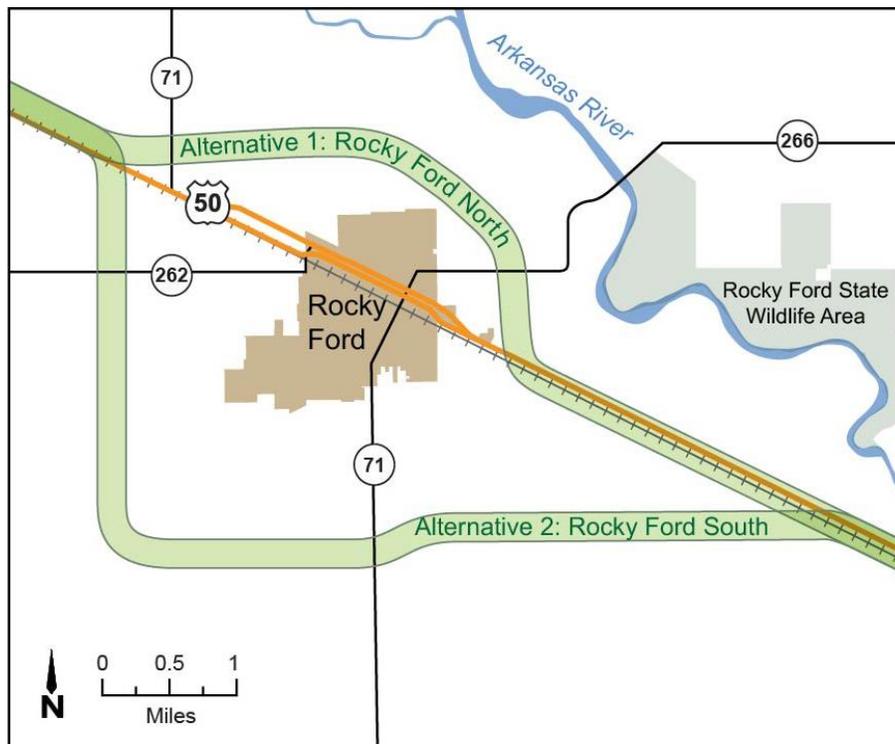


Figure 5-13. Rocky Ford Build Alternatives

While a substantial portion of Alternative 1 is located along U.S. 50 east of Rocky Ford, virtually all of Alternative 2 is on new alignment through agricultural areas. Therefore, it includes slightly more agricultural land than Alternative 1. Also, Alternative 2 crosses historic irrigation canals approximately seven times, compared with one crossing for Alternative 1.

The eastern junction of the existing U.S. 50 and the new corridor locations for the proposed alternatives vary significantly. The junction associated with Alternative 1: Rocky Ford North lies much closer to town than the associated junction for Alternative 2: Rocky Ford South. Thus, the city of Rocky Ford would be more visible for potential visits by through-travelers from Alternative 1. Also, Alternative 1 would provide much better access to the Arkansas Valley Fairgrounds than Alternative 2, which is an important economic resource for the community.

The Build Alternatives have comparable impacts to wetland/riparian resources, but, Alternative 1 is adjacent to Arkansas River floodplains. However, the community has zoned several properties for light industrial use, out of the floodplain, in an effort to develop an industrial park.

Evaluation of the resources and issues identified for these Build Alternatives in Rocky Ford resulted in the findings summarized in Table 5-22, Table 5-23, Table 5-24.

Table 5-22. Rocky Ford Build Alternatives Comparison—Rural and Agricultural Environment

Criteria	Alternative 1: Rocky Ford North	Alternative 2: Rocky Ford South	Assessment
Agricultural land (25 percent of the resource within the 1,000-foot corridor)	170 acres of vegetable farmland 0 acres of corn/alfalfa farmland 66 acres of grazing land Total: 236 acres	164 acres of vegetable farmland 59 acres of corn/alfalfa farmland 25 acres of grazing land Total: 248 acres	Alternative 1 (6.6 miles long) would pass through fewer acres of agricultural land than the longer (8.2-mile) Alternative 2 in the vicinity of this community that is well known for its produce, including cantaloupe, watermelons and much more. The overall impacts to agricultural land are similar at this location.
Impacts on agricultural operations	The north corridor includes a 10-acre feedlot for livestock	To minimize field fragmentation, this corridor goes primarily north-south and then east-west.	These considerations do not clearly favor one corridor over the other.
Corridor with Least Impacts on Rural and Agricultural Environment	✓ (tie)	✓ (tie)	Although Alternative 1 would have a slightly less adverse effect on total agricultural land impacted, both alternatives would impact highly productive farmland.

Table 5-23. Rocky Ford Build Alternatives Comparison—Natural Environment

Criteria	Alternative 1: Rocky Ford North	Alternative 2: Rocky Ford South	Assessment
Wetland/riparian areas (25 percent of the resource within the corridor)	Acres by category I (best): 0 II: 4 III: 6 IV: 0 Total: 10	Acres by category I (best): 1 II: 2 III: 10 IV: 0 Total: 13	The quality of the wetland and riparian areas in the two corridors are comparable, with Alternative 2 having slightly more impacts to wetlands.
Arkansas River	No new crossings needed	No new crossings needed	Alternative 1 ranges from a half-mile to 0.8 mile away from the Arkansas River, which is not a key issue.
Wildlife	Majority (92 percent) of habitat impacts to agricultural land; no known issues	Majority (84 percent) of habitat impacts to agricultural land; no known issues	Not a major consideration because wildlife presence and road mortality is minimal here, in this long-established farming community.
Corridor with Least Impacts on Natural Environment	✓ (tie)	✓ (tie)	Ecological considerations do not favor one alternative over the other. The difference in wetland impacts is not substantial.

Table 5-24. Rocky Ford Build Alternative Comparison—Community and Built Environment

Criteria	Alternative 1: Rocky Ford North	Alternative 2: Rocky Ford South	Assessment
Historic sites	3 resources: 2 canals, probably resulting in only 1 crossing; 1 crossing of the BNSF railway	7 resources: 1 farm or ranch building (barn); 1 canal structure; 4 canals, to be crossed a total of 7 times; 1 railroad to be newly crossed twice	The barn and canal structure likely can be avoided. The railroad and canals likely must be crossed. The effects for each alternative are relatively minimal. The large number of canal and railroad crossings makes Alternative 1 preferable.
Homes and businesses	36 homes and businesses are within the 1,000-foot corridor	14 homes and businesses are within the 1,000-foot corridor	Some of these resources likely can be avoided when a highway right of way is determined. The difference of 22 homes and businesses in this community of 1,869 homes/housing units (2010 Census) favors Alternative 2.
Public parks and recreation areas	Would cross the Pronghorn Trail	Would cross the Pronghorn Trail	No difference.
Visibility to town from the corridor	The north corridor is close to town, providing an effective “gateway” into town	The south corridor is about a mile out of town, <u>not</u> providing an effective “gateway”	Alternative 1 is preferable with regard to this criterion. According to citizen input, the gateway issue is an important economic issue for the city.

Criteria	Alternative 1: Rocky Ford North	Alternative 2: Rocky Ford South	Assessment
Compatibility with local land use	Would provide good access to fairgrounds and the city's industrial park	Could slightly increase traffic on SH 71 through neighborhoods	Alternative 1 is preferable with regard to this criterion by providing good access to important community resources.
Air quality effects	No known sensitive receivers are within the corridor or 300 feet beyond	No known sensitive receivers are within the corridor or 300 feet beyond	No difference in the number of sensitive receivers. The town has no major air quality problems. Both alternatives would move highway emissions out of the main populated area. Alternative 2 would take traffic farther away from the population, but also increase total vehicle miles traveled (vmt).
Noise effects	63 homes and businesses are within the corridor or 300 feet beyond	27 homes and businesses are within the corridor or 300 feet beyond	With either location, through-traffic would be relocated away from the main populated area.
Other concerns	Would require 2 new railroad crossings	Would not require any new railroad crossings	The two new crossings needed for the Alternative 1 would add project expense and time needed for coordination with the railroad.
Corridor with Least Impacts on Community and Built Environment	✓		Community impacts seem generally comparable, but according to citizen input, Alternative 1 is preferable due to its better land use compatibility and gateway potential.

The Build Alternatives at Rocky Ford generally were comparable when looking at the screening criteria, as well as in their ability to meet the purpose and need of the project, except when considering the community and built environment. Alternative 1: Rocky Ford North has a greater potential to minimize effects to historic resources and received greater community support. Having an alignment close to town was important for the community, both for having an effective “gateway” into the town and to provide adequate access to their fairgrounds and industrial park. Therefore, Alternative 1: Rocky Ford North was preliminarily identified as the Preferred Alternative at this location.

Swink Build Alternatives

Figure 5-14 shows the two Build Alternatives considered around Swink. Both alternatives are located close to town, and they are of comparable length. Alternative 1: Swink North is located close to the Arkansas River, while Alternative 2: Swink South traverses highly productive farmland.

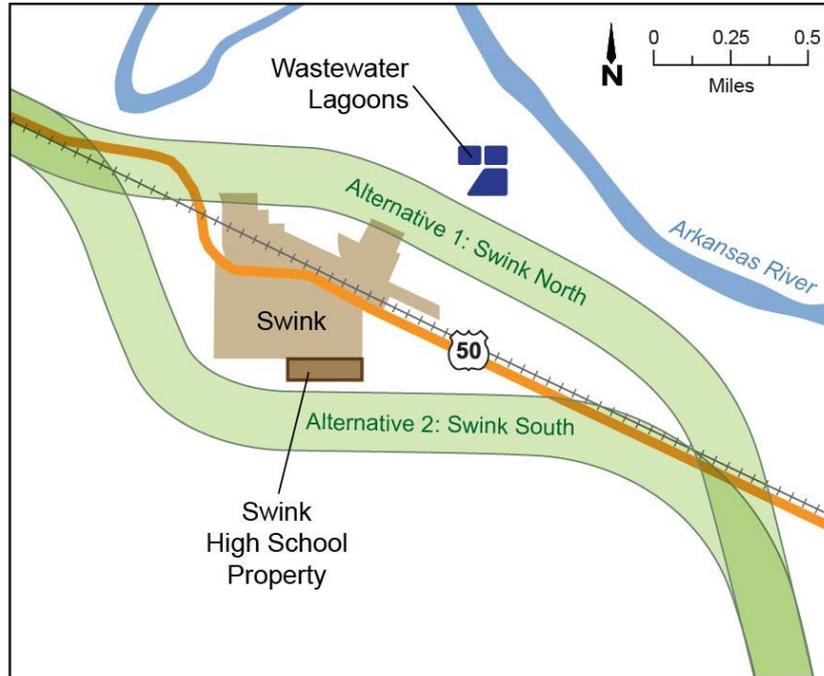


Figure 5-14. Swink Build Alternatives

Alternative 1: Swink North includes 14 of the town's 286 homes or housing units (2010 Census) compared to six homes in Alternative 2: Swink South. However, Alternative 2 runs adjacent to the town's school facilities, which are key community assets. The school district is also a major employer in the town. Noise, air pollution, and traffic near the school grounds were noted as public concerns at a community meeting. The school site is one of two air quality-sensitive sites in the south corridor, compared to none in the north corridor. More farm/ranch land is included in Alternative 2, and its productivity is approximately three times higher than the farm/ranch land in Alternative 1.

Evaluation of the resources and issues identified for the Build Alternatives in Swink resulted in the findings summarized in Table 5-25, Table 5-26, and Table 5-27.

Table 5-25. Swink Build Alternatives Comparison—Rural and Agricultural Environment

Criteria	Alternative 1: Swink North	Alternative 2: Swink South	Assessment
Agricultural land (25 percent of the resource within the 1,000-foot corridor)	23 acres of vegetable farmland 12 acres of corn/alfalfa farmland 26 acres of grazing land Total: 61 acres	74 acres of vegetable farmland 0 acres of corn/alfalfa farmland 2 acres of grazing land Total: 76 acres	Alternative 1 would pass through agricultural land in less quantity and of lower quality than Alternative 2. The farmland impacted by Alternative 2 has a productive value estimated to be three times higher than farmland impacted by Alternative 1.
Impacts on agricultural operations	Grazing land would be fragmented by new highway	Some of the farmland has expensive drip irrigation systems that could be disrupted	Irrigation considerations favor Alternative 1.
Corridor with Least Impacts on Rural and Agricultural Environment	✓		Alternative 1 is preferable because it would consume less highly productive vegetable land and avoid impacting existing irrigation systems there.

Table 5-26. Swink Build Alternatives Comparison—Natural Environment

Criteria	Alternative 1: Swink North	Alternative 2: Swink South	Assessment
Wetland/ riparian areas (25 percent of the resource within the 1,000-foot corridor)	Acres by category I (best): 3 II: 2 III: 2 IV: 0 Total: 7	Acres by category I (best): 0 II: 0 III: 1 IV: 0 Total: 1	There are more wetland and riparian areas in Alternative 1; however, the difference is minor.
Arkansas River	No new crossings needed	No new crossings needed	No difference. At Swink, the river loops to the north, away from the town.
Wildlife	Majority (81 percent) of habitat impacts to agricultural land; no known issues	Majority (97 percent) of habitat impacts to agricultural land; no known issues	Not a key consideration because wildlife presence and road mortality is minimal here in this long-established farming community.
Corridor with Least Impacts on Natural Environment	✓ (tie)	✓ (tie)	No key differences; both alternatives have comparable potential impacts to the natural environment.

Table 5-27. Swink Build Alternative Comparison—Community and Built Environment

Criteria	Alternative 1: Swink North	Alternative 2: Swink South	Assessment
Historic sites	3 resources: a historic migrant worker housing site; a historic building; and the alternative would cross a historic railroad	2 resources: a historic farmhouse; the alternative would cross a historic railroad	The potential effects for each corridor are comparable.
Homes and businesses	14 homes and businesses are within the 1,000-foot corridor	6 homes and businesses are within the 1,000-foot corridor	Most of these resources likely can be avoided when a highway right of way is determined. Swink has an estimated 286 homes/housing units (2010 Census).
Public parks and recreation areas	None	None	No difference.
Visibility to town from the corridor	The north corridor is close to town, providing an effective “gateway” into town	The south corridor is about a mile out of town, <u>not</u> providing an effective “gateway”	Alternative 1 is preferable with regard to this criterion.
Compatibility with local land use	Would consume land with limited development potential due to adjacent floodplains	Would build expressway near the town’s school, which is a key community asset and major employer	Alternative 1 is preferable with regard to this criterion.
Air quality effects	No known sensitive receivers are within the corridor or 300 feet beyond	Two known sensitive receivers, including the town’s school complex	This comparison favors going north around the town. The town has no major air quality problems. Each alternative would move highway emissions out of the main populated area.
Noise effects	36 homes and businesses are within the corridor or 300 feet beyond	16 homes and businesses are within the corridor or 300 feet beyond	The difference in the number of potential noise receivers represents 7 percent of Swink’s estimated 286 homes/housing units (2010 Census). With either location, through-traffic would be relocated away from the main populated area.
Other concerns	One new railroad crossing would be needed east of town	One new railroad crossing would be needed west of town	No difference.
Corridor with Least Impacts on Community and Built Environment	✓ (tie)	✓ (tie)	Proximity to the town’s school in Alternative 2 is a key concern that balances against the fact that there are more homes and businesses in the north. Overall effects are comparable.

Because each Build Alternative considered in Swink has advantages, and the alternatives are comparable in their ability to meet the purpose and need of the project, no Preferred Alternative was preliminarily identified. Therefore, each is carried forward for Tier 2 analysis.

La Junta Build Alternatives

The four Build Alternatives considered around La Junta are shown in Figure 5-15. One of the alternatives crosses the Arkansas River to the north (Alternative 1: La Junta North), while the other three are located south of the city (Alternatives 2–4). Alternative 3: La Junta South was developed during public involvement efforts for the Tier 1 EIS, as a requested compromise between the other two southern corridors, which had been identified in the 2003 U.S. 50 planning study.

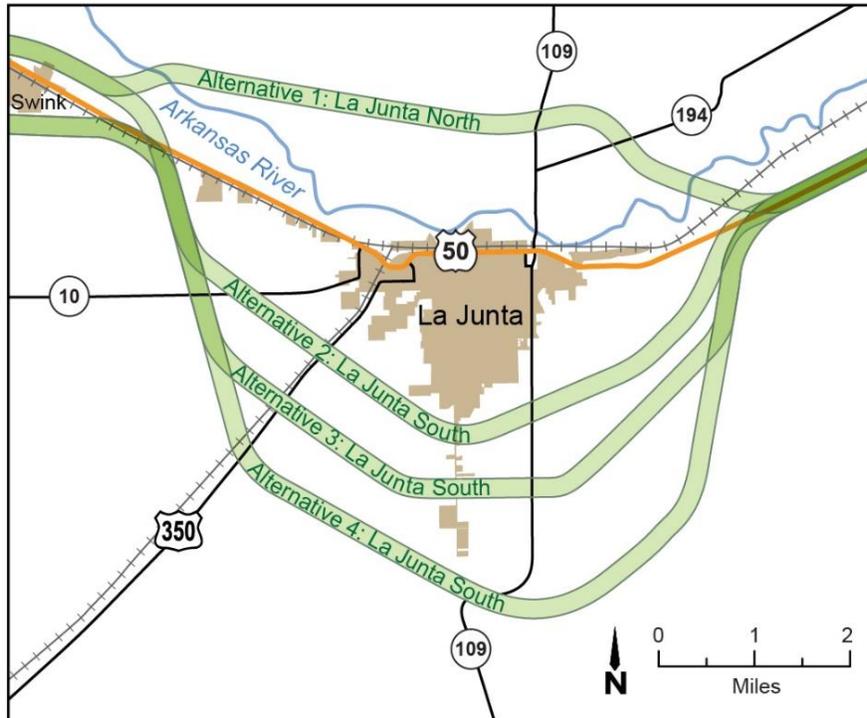


Figure 5-15. La Junta Build Alternatives

Alternative 1: La Junta North is the second shortest (8.9 miles length) of the four Build Alternatives around the city, and would have minimal effects on the La Junta Gardens residential area north of the Arkansas River. However, it would require the construction of two new bridges across the Arkansas River, which would be a major ecological drawback.

Alternative 1: La Junta North and has the greatest amount of wetland/riparian acres (28 acres). In addition, some of the wetland/riparian acres in the southern alternatives may be avoided because they are isolated or are not perpendicular to the corridor. However, these opportunities for avoidance are not possible with Alternative 1 because it crosses the Arkansas River.

The most striking differences among the three southern Build Alternatives are their comparative lengths and distances from the existing U.S. 50 facility.

Compared with the current trip on U.S. 50 from west of Swink to the east side of La Junta, which is approximately six miles, the Build Alternatives are as follows:

- Alternative 1: La Junta North is about 2.9 miles longer and 1.5 miles north.
- Alternative 2: La Junta South is about 2.5 miles longer and 2 miles south

- Alternative 3: La Junta South is about 4 miles longer, and 2.3 miles south
- Alternative 4: La Junta South is about 6 miles longer, and 3.3 miles south

Alternative 4 would add six miles to the length of a regional or long-distance trip on U.S. 50, and thus would be twice as long as the current route through the city. At 65 miles per hour, this route would not save time compared to taking the existing U.S. 50 through the city at lower speeds and stopping at a traffic signal. Instead, Alternative 4 would add two minutes of travel time to the trip. For this reason, Alternative 4 would be expected to draw minimal traffic, not providing the intended benefits. In comparison, Alternative 3 would be time-neutral, and Alternative 2 would save travel time.

Evaluation of the resources and issues identified for the Build Alternatives in La Junta resulted in the findings summarized in Table 5-28, Table 5-29, and Table 5-30.

Table 5-28. La Junta Build Alternatives Comparison—Rural and Agricultural Environment

Criteria	Alternative 1: La Junta North	Alternative 2: La Junta South	Alternative 3: La Junta South	Alternative 4: La Junta South	Assessment
Agricultural acres (25 percent of the resource within the 1,000-foot corridor)	7 acres of vegetable farmland 16 acres of corn/alfalfa farmland 239 acres of grazing land Total: 262 acres	39 acres of vegetable farmland 3 acres of corn/alfalfa farmland 211 acres of grazing land Total: 253 acres	48 acres of vegetable farmland 0 acres of corn/alfalfa farmland 246 acres of grazing land Total: 294 acres	48 acres of vegetable farmland 17 acres of corn/alfalfa farmland 294 acres of grazing land Total: 359 acres	Alternatives 1, 2, and 3 have comparable agricultural impacts, with Alternative 4 having the greatest due to its length. However, Alternative 3 and Alternative 4 would have the highest impacts to productive value of agricultural lands (\$216,000–\$223,000)
Impacts on agricultural operations	Minimal land fragmentation	Diagonal route would fragment grazing lands	Diagonal route would fragment grazing lands	Diagonal route would fragment grazing lands	Alternative 1 would be very direct and cause the least fragmentation of agricultural lands.
Corridor with Least Impacts on Rural and Agricultural Environment	✓ (tie)	✓ (tie)			Alternative 1 would likely have the least effect on agricultural lands, although it does have slightly greater agricultural impacts than Alternative 2. In regards to the rural and agricultural environment, though, Alternatives 1 and 2 have the least and comparable impacts.

Table 5-29. La Junta Build Alternative Comparison—Natural Environment

Criteria	Alternative 1: La Junta North	Alternative 2: La Junta South	Alternative 3: La Junta South	Alternative 4: La Junta South	Assessment
Wetland/riparian areas (25 percent of the resource within the 1,000-foot corridor)	Acres by category I (best): 9 II: 3 III: 15 IV: 1 Total: 28	Acres by category I (best): 1 II: 1 III: 11 IV: 2 Total: 15	Acres by category I (best): 3 II: 7 III: 8 IV: 1 Total: 19	Acres by category I (best): 3 II: 1 III: 7 IV: 0 Total: 11	Alternative 1 has the greatest potential wetland/riparian impacts as well as the highest quality wetlands, while Alternatives 2–4 have comparable impacts to lower quality wetlands.
Arkansas River	Two new crossings needed	No new crossings	No new crossings	No new crossings	Alternative 1 has significant adverse effects to the Arkansas River that can be avoided by any other corridor.
Wildlife	Primarily agricultural (39 percent) and grasslands (44 percent); no known issues	Primarily agricultural (49 percent) and grasslands (30 percent); no known issues	Primarily agricultural (44 percent) and grasslands (44 percent); no known issues	Primarily agricultural (36 percent) and grasslands (58 percent); no known issues	No difference.
Corridor with Least Impacts on Natural Environment		✓ (tie)	✓ (tie)	✓ (tie)	Alternatives 2–4 have comparable impacts, with the fewest potential impacts to wetland/riparian areas and are the least harmful to the natural environment. Alternative 1's two crossings of the Arkansas River and its associated wetlands and riparian area represent a major ecological impact that is avoidable by keeping the highway south of the river.

Table 5-30. La Junta Build Alternative Comparison—Community and Built Environment

Criteria	Alternative 1: La Junta North	Alternative 2: La Junta South	Alternative 3: La Junta South	Alternative 4: La Junta South	Assessment
Historic sites Within the 1,000-foot corridor	3 resources: would cross railroad tracks east of city, the Santa Fe Trail, and a historic canal	3 resources: would cross railroad, Santa Fe Trail, and Otero Canal (6 times)	4 resources: would cross the same railroad, trail, and canal (3 times) as Alternative 2, plus an Otero Ditch tunnel	3 resources: would cross the same railroad, trail, and canal (3 times) as Alternative 2	All of the alternatives are comparable. All corridors would cross the railroad once. The three southern alternatives all would cross the Otero Canal and the Santa Fe Trail. No substantial differences.
Homes and businesses within the 1,000-foot corridor	6	18	14	5	Some of these resources likely can be avoided when a 250-foot highway right of way is determined. The difference in numbers between alternatives is not a major consideration in this community of 3,422 homes/housing units (2010 Census); Alternative 1 and Alternative 4 have the fewest homes and businesses within their respective corridors likely because they are further from downtown.
Public parks and recreation areas	Would cross the Prairie Canyons and Plover trails	Would cross the Prairie Canyons and Plover trails	Would cross the Prairie Canyons and Plover trails	Would cross the Prairie Canyons and Plover trails	No difference.
Visibility to town from the corridor	The north corridor is separated from the city by the Arkansas River	2 miles south of existing U.S. 50 in town	2.3 miles south of existing U.S. 50 in town	3.3 miles south of existing U.S. 50 in town	Alternative 2 would keep the highway more visible and accessible than the other alternatives.
Compatibility with local land use	Is outside of the city	Is outside the city's developed area	Is outside the city's developed area	Reflected in City plan	Bounded by the railroad and river to the north, the city could benefit from having a main east-west thoroughfare in the south, so that residents in the south would not have to drive through the city to reach the highway.

Criteria	Alternative 1: La Junta North	Alternative 2: La Junta South	Alternative 3: La Junta South	Alternative 4: La Junta South	Assessment
Air quality effects	No sensitive receptors	No sensitive receptors	No sensitive receptors	No sensitive receptors	No difference. The town has no air quality problems. Any new corridor would shift through-traffic emissions out of the city's downtown area. Alternatives 3 and 4 are 2 and 4 miles longer than Alternative 2, so would result in increased VMT
Noise effects	19 homes and businesses are within the corridor or 300 feet beyond	48 homes and businesses are within the corridor or 300 feet beyond	34 homes and businesses are within the corridor or 300 feet beyond	15 homes and businesses are within the corridor or 300 feet beyond	The small difference between the number of receptors for Alternative 2 and Alternative 3 is not a key factor. The community has 3,422 homes/housing units (2010 Census). Any new corridor would relocate through-traffic away from the city's downtown area. Alternatives 1 and 4 have the fewest noise receptors due to being located away from the downtown area.
Other concerns	None	None	None	Would not benefit users due to its excessive length	More travel time would be needed to use Alternative 4 than to drive through the city on existing U.S.50. By not benefitting long-distance users, this corridor does not best meet the purpose and need.

Criteria	Alternative 1: La Junta North	Alternative 2: La Junta South	Alternative 3: La Junta South	Alternative 4: La Junta South	Assessment
Corridor with Least Impacts on Community and Built Environment		✓ (tie)	✓ (tie)		Alternative 1 would not produce the east-west thoroughfare to the south that is desired, and Alternative 4's length make it less desirable because of the travel time added for users. and Alternative 4 Therefore, Alternative 2 and Alternative 3 are preferable.

Because Alternative 1 would be the most environmentally damaging route, requiring two bridges through a significant floodplain, and since there is a general lack of major adverse impacts in the southern alternatives, Alternative 1 was not considered a preferred alternative. In addition, Alternative 4 adds the greatest travel time to the corridor and has more out-of-direction travel, so it was not preliminarily identified as preferred. Between Alternative 2 and Alternative 3, Alternative 2 is the shorter, closest to town, and compares favorably or equally with Alternative 3 in terms of potentially impacted resources. However, Alternative 3 has more impacts to farm/ranch lands and wetland/riparian areas because it is longer than Alternative 2. Alternative 2 has a better ability to meet the purpose and need of the project. Both Alternative 2 and Alternative 3 are carried forward for Tier 2 analysis.

Las Animas Build Alternatives

The two Build Alternatives considered around Las Animas are shown in Figure 5-16. U.S. 50 crosses the Arkansas River north of the city, and either alternative would also cross the river. Alternative 1: Las Animas North is located along a flood control levee for the Arkansas River and would cross the river on or near the existing U.S. 50 bridge. Alternative 2: Las Animas South is located south of the BNSF Railway tracks, close to the City of Las Animas-Bent County Airport and the Bent County Correctional Facility. Alternative 2 would require construction of a new bridge across the Arkansas River.

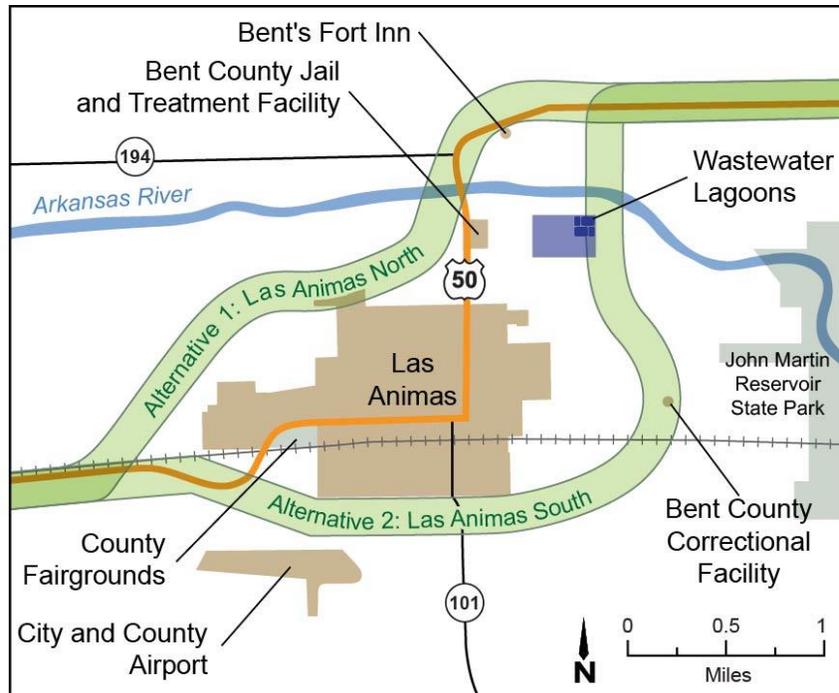


Figure 5-16. Las Animas Build Alternatives

Alternative 1 includes 17 more acres of wetland/riparian area than Alternative 2 and would include replacement of the existing U.S. 50 bridge over the Arkansas River. However, replacing the bridge may be less ecologically disruptive than building a new bridge downstream for the south corridor.

Alternative 1 includes a slightly greater number of homes than Alternative 2 (16 versus 9), but the difference is minimal in comparison with the city's total housing stock (1,214 homes). Alternative 1 would traverse land with higher development potential, including vacant land that has existing utility infrastructure. An important benefit of Alternative 1: Las Animas North is that it leads westbound traffic into the city toward the existing U.S. 50, and thus provides a gateway into the downtown business district with minimal disruption to existing traffic patterns. By contrast, Alternative 2: Las Animas South does not lead conveniently to downtown and instead takes through-traffic past the prison.

Evaluation of the resources and issues identified for Build Alternatives in Las Animas resulted in the findings summarized in Table 5-31, Table 5-32, and Table 5-33.

Table 5-31. Las Animas Build Alternatives Comparison—Rural and Agricultural Environment

Criteria	Alternative 1: Las Animas North	Alternative 2: Las Animas South	Assessment
Agricultural land (25 percent of the resource within the 1,000-foot corridor)	0 acres of vegetable farmland 33 acres of corn/alfalfa farmland 68 acres of grazing land Total: 101 acres	0 acres of vegetable farmland 36 acres of corn/alfalfa farmland 105 acres of grazing land Total: 141 acres	Alternative 1 would pass through less agricultural land than the longer south corridor.
Impacts on agricultural operations	Would minimize fragmentation by abutting Arkansas River levee	No known issues	Fragmentation of fields is likely to be greater with Alternative 2.
Corridor with Least Impacts on Rural and Agricultural Environment	✓		Alternative 1 would have a less adverse effect on the rural and agricultural environment than Alternative 2.

Table 5-32. Las Animas Build Alternatives Comparison—Natural Environment

Criteria	Alternative 1: Las Animas North	Alternative 2: Las Animas South	Assessment
Wetland/riparian areas (25 percent of the resource within the 1,000-foot corridor)	Acres by category I (best): 5 II: 5 III: 16 IV: 14 Total: 40	Acres by category I (best): 3 II: 3 III: 16 IV: 1 Total: 23	There is almost twice as many wetland and riparian areas in Alternative 1. The likelihood of avoiding impacts is better by going south, although the difference is not substantial.
Arkansas River	No new crossings needed, but the existing bridge may be replaced	A new bridge would be built about 3,600 feet to the east of the existing one	Construction of an additional, new bridge at an undisturbed site on the Arkansas River could be more ecologically disruptive than replacing the existing one.
Wildlife	Increased potential for roadkill because much closer to the Arkansas River	Would fragment Arkansas River riparian habitat due to second new bridge	Effects are comparable.

Criteria	Alternative 1: Las Animas North	Alternative 2: Las Animas South	Assessment
Corridor with Least Impacts on Natural Environment	✓ (tie)	✓ (tie)	The alternatives generally have comparable effects, with the key difference being replacement of a bridge at an existing crossing or construction of a bridge at a new crossing of the river.

Table 5-33. Las Animas Build Alternatives Comparison—Community and Built Environment

Criteria	Alternative 1: Las Animas North	Alternative 2: Las Animas South	Assessment
Historic sites	5 resources: would cross railroad, levee, Consolidated Ditch, and Town Ditch. Corridor includes Santa Fe Trail.	5 resources: would cross railroad, levee, and Consolidated Ditch; corridor also includes a segment of Old U.S. 50 and a residence.	Non-“linear” sites likely can be avoided. Canals and railroads likely must be crossed. These effects for each alternative are relatively minimal and comparable. U.S. 50 already crosses the Santa Fe National Historic Trail east of the city. Avoidance of additional impacts will be important.
Homes and businesses	16 homes and businesses are within the 1,000-foot corridor	9 homes and businesses are within the 1,000-foot corridor	Most of these resources likely can be avoided when a highway right of way is determined. The difference in the number of homes and businesses is not a key consideration in this community of 1,214 homes/housing units (2010 Census).
Public parks and recreation areas	Would cross the Plover Trail	Would cross Plover and Prairie Canyons trails. Also could acquire a small amount of property from the municipal golf course, although it would not affect holes or other amenities on the golf course.	Alternative 1 allows for greater avoidance of recreational facilities in the area, although neither option can avoid crossing identified trails.
Visibility to town from the corridor	Brings eastbound traffic into town at its traditional location, providing an effective “gateway” into town	Shifts eastbound traffic from its traditional entrance into town, and does not provide an effective “gateway”	Alternative 1 is preferable with regard to this criterion.

Criteria	Alternative 1: Las Animas North	Alternative 2: Las Animas South	Assessment
Compatibility with local land use	Would consume land that already has some utility infrastructure	A midtown connection between U.S. 50 and downtown (e.g., Highway 101) could alter traffic through neighborhoods	Since Alternative 1 is shorter, it is less likely to need additional access to the city.
Air quality effects	Two known sensitive receivers are within the corridor or 300 feet beyond.	No known sensitive receivers are within the corridor or 300 feet beyond	This consideration slightly favors Alternative 2. However, the town has no major air quality problems, and each alternative would move highway emissions out of the main populated area.
Noise effects	35 homes and businesses are within the corridor or 300 feet beyond	43 homes and businesses are within the corridor or 300 feet beyond	The difference in the number of potential noise receivers is not a key consideration in this community of 1,214 homes/housing units (2010 Census). With either location, through-traffic would be relocated away from the main populated area.
Other concerns	One new railroad crossing needed west of the city	One new railroad crossing needed east of the city	Alternative 2 is in conflict with a potential new railroad line that is currently under consideration in the State's Rail Relocation Study. The rail line has state-level importance and also could benefit the Las Animas economy.
Corridor with Least Impacts on Community and Built Environment	✓		Having a convenient gateway into town is important to Las Animas, where many businesses and historic districts line the highway. Alternative 1 provides a very convenient eastbound connection to downtown—i.e. the existing highway. Alternative 2 would not connect as well with the existing street system.

Alternative 1: Las Animas North has major access advantages which may alleviate potential socioeconomic effects of a bypass, and also received support from the City. In addition, Alternative provides fewer access points that could disrupt highway traffic operations than Alternative 2. Therefore, Alternative 1 was preliminarily identified as the Preferred Alternative in this location.

Granada Build Alternatives

Figure 5-17 shows the two Build Alternatives considered in Granada. Alternative 1: Granada North would cross to the north side of the historic BNSF Railway tracks and back again, cut through the Granada State Wildlife Area, and run parallel to Wolf Creek, largely in floodplains. Alternative 2: Granada South would cross comparatively dry lands and pass just northeast of the Granada Relocation Center National Historic Landmark (NHL), also known as Camp Amache.

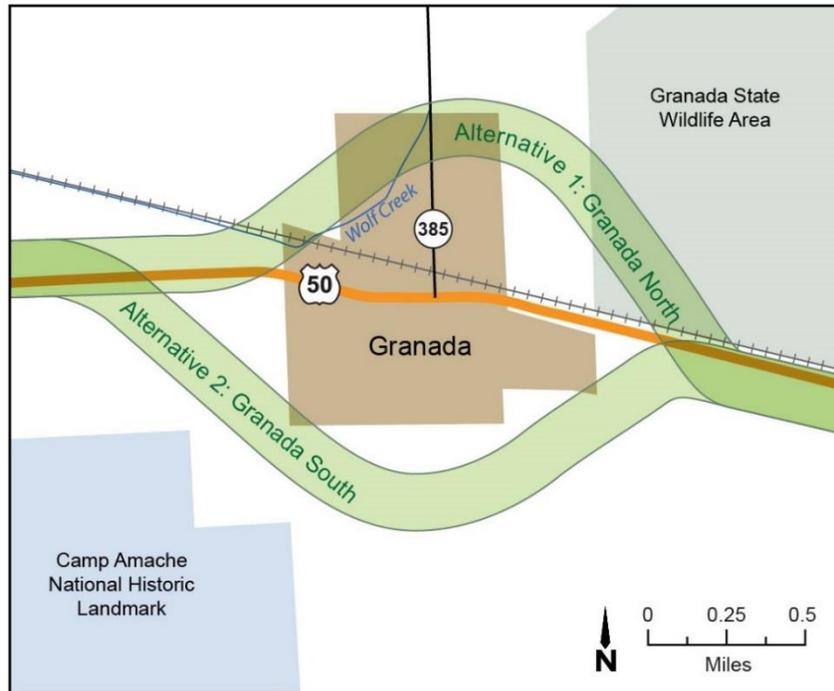


Figure 5-17. Granada Build Alternatives

Camp Amache was a relocation center where Japanese-Americans were held by the U.S. government during World War II. This is a very significant historic resource that is owned by the town of Granada with oversight by the National Park Service (NPS). A consultation meeting was conducted with the NPS to determine whether or not the indirect noise and visual impacts of a nearby south corridor would be acceptable to that agency. The result of this meeting was the determination that Alternative 2: Granada South is feasible, provided that appropriate planning, coordination, and mitigation occur during Tier 2 studies.

Evaluation of the resources and issues identified for the Build Alternatives around Granada resulted in the findings summarized in Table 5-34, Table 5-35, and Table 5-36.

Table 5-34. Granada Build Alternatives Comparison—Rural and Agricultural Environment

Criteria	Alternative 1: Granada North	Alternative 2: Granada South	Assessment
Agricultural land (25 percent of the resource within the 1,000-foot corridor)	3 acres of vegetable farmland 45 acre of corn/alfalfa farmland 0 acres of grazing land Total: 48 acres	15 acres of vegetable farmland 0 acre of corn/alfalfa farmland 47 acres of grazing land Total: 62 acres	Alternative 2 would pass through more agricultural land with higher productive value.
Impacts on agricultural operations	Diagonal route would fragment farm fields	Diagonal route would fragment grazing lands	By comparison, the fragmentation of grazing lands would be less adverse, slightly favoring Alternative 2.
Corridor with Least Impacts on Rural and Agricultural Environment	 (tie)	 (tie)	Potential effects to the rural and agricultural environment would be comparable, with slightly fewer effects with Alternative 1.

Table 5-35. Granada Build Alternatives Comparison—Natural Environment

Criteria	Alternative 1: Granada North	Alternative 2: Granada South	Assessment
Wetland/ riparian areas (25 percent of the resource within the 1,000-foot corridor)	Acres by category I (best): 0 II: 4 III: 1 IV: 0 Total: 5	Acres by category I (best): 1 II: 0 III: 1 IV: 0 Total: 2	There is slightly more and higher quality wetland and riparian areas in Alternative 1, although this is not a substantial difference.
Arkansas River	No issue because corridor would be located one mile south of the river.	No issue because corridor would be located three miles south of the river.	No difference.
Wildlife	Majority (88 percent) of habitat is agricultural land; would cut through the southwest corner of the 3,672-acre Granada State Wildlife Area	Majority (54 percent) of habitat is shrubland; no known issues	Uses of the State Wildlife Area include hunting (small game, waterfowl, and deer), fishing, wildlife viewing, and photography. Alternative 1 is likely to have more roadkill than the southern alternative. Alternative 2 is preferable due to avoidance of the State Wildlife Area.
Corridor with Least Impacts on Natural Environment		✓	Both alternatives have comparable potential impacts to wetland/riparian areas and no key issues with the Arkansas River; however, Alternative 2 is preferable because of its avoidance of the State Wildlife Area.

Table 5-36. Granada Build Alternatives Comparison—Community and Built Environment

Criteria	Alternative 1: Granada North	Alternative 2: Granada South	Assessment
Historic sites	4 resources: would cross the X-Y Canal and Granada Ditch one time, and a historic railroad twice. Corridor also includes a 1905 residence.	1 resource: would cross the X-Y Canal one time. Would pass within about 500 feet of Camp Amache National Historic Landmark property.	One new canal crossing cannot be avoided. The residence is easily avoidable. The only difference therefore is the two railroad crossings for Alternative 1. Preliminary consultation with the NPS suggests that Alternative 2 would not adversely affect Camp Amache.
Homes and businesses	1 home or business is within the 1,000-foot corridor	2 homes and businesses are within the 1,000-foot corridor	This difference is negligible.

Criteria	Alternative 1: Granada North	Alternative 2: Granada South	Assessment
Public parks and recreation areas	Would cross Two Buttes Trail	Includes the southeast corner of school property with athletic fields at the east end of town, as well as crosses a planned county trail.	The primary difference is the potential impact to the school with Alternative 2. However, the impact to school property is considered minor and also avoidable, as there are no conflicting resources preventing the right of way from being located south of the property, within the 1,000-foot corridor.
Visibility to town from the corridor	The north corridor is close to town.	The south corridor is close to town.	No difference. The existing U.S. 50 will continue to serve as the main gateway into town, from both the east and the west.
Compatibility with local land use	Would consume land with limited development potential due to adjacent floodplains	Would consume land that has better development potential than in the north	Alternative 1 is preferable with regard to this criterion.
Air quality effects	No known sensitive receivers are within the corridor or 300 feet beyond	Only known sensitive receiver, the school noted under parks and rec, has land barely within the corridor	This is not a key consideration. Neither the school building nor the active-use recreation areas are within the 300 feet, but some school land is. The small town has no air quality problems. Each alternative would move highway emissions out of the main populated area.
Noise effects	15 homes and businesses are within the corridor or 300 feet beyond	8 homes and businesses are within the corridor or 300 feet beyond	The difference of potential noise receivers is not a key consideration. With either location, through-traffic would be relocated away from the main populated area.
Other concerns	Two new railroad crossings needed	No new railroad crossings needed	The two new crossings needed for Alternative 1 would add project expense and time needed for coordination with the railroad.
Corridor with Least Impacts on Community and Built Environment		✓	The numbers and differences are small, but Alternative 2 includes fewer historic resources and noise receptors than Alternative 1. Input from a community meeting indicated local preference for the south corridor.

Alternative 2: Granada South has slightly fewer potential impacts to the natural and community and built environments, and input from a community meeting indicated local preference for the southern corridor. In addition, the Build Alternatives are comparable in meeting the purpose and need of the project; however, Alternative 2 would improve mobility by providing easier access to SH 385 while Alternative 1 would still require drivers to go through Granada to access SH 385. Therefore, Alternative 2: Granada South was preliminarily identified as the Preferred Alternative in this area.

Holly Build Alternatives

The two Build Alternatives considered around Holly are shown in Figure 5-18. Alternative 1: Holly North would cross through the northern part of the Holly incorporated area and also go through the Holly State Wildlife Area. Alternative 2: Holly South would pass to the south of the town crossing the historic BNSF Railway tracks twice and would pass through or is adjacent to a southern portion of the Holly State Wildlife Area along the north bank of the Arkansas River. Alternative 1: Holly North would pass through the northern portion of the Holly State Wildlife Area, which is used for dove, pheasant, and waterfowl hunting and for wildlife viewing. For safety reasons, hunting is not permitted in the immediate vicinity of U.S. 50 (within 50 feet on either side of center line).

The Horse Creek drainage that crosses under the existing U.S. 50 facility on the west side of Holly is reported to contain the Arkansas Darter. This darter is a fish species that is considered threatened within the state of Colorado. Alternative 1: Holly North would be parallel and adjacent to Horse Creek, and thus would have potential adverse effects to this habitat. Alternative 2: Holly South also must cross this creek, but it crosses it perpendicularly, as U.S. 50 does today.

Alternative 1 also would include and follow the historic Santa Fe Trail and have potential impacts to its setting.

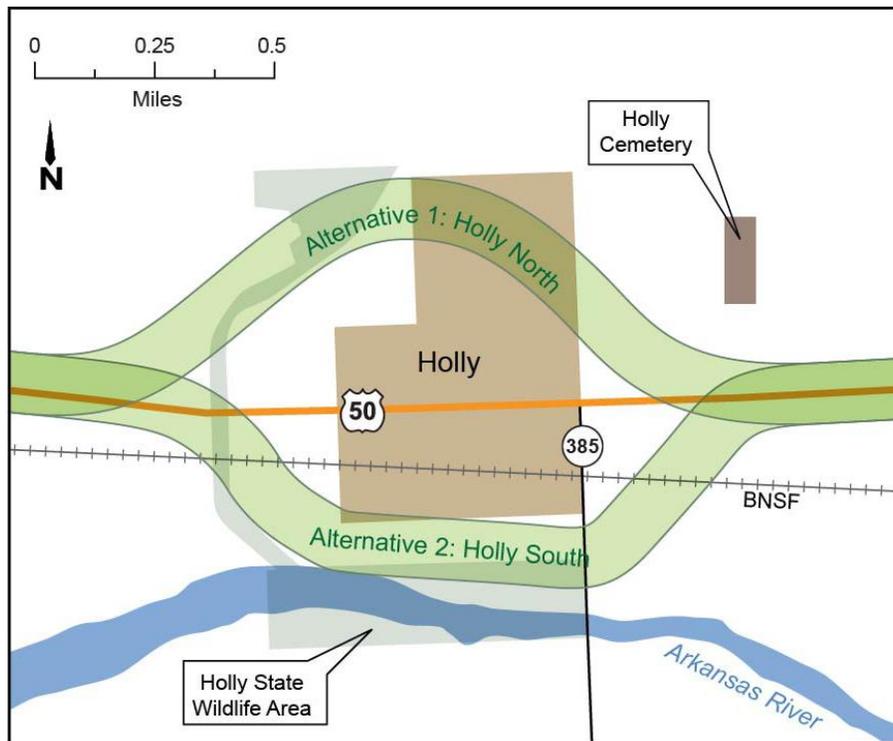


Figure 5-18. Holly Build Alternatives

Evaluation of the resources and issues identified for the Build Alternatives around Holly resulted in the findings summarized in Table 5-37, Table 5-38, and Table 5-39.

Table 5-37. Holly Build Alternatives Comparison—Rural and Agricultural Environment

Criteria	Alternative 1: Holly North	Alternative 2: Holly South	Assessment
Agricultural land (25 percent of the resource within the 1,000-foot corridor)	0 acres of vegetable farmland 31 acres of corn/alfalfa farmland 20 acres of grazing land Total: 51 acres	0 acres of vegetable farmland 20 acres of corn/alfalfa farmland 43 acres of grazing land Total: 63 acres	Alternative 1 would pass through less total agricultural acres, but the land to the north is more heavily used for farming while the land to the south is more heavily used for grazing. Therefore, Alternative 2 would have a less adverse effect on farmland productivity
Impacts on agricultural operations	Grazing land would be fragmented by new highway	Corridor crosses many fields in a diagonal manner, resulting in field fragmentation	Alternative 1 would be less likely to interfere with agricultural operations than the southern alternative, due to the diagonal orientation of the latter.
Corridor with Least Impacts on Rural and Agricultural Environment	 (tie)	 (tie)	The alternatives have comparable effects.

Table 5-38. Holly Build Alternatives Comparison—Natural Environment

Criteria	Alternative 1: Holly North	Alternative 2: Holly South	Assessment
Wetland/ riparian areas (25 percent of the resource within the 1,000-foot corridor)	Acres by category I (best): 1 II: 8 III: 7 IV: 0 Total: 16	Acres by category I (best): 0 II: 2 III: 18 IV: 0 Total: 20	There is slightly more acreage of wetland and riparian area in Alternative 2, but the wetlands in Alternative 1 are of higher quality. The likelihood of avoiding and minimizing impacts is better by going south.
Arkansas River	No new crossings needed; however this corridor would add a new crossing of Horse Creek, a tributary to the river	No new crossings needed; the south corridor would locate the highway closer to the river than it is today	These impacts are comparable.
Wildlife	Would pass through or adjacent to the Holly State Wildlife Area northwest of town; the SWA is used for hunting and wildlife viewing; new crossing of Horse Creek which contains Arkansas Darter	Would pass through or adjacent to a “new” addition to the Holly SWA south of town	Alternative 1 crosses the northern portion of the SWA and cannot avoid it. Alternative 2 runs parallel to the new southern portion of it, and may be able to stay just north of it. Both alternatives would cross Horse Creek (as U.S. 50 does today). This creek is part of the SWA connecting the larger parcels and contains the Arkansas darter, a state threatened species.
Corridor with Least Impacts on Natural Environment		✓	Alternative 2 has fewer potential for adverse effects to the Holly SWA and would not require a new crossing of Horse Creek, which minimizes potential for effects to Arkansas Darter.

Table 5-39. Holly Build Alternatives Comparison—Community and Built Environment

Criteria	Alternative 1: Holly North	Alternative 2: Holly South	Assessment
Historic sites	5 resources: 1 residence on the corridor’s edge (likely avoidable); a horse ranch complex, it cannot avoid crossing two branches of the Santa Fe Trail and the Holly Ditch, but may be able to avoid crossing the Buffalo Canal.	1 resource; corridor would cross the BNSF railroad twice	Because of settlement, development and private land ownership, the Santa Fe Trail is more greatly in danger of being obliterated than the railroad, which, though crossed in many places, remains continuously intact under a single owner. Overall, Alternative 1 has greater potential to affect historic resources than Alternative 2.

Criteria	Alternative 1: Holly North	Alternative 2: Holly South	Assessment
Homes and businesses	10 homes and businesses are within the 1,000-foot corridor	1 homes and businesses are within the 1,000-foot corridor	Most of these resources likely can be avoided when a 250-foot highway right of way is determined. The difference of 9 homes and businesses is a minor consideration in this community of 298 homes/housing units (2010 Census).
Public parks and recreation areas	Would cross the Two Buttes Trail and planned county trail	Would cross the Two Buttes Trail and planned county trail	No difference.
Visibility to town from the corridor	Would be close to town.	Would be close to town but separated by railroad tracks	Gateways into town will remain on existing U.S. 50 from the east and west. No key difference.
Compatibility with local land use	Would consume land that has better development potential	Would consume land with limited development potential due to adjacent floodplains	Alternative 2 is preferable with regard to this criterion.
Air quality effects	6 known sensitive receivers are within the corridor or 300 feet beyond	7 known sensitive receivers are within the corridor or 300 feet beyond	These comparable effects do not favor one alternative over the other. The town has no major air quality problems. Would move highway emissions out of the main populated area.
Noise effects	21 homes and businesses are within the corridor or 300 feet beyond	3 homes and businesses are within the corridor or 300 feet beyond	The difference of 18 potential noise receivers in this community of 281 homes/housing units slightly favors the south corridor. With either location, through-traffic would be relocated away from the main populated area.
Other concerns	Would require two new railroad crossings	Would not require any new railroad crossings	The two new crossings needed for Alternative 1 would add project expense and time needed for coordination with the railroad.
Corridor with Least Impacts on Community and Built Environment		✓	All community impacts except the need for new railroad crossings favor Alternative 2. Alternative 2 avoids impacts to the Santa Fe National Historic Trail.

Alternative 2: Holly South was determined to have fewer potential impacts to the natural environment and community and built environment, as compared to Alternative 1: Holly North. Both Build Alternatives are comparable in meeting the purpose and need of the project; however, Alternative 2 improves access from SH 89 to U.S. 50 and vice versa, while also eliminating the need to go through Holly. For these reasons, Alternative 2: Holly South was preliminarily identified as the Preferred Alternative at this location.

5.6.3. Results of Preferred Alternative

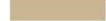
The result of the above analysis generally identified the Preferred Alternative as one around-town Build Alternative at each community, except in Fowler, Swink, and La Junta. Table 5-40 summarizes the

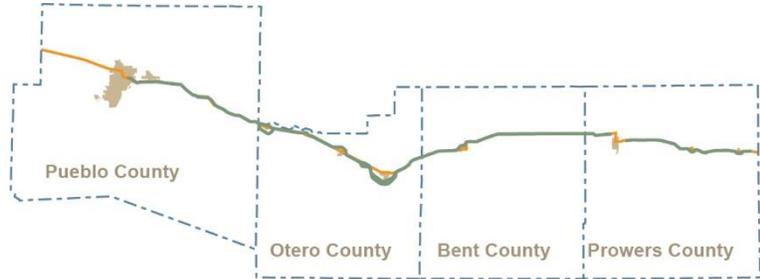
preliminarily identified Preferred Alternative and Figure 5-19 provides a general overview of the alternative along the corridor.

Table 5-40. Summary of the Preferred Alternative

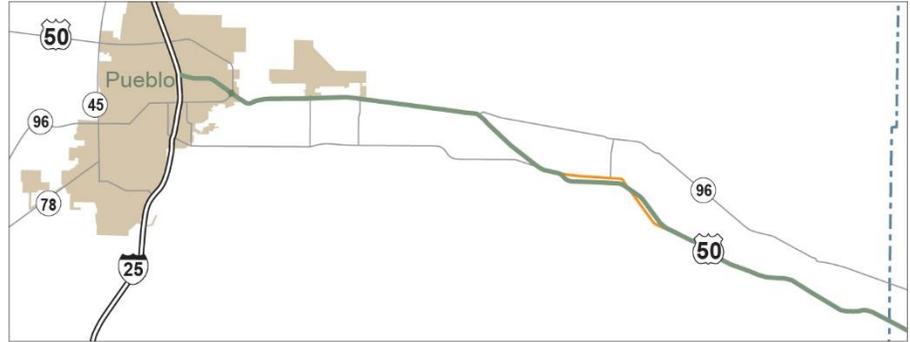
Category	Preferred Alternative Components
Regional Corridor Location	Existing Regional Corridor
Transportation Mode	Highway
Facility Type	Four-Lane Rural Expressway
Build Alternatives	Pueblo—Alternative 2: Pueblo Existing Alignment
	Pueblo to Fowler—Alternative 2: Fort Reynolds Realignment
	Fowler—Alternative 1: Fowler North and Option 2: Fowler South
	Fowler to Manzanola Alternative (on or near existing alignment)
	Manzanola—Alternative 1: Manzanola North
	Manzanola to Rocky Ford Alternative (one or near existing alignment)
	Rocky Ford—Alternative 1: Rocky Ford North
	Rocky Ford to Swink Alternative (on or near existing alignment)
	Swink—Alternative 1: Swink North and Option 2: Swink South
	La Junta—Alternative 2: La Junta South
	La Junta to Las Animas Alternative (on or near existing alignment)
	Las Animas—Alternative 1: Las Animas North
	Las Animas to Lamar Alternative (on or near existing alignment)
	Lamar to Granada (on or near existing alignment)
	Granada—Alternative 2: Granada South
Granada to Holly Alternative (on or near existing alignment)	
Holly—Alternative 2: Holly South	

Legend

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



Pueblo County



Otero County



Bent County



Prowers County

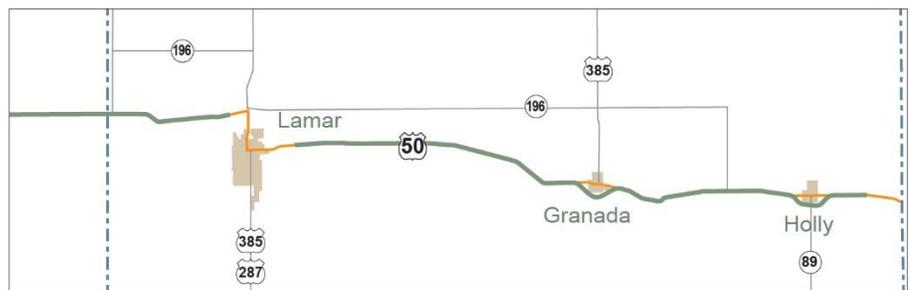


Figure 5-19. Identified Preferred Alternative

6. References

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Appendix A. Abbreviations and Acronyms

AASHTO	American Association of State Highway and Transportation Officials
CDOT	Colorado Department of Transportation
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CR	County Road
EA	Environmental Assessment
EIS	Environmental Impact Statement
EPA	U.S. Environmental Protection Agency
FHWA	Federal Highway Administration
HOV	High-occupancy vehicle
I-25	Interstate 25
IGA	Intergovernmental Agreement
NEPA	National Environmental Policy Act of 1969
NPS	National Park Service
NRHP	National Register of Historic Places
PACOG	Pueblo Area Council of Governments
SH	State Highway
TSM	Transportation System Management
U.S. 287	U.S. Highway 287
U.S. 50	U.S. Highway 50
U.S. 50 Tier 1 EIS	U.S. Highway 50 Tier 1 Environmental Impact Statement
USACE	U.S. Army Corps of Engineers
USC	United States Code
vmt	Vehicle miles traveled
vpd	Vehicles per day

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