1.1 INTRODUCTION

The US Highway (US) 550 corridor south of Durango, Colorado, provides an interstate travel route between Colorado and New Mexico that enables the transport of goods and services across the western portion of Colorado. US 550 extends south to Interstate (I) 25 in Bernalillo, New Mexico, and north to US 50 in Montrose, Colorado. US 550 is the only contiguous north/south route in western Colorado, and is a designated truck route, with truck traffic amounting to approximately 13 percent of overall traffic.

The Colorado Department of Transportation (CDOT), in cooperation with the Federal Highway Administration (FHWA), prepared this Environmental Assessment (EA) of the potential environmental, social, and economic impacts of proposed improvements to US 550. The purpose of the project is to improve safety and meet projected demand for highway capacity between Durango, Colorado, and the New Mexico state line. The improvements will be located entirely in La Plata County, Colorado.

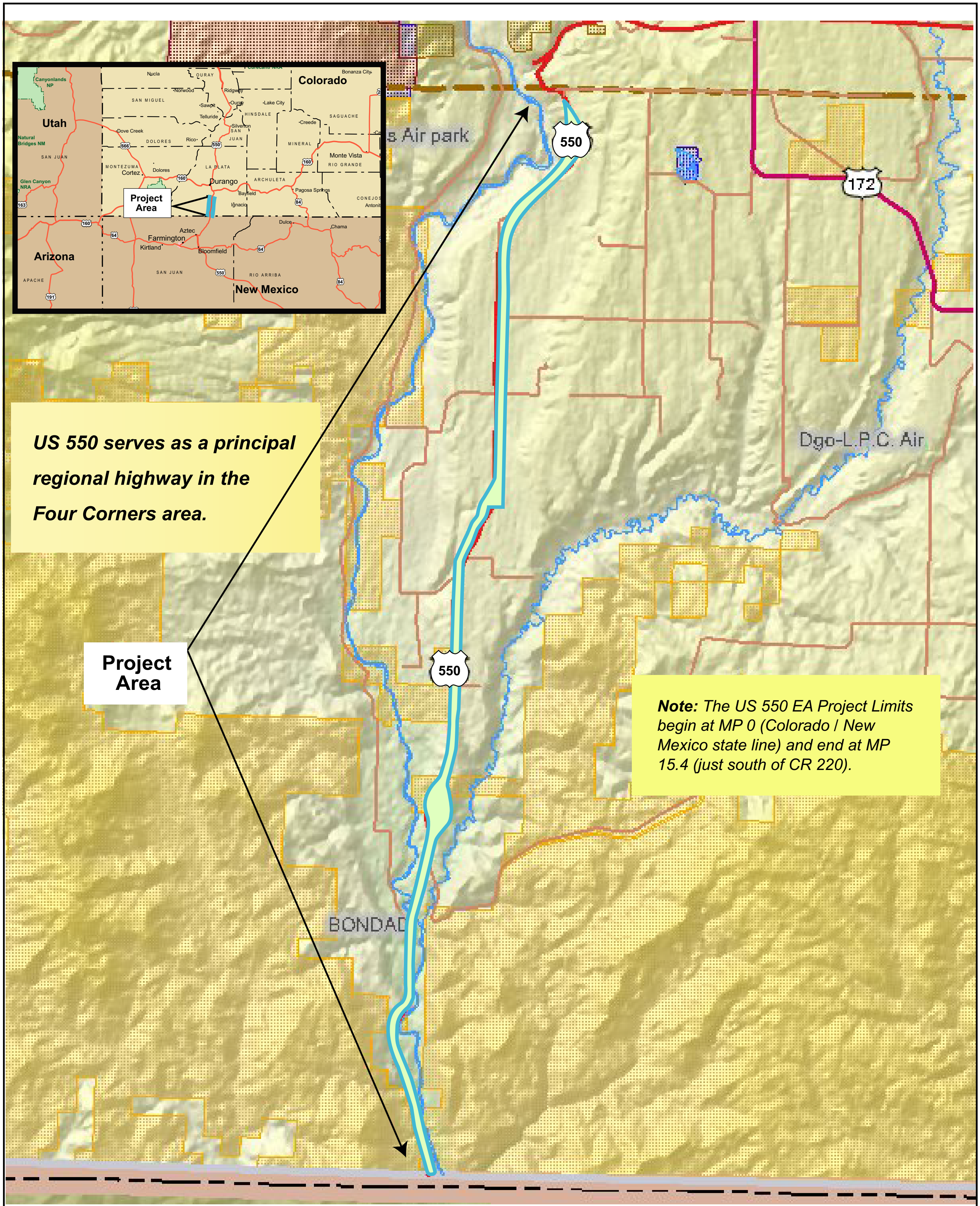
The New Mexico state line was chosen as the southern terminus for the project because portions of US 550 between the New Mexico state line and Aztec were recently upgraded (in 2002) to a divided four-lane highway. The highway transitions to a relatively narrow two-lane highway north of the New Mexico state line. A north project limit of US 550 milepost (MP) 15.4 was selected because it allows for a smooth transition into the planned upgrades for the US 550/US 160 intersection and does not preclude any of the alternatives that are currently being evaluated under the US 160 Corridor Environmental Impact Statement (EIS). Figure 1.1-1 depicts the project corridor and its location in relationship to the US 160 project corridor.

The objectives of the proposed US 550 highway improvements include:

- Improve safety for the traveling public by reducing the number and severity of accidents;
- Increase travel efficiency and capacity to meet future needs; and
- Reduce access deficiencies that indirectly affect both safety and travel efficiency/capacity.

1.2 ENVIRONMENTAL ASSESSMENT PROCESS

When a federal government agency plans a major action that may have an effect on the human or natural environment, or if the proposed action is funded with federal dollars, the National Environmental Policy Act of 1969 (NEPA) (42 US Code [USC] 4321-4347) requires that a study be conducted of the potential environmental effects of the proposed action. This EA has been prepared by FHWA and CDOT in accordance with NEPA to evaluate the potential environmental effects of proposed safety, capacity, access, and general roadway improvements to US 550 (the proposed action), and to determine if the proposed action would have a significant impact on human health or the environment. FHWA is the lead federal agency for this EA.



Legend

- Project Corridor (15.4 miles)
- SUIT Lands

N W E S

US 550 EA

Figure 1.1-1
Project Location

1.3 PROJECT STATUS

Improving the US 550 corridor south of Durango was originally identified by the CDOT Transportation Commission as a priority for funding in 1996. Improving the US 550 corridor between Durango and Aztec is identified in CDOT's 2030 Long Range Plan.

The proposed improvements on US 550 between the New Mexico state line and MP 15.4 are located within the planning area covered by the Florida Mesa District of La Plata County Land Use Plan. This plan states a number of goals, including providing a safe and efficient road system that does not adversely affect adjacent land uses. The proposed highway improvements are consistent with the existing *Florida Mesa District Land Use Plan*.

1.4 PURPOSE AND NEED

The purpose of the proposed highway improvements is to improve safety, address future highway capacity needs, improve access conditions, and address roadway deficiencies. The proposed improvements are intended to address both local and regional transportation needs that include safe and efficient travel to and from the urban centers of Durango and Aztec, as well as the transport of goods and services across the western portion of Colorado. The need for the proposed action is evidenced by the history of accidents and the projected year 2025 traffic volumes on US 550.

1.4.1 Safety

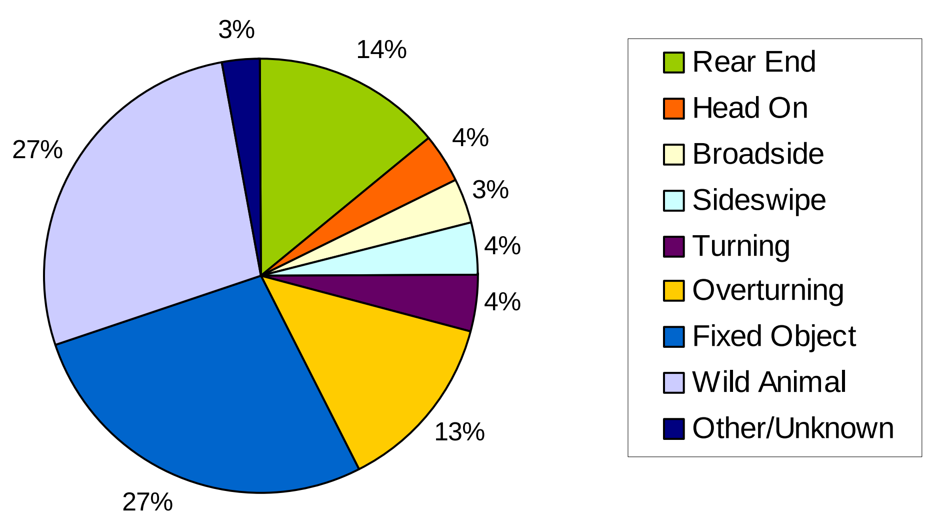
Accident history data was collected for the period from 1997 to 2003 for US 550 from MP 0.0 to MP 15.4. The accident rate for that period was 1.58 accidents per million vehicle miles traveled (MVMT) indicating an accident frequency/severity higher than the statewide average for rural highways over that same period of approximately 1.41 accidents per MVMT (CDOT 2005). The seven-year accident history (1997 through 2003) indicates that 82 percent of all accidents are comprised of just four types: collisions with a fixed object (27 percent), wild animal collisions (27 percent), rear-end vehicle collisions (14 percent), and overturning (13 percent). The accident types are indicated on Figure 1.4-1. A complete listing of accident types and locations between 1997 and 2003 is provided in Appendix A. Appendix A also contains the US 550 Safety Assessment Report that was completed in 2003 for a portion of the corridor (MP 5.0 to MP 16.56).

There are several locations along the project corridor where accident clusters occur. These accident clusters are specific locations or segments of roadway where the frequency of accidents is higher than the corridor as a whole. Intersection-related accident clusters are present at County Road (CR) 318 (MP 4.48) and CR 302 (MP 12.19). Wild animal-related accident clusters occur between MP 7.0 and MP 10.6, and between MP 13.9 and MP 15.4, which are within deer and elk winter range. There are numerous other accident cluster areas throughout the corridor where accidents types consist of fixed object, overturning, head on, and rear-end. According to the Safety Assessment Report, the patterns of fixed object collisions along US 550 can be related to narrow right-of-way (ROW), the placement of fencing close to the highway, and a lack of shoulders (Appendix A). Locations of fixed object, wild animal, and rear-end collisions are shown on Figure 1.4-2.

Based on the primary accident types and existing safety hazards on US 550, the proposed improvements must satisfy the following safety needs:

- Reduce fixed object hazards adjacent to the highway and improve errant vehicle recovery opportunity;
- Reduce animal-vehicle collisions;
- Reduce conflicts between through and turning vehicles; and
- Improve sight distance.

Figure 1.4-1 - US 550 Accident Types



1.4.2 Travel Efficiency and Capacity

Travel efficiency, a measure of how well a roadway system functions, is based on traffic volume, capacity, and delay. Travel efficiency is an important measure of the operational conditions on US 550.

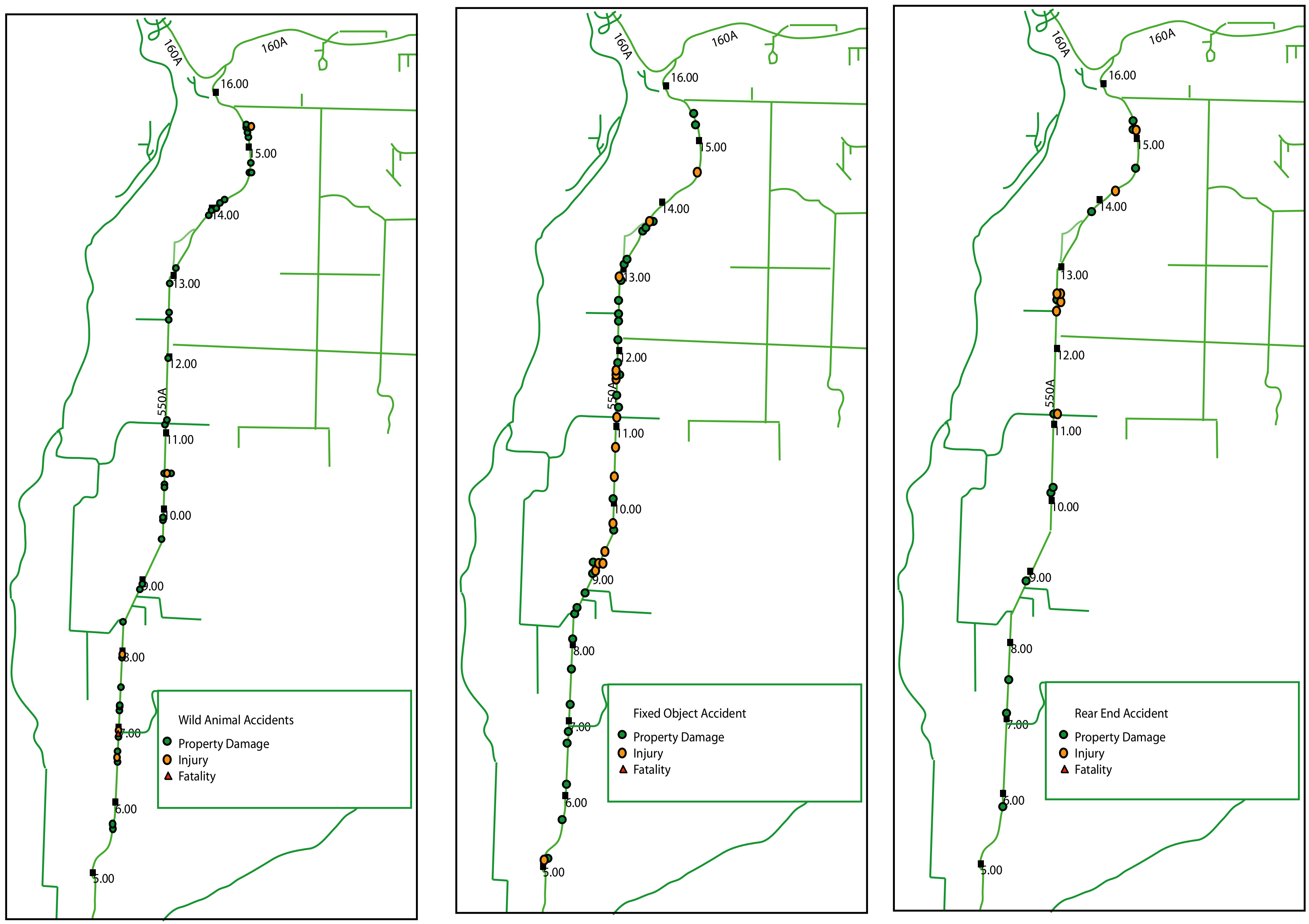


Figure 1.4-2 US 550 Accidents by Type and Location (1997 to 2003)

Source: CDOT 2003, Safety Assessment Report and 1997 - 2003 US 550 Accident List (both included in Appendix A)

1.4.2.1 Traffic Volume

Since the 1950s, the population of La Plata County has more than doubled from 20,000 residents to nearly 44,000 residents in 2000 (US Census Bureau 2000). CDOT's traffic count database includes historic average annual daily traffic (AADT) for US 550. AADT was used to compare past, present, and projected future traffic volumes because seasonal fluctuations in traffic volumes on US 550 are less than 23 percent of AADT. Year 2025 was selected for developing traffic projections to accommodate a twenty-year planning horizon. Appendix B contains year 2025 traffic projects for the US 550 project area. Traffic projections for year 2025 were calculated using a linear projection method due to the rural nature of the corridor. There are no anticipated pockets of explosive growth along the US 550 corridor. Nevertheless, traffic projections for year 2025 indicate that traffic volume would increase to more than twice the current volume. Year 2003 AADT volume was approximately 5,800 vehicles per day (vpd). The projected year 2025 AADT volume is approximately 12,600 vpd (Appendix B). US 550, as presently configured, could only accommodate an AADT of 7,800 to 9,800 vpd at Level of Service (LOS) C (American Association of State Highway and Transportation Officials [AASHTO] 2001).

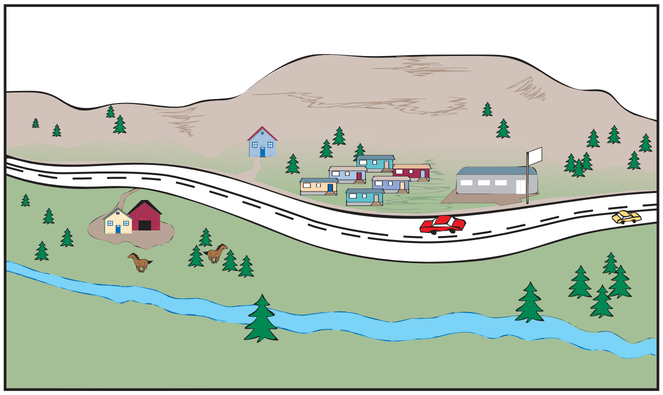
1.4.2.2 Capacity and Passing Deficiencies

Three parameters are used to determine the operating LOS of a two-lane highway: average travel speed, percent time delay, and what is referred to as capacity utilization. Average travel speed reflects the average speed of traffic in both directions. Percent time delay is defined as the average percent of time vehicles are delayed due to the inability to pass slower vehicles. The ratio of the traffic demand rate to the capacity of the highway is capacity utilization. The LOS of a highway is designated by letter codes ranging from A for excellent conditions to F for extremely poor conditions. LOS A signifies a free-flow condition with no slowing or interference to traffic, while LOS F represents a complete breakdown in traffic flow and in the worst case, traffic jams (Figure 1.4-3). Other factors influencing LOS are: the percentage of trucks and other large vehicles, directional distribution of traffic, type of terrain, number of access points, and percentage of passing lanes. For this project, US 550 is considered a rural highway. A LOS of C is generally accepted as the lowest preferred operating level during peak traffic periods for a rural highway (AASHTO 2001).

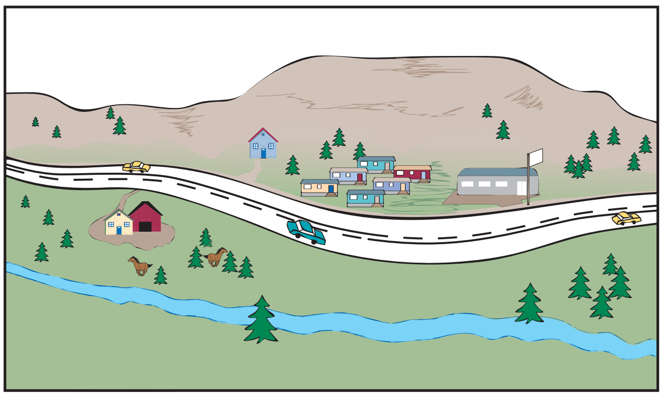
The existing two-lane US 550 is estimated to accommodate 7,800 to 9,800 vpd for an acceptable rural operating LOS C (AASHTO 2001). Based on projected year 2025 traffic volumes on US 550, the AADT is projected to exceed 9,800 vpd by 2015. As a result of the traffic volume projections, if left unimproved as a two-lane highway, US 550 would begin to operate at LOS D or lower in 2015 and motorists would experience increased congestion. Therefore, the proposed action must satisfy the following capacity needs:

- Accommodate year 2025 traffic volumes; and
- Limit the frequency that through vehicles are required to reduce travel speed.

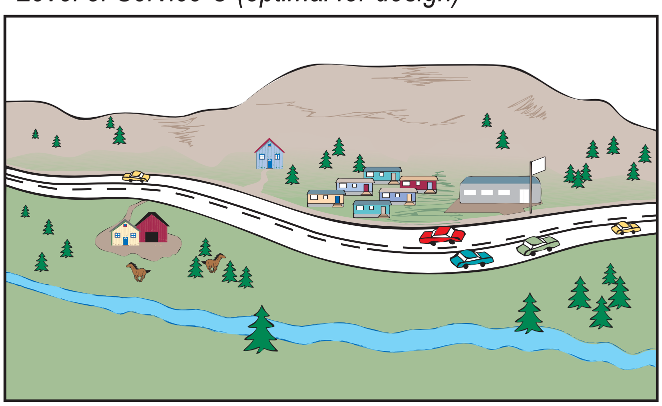
Level of Service A (freeflowing)



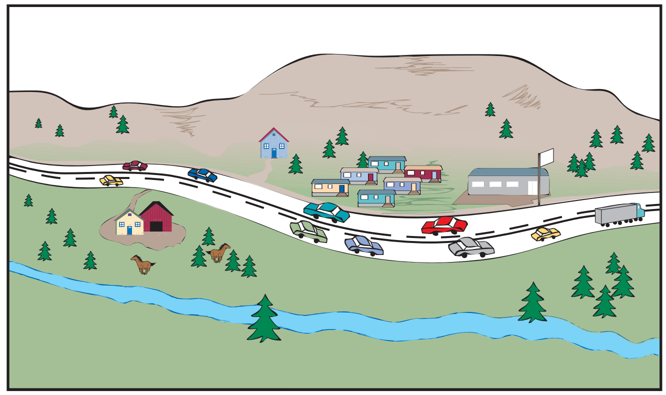
Level of Service B



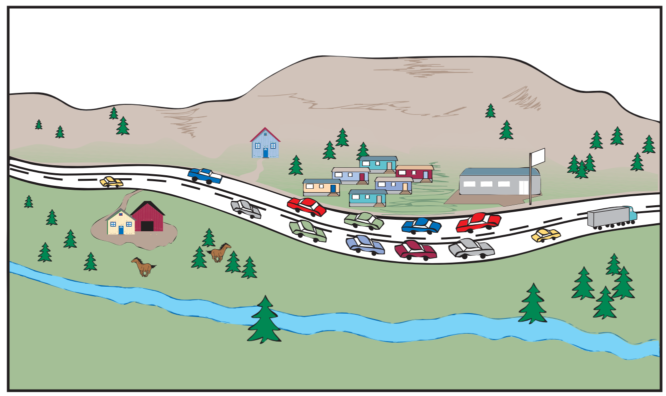
Level of Service C (optimal for design)



Level of Service D



Level of Service E



Level of Service F (stopped)

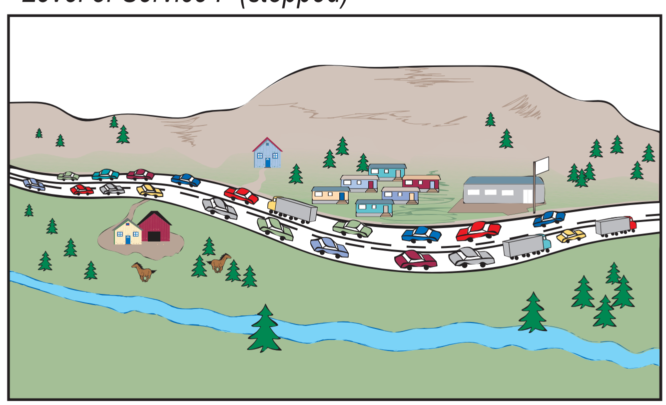


Figure 1.4-3 Level of Service for a Typical Two-Lane Rural Highway

1.4.3 Access Deficiencies

Access issues contribute to the traffic safety, capacity, and efficiency challenges discussed above. US 550 is currently classified as a Regional Highway under the State Highway Access Code (CDOT 2003a). Uncontrolled access is a primary cause of rear end, sideswipe, broadside, and turning accidents in the corridor. These types of accidents contribute approximately 27 percent of the total number of accidents in the project corridor. There are about 130 access points on this segment of US 550. Most of the county road intersections with US 550 lack safe left-turn waiting areas and acceleration/deceleration lanes, and many do not have adequate geometry to allow for sufficient sight distance or to accommodate the turning radii of larger vehicles. Vehicles must stop in the through lanes until the intersection clears before turning off the highway, causing delays for through traffic. Currently, rear-end and turning-related accidents make up 19 percent of all accidents along the project corridor. No one intersection is more prone to accidents; all intersections along the corridor have turning-related deficiencies. See Section 1.4.1, *Safety*, for more information on the locations of accidents along the corridor. As traffic volumes increase along the corridor, the number of rear-end and other turning-related accidents at these intersections would likely increase. Therefore, the proposed action must satisfy the following access needs:

- Improve access management;
- Separate turning movements and local access from through traffic; and
- Improve intersection deficiencies such as inadequate intersection approach angles, inadequate sight distance, and inadequate turning lanes.

1.4.4 Other Roadway Deficiencies

Other roadway deficiencies along US 550 that would be addressed as part of the proposed action include drainage and bridge deficiencies. Most of the existing culverts along the corridor are undersized or in deteriorating condition, creating a potential in the future for roadway flooding in some locations. One bridge (identified as P-05-G) crosses the Animas River. This bridge was constructed in 1957 and is nearing its design life of 50 years. In addition, this bridge does not meet current standards for highway bridges, particularly regarding deficiencies in shoulder widths and bridge approach protection.