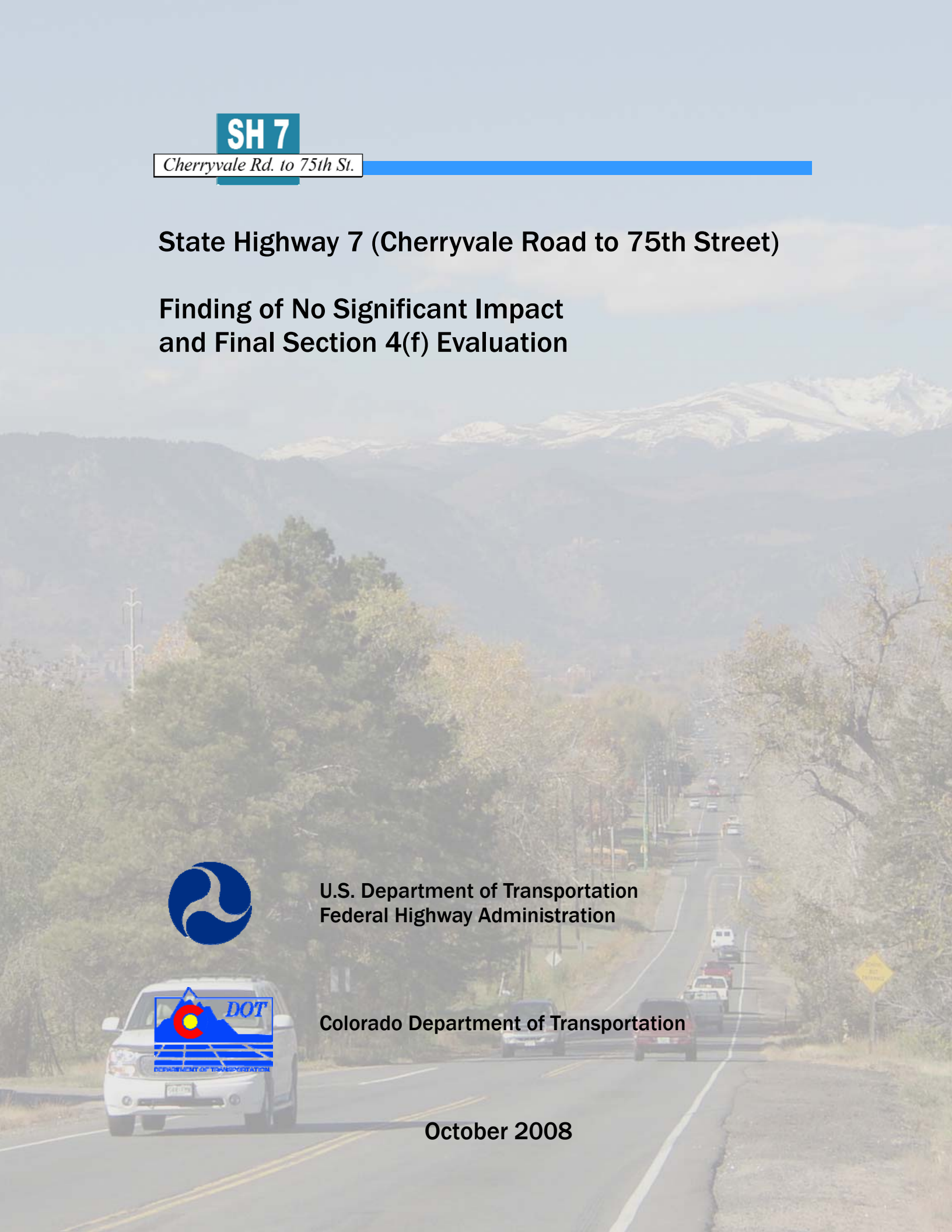
SH 7

Cherryvale Rd. to 75th St.

State Highway 7 (Cherryvale Road to 75th Street)

Finding of No Significant Impact and Final Section 4(f) Evaluation



U.S. Department of Transportation
Federal Highway Administration

Colorado Department of Transportation

October 2008

CDOT No. STA 0072-013
State Highway 7
(Cherryvale Road to 75th Street)
Finding of No Significant Impact and
Final Section 4(f) Evaluation
Boulder County, Colorado

Submitted Pursuant to
42 USC 4332(2)(c), 49 USC 303, 23 USC 138

by the
US DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

and
THE COLORADO DEPARTMENT OF TRANSPORTATION

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List of Acronyms

BNSF	Burlington Northern Santa Fe
BVSD	Boulder Valley School District
CDOT	Colorado Department of Transportation
DRCOG	Denver Regional Council of Governments
EA	Environmental Assessment
FHWA	Federal Highway Administration
FONSI	Finding of No Significant Impact
HCM	Highway Capacity Manual
LOS	Level of Service
mph	Miles per hour
MVRTP	Metro Vision Regional Transportation Plan
NEPA	National Environmental Policy Act
NRHP	National Register of Historic Places
ROW	Right-of-Way
RTD	Regional Transportation District
RTP	Regional Transportation Plan
SH	State Highway
STIP	Colorado State Transportation Improvement Program
US	United States
VoTec	Vocational and Technical Education Center
vpd	Vehicles Per Day

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Chapter 1.0: Project Description

1.1 Project Purpose and Need

1.1.1 Background

The Federal Highway Administration (FHWA) and Colorado Department of Transportation (CDOT) propose to improve State Highway 7 (SH 7), between Cherryvale Road in the City of Boulder through the 75th Street intersection in Boulder County (approximately 2.2 miles). SH 7 is a principal east-west arterial roadway serving as a commuter and intra-regional facility (see **Figure 1-1** and **Figure 1-2).** To comply with the National Environmental Policy Act (NEPA), an Environmental Assessment (EA) was conducted to evaluate the reasonable alternatives that address the purpose and need for the project and assesses the impacts of implementing the proposed improvements. Two alternatives, the No-Action Alternative and the Preferred Alternative (build alternative) were evaluated in the EA. The build alternative was identified as the Preferred Alternative. FHWA approved the EA and Draft Section 4(f) Evaluation on May 30, 2008.

1.1.2 Overview of Purpose and Need

The primary purpose and need for improvements to SH 7 (Cherryvale Road to 75th Street) are to reduce congestion, enhance safety and improve mobility for multiple modes of transportation, summarized as follows:

- **To Reduce Congestion -** Population and employment growth in the City of Boulder, Boulder County and the surrounding communities has increased traffic along SH 7 to a level that is overloading the existing transportation system. There is currently a two hour peak traffic period during the morning and another two-hour peak traffic period in the evening. In addition, the roadway segment between 63rd Street and 75th Street currently operates at near capacity conditions, with traffic growth anticipated to continue to grow in the future.

- **To Enhance Roadway Deficiencies and Safety-** The existing roadway does not meet current design standards with regard to roadway grades, stopping sight distance, roadway shoulder widths, roadside clear zone, roadway drainage, warranted auxiliary lanes and access control. On the west end (at Cherryvale Road) and the east end (at 75th Street) of the study limits, SH 7 is a four-lane facility, requiring traffic to transition through sub-standard lane drops to the existing two-lane facility within the study limits. These roadway deficiencies result in unsafe roadway and operating conditions.

Figure 1-1
Project Location

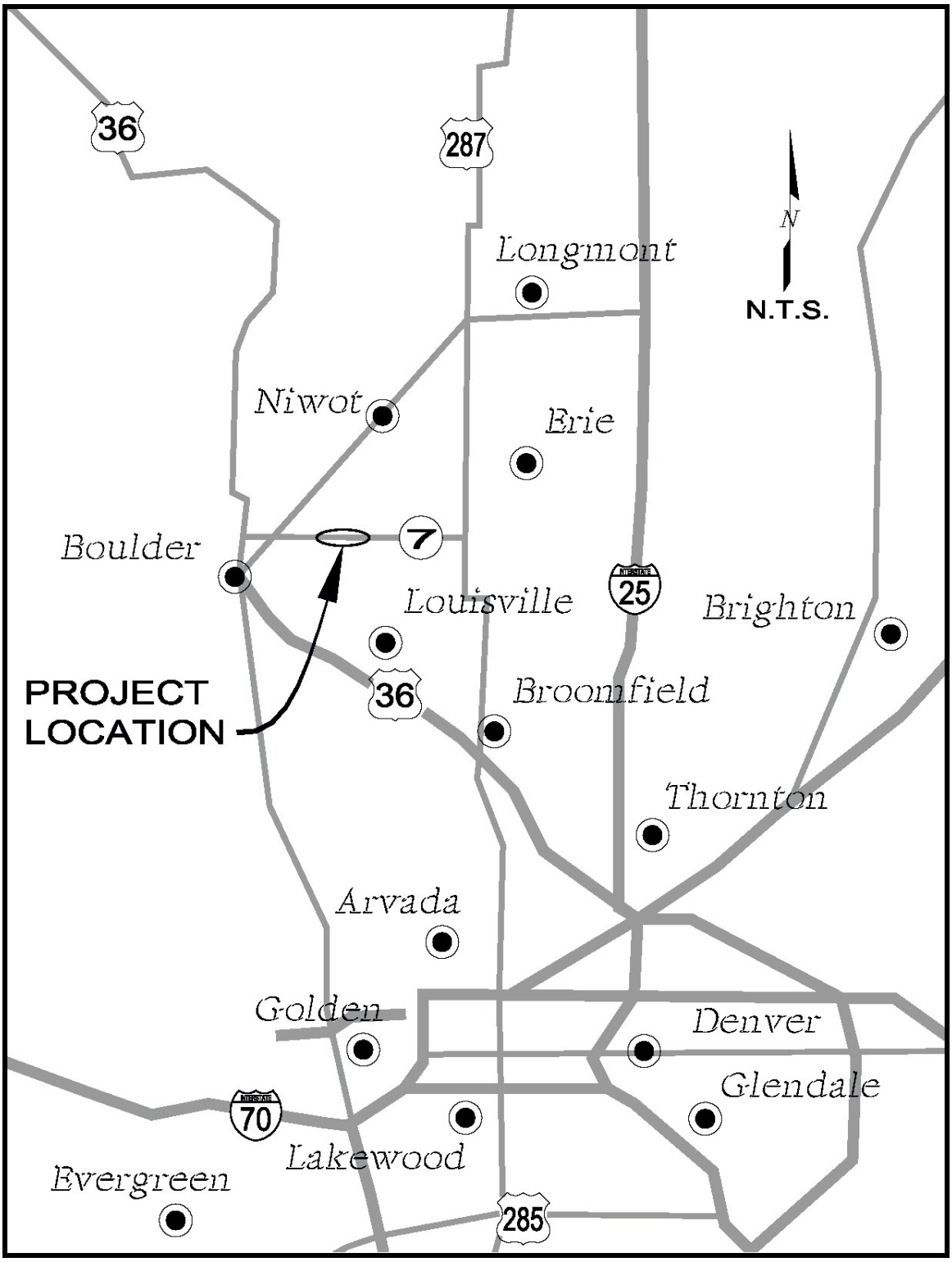
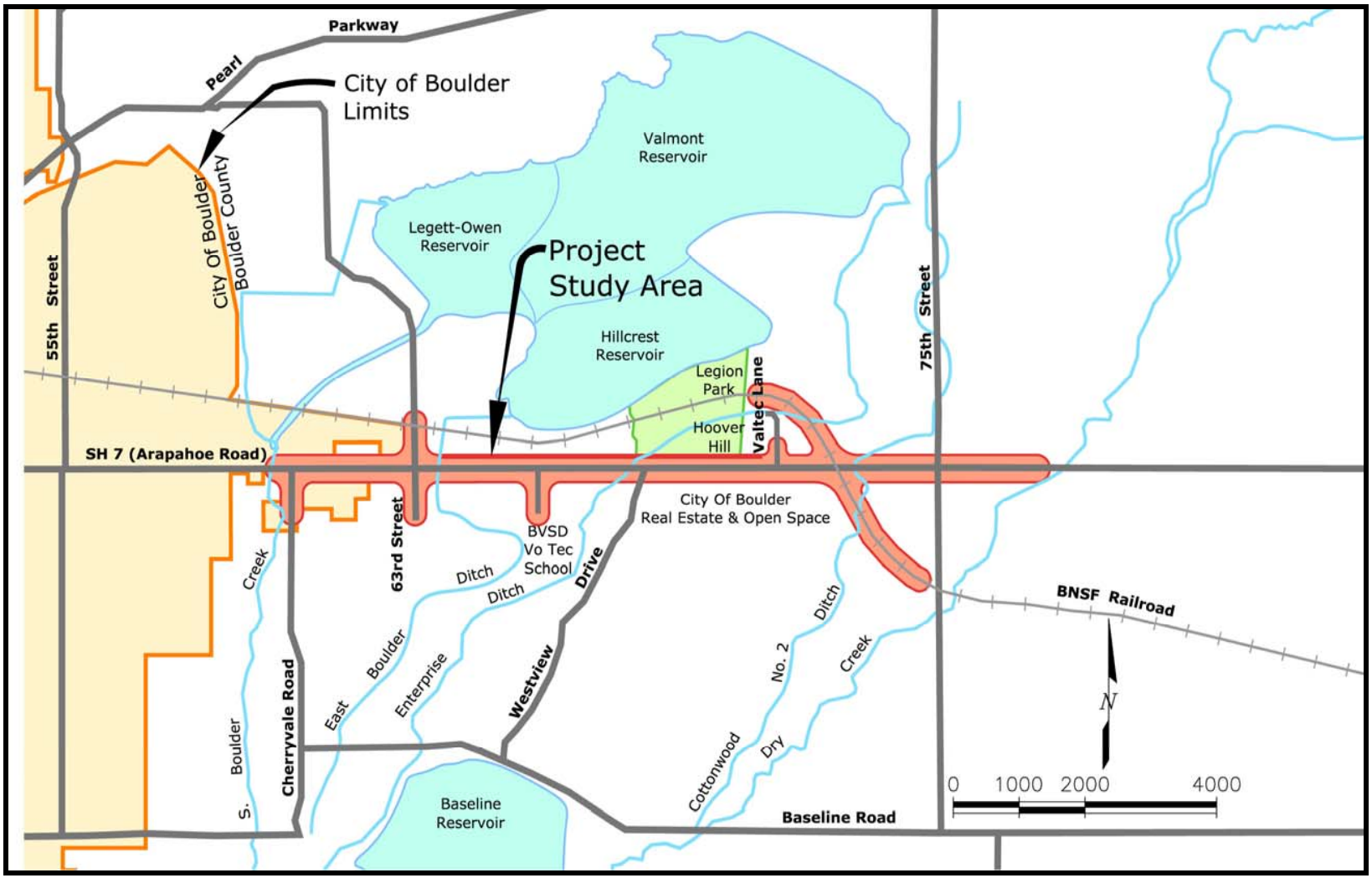


Figure 1-2
Study Area



- **To Improve Mobility for Multiple Modes of Transportation -** The City of Boulder, Boulder County, CDOT and the Regional Transportation District (RTD) have identified that SH 7 provides improved opportunities for multiple modes of transportation. The "JUMP" bus service currently serves SH 7 commuters utilizing general-purpose traffic lanes, but bus stops in the project area are not served by sidewalks or standard bus stop facilities. Pedestrians along SH 7 use makeshift dirt roadside trails or substandard roadway shoulders due to the lack of sidewalks. Also, the lack of bicycle trails, bicycle lanes, or standard shoulder widths do not provide adequate bicycle facilities consistent with the SH 7 vision identified in the Boulder County Bikeway Plan.

1.2 Preferred Alternative

The Preferred Alternative has been designated in this document. A plan view of the Preferred Alternative is shown in **Figure 1-3**.

1.2.1 Typical Section

The typical sections for the Preferred Alternative are shown in **Figure 1-4** and **Figure 1-5**. The Preferred Alternative has two through lanes in each direction from Cherryvale Road to the Boulder Valley School District (BVSD) entrance. At Cherryvale Road, curb and gutter is added to the existing right-turn deceleration lane for eastbound traffic. At 63rd Street, in the westbound direction, there is a continuous right-turn acceleration/deceleration lane that also functions as a bus bypass lane from east of 63rd Street to Cherryvale Road. In the eastbound direction, there is a continuous right-turn acceleration/deceleration lane between the business access west of the BVSD to east of the BVSD signal. From the BVSD signal to Westview Drive there is one through lane westbound and two through lanes eastbound. The second eastbound through lane is dropped as a right-turn lane at Westview Drive. There is a right-turn lane in the westbound direction at Valtec Lane.

The two-lane section (one lane in each direction) continues to the east past the Burlington Northern Santa Fe (BNSF) railroad overpass where the roadway section widens to match the 75th Street intersection improvements.

The roadway is an urban section with curb and gutter between Cherryvale Road and Westview Drive. Between Westview Drive and the BNSF railroad overpass, the Preferred Alternative is a rural section with ten-foot shoulders. Between the railroad overpass and 75th Street, SH 7 is an urban section with curb and gutter.

The Preferred Alternative features a raised median with left-turn lanes between Cherryvale Road and 63rd Street. East of 63rd Street to the 75th Street improvements is a continuous sixteen-foot two-way left-turn lane.

Figure 1-3
Preferred Alternative – Plan View

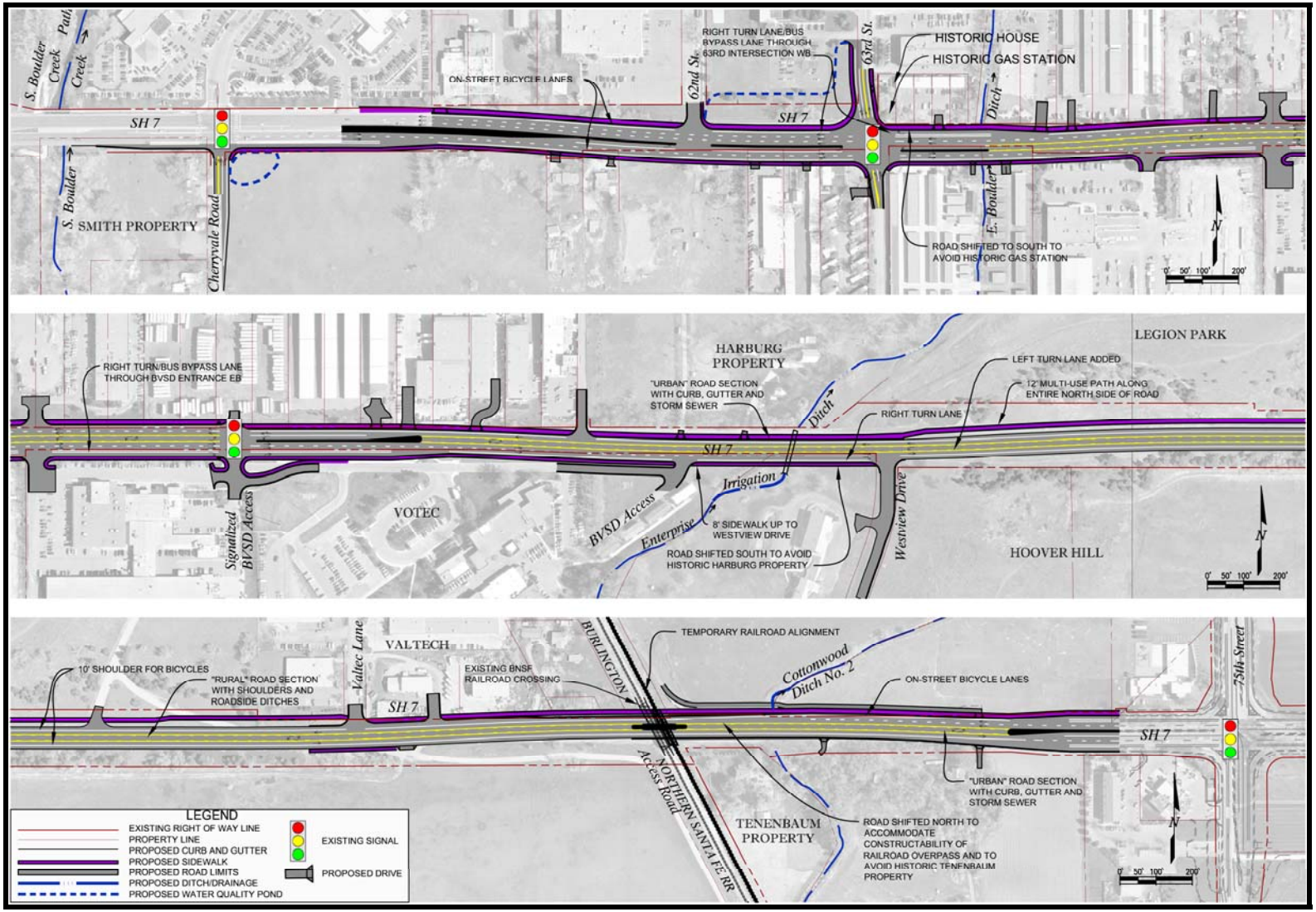


Figure 1-4
Preferred Alternative Typical Sections

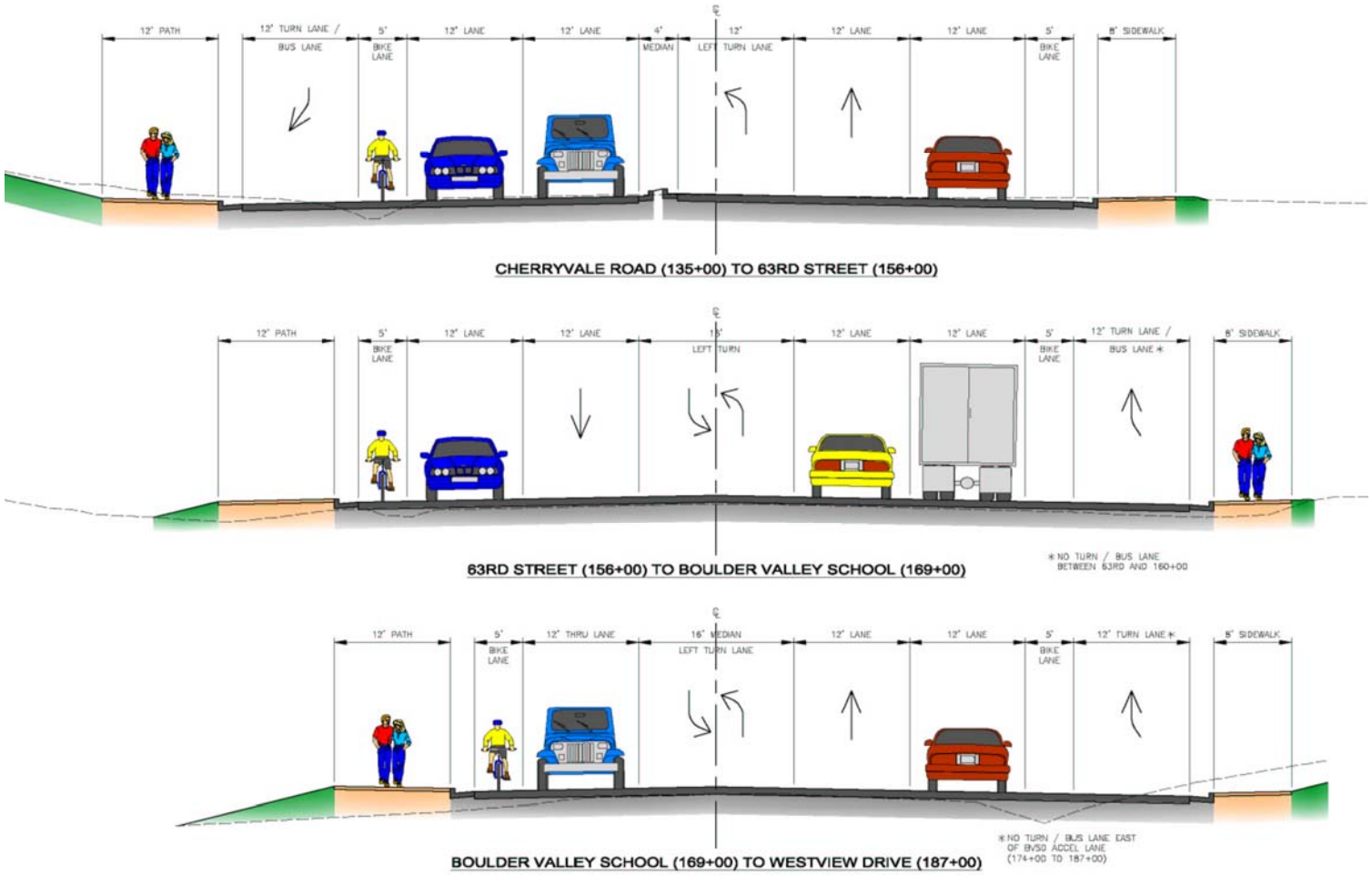
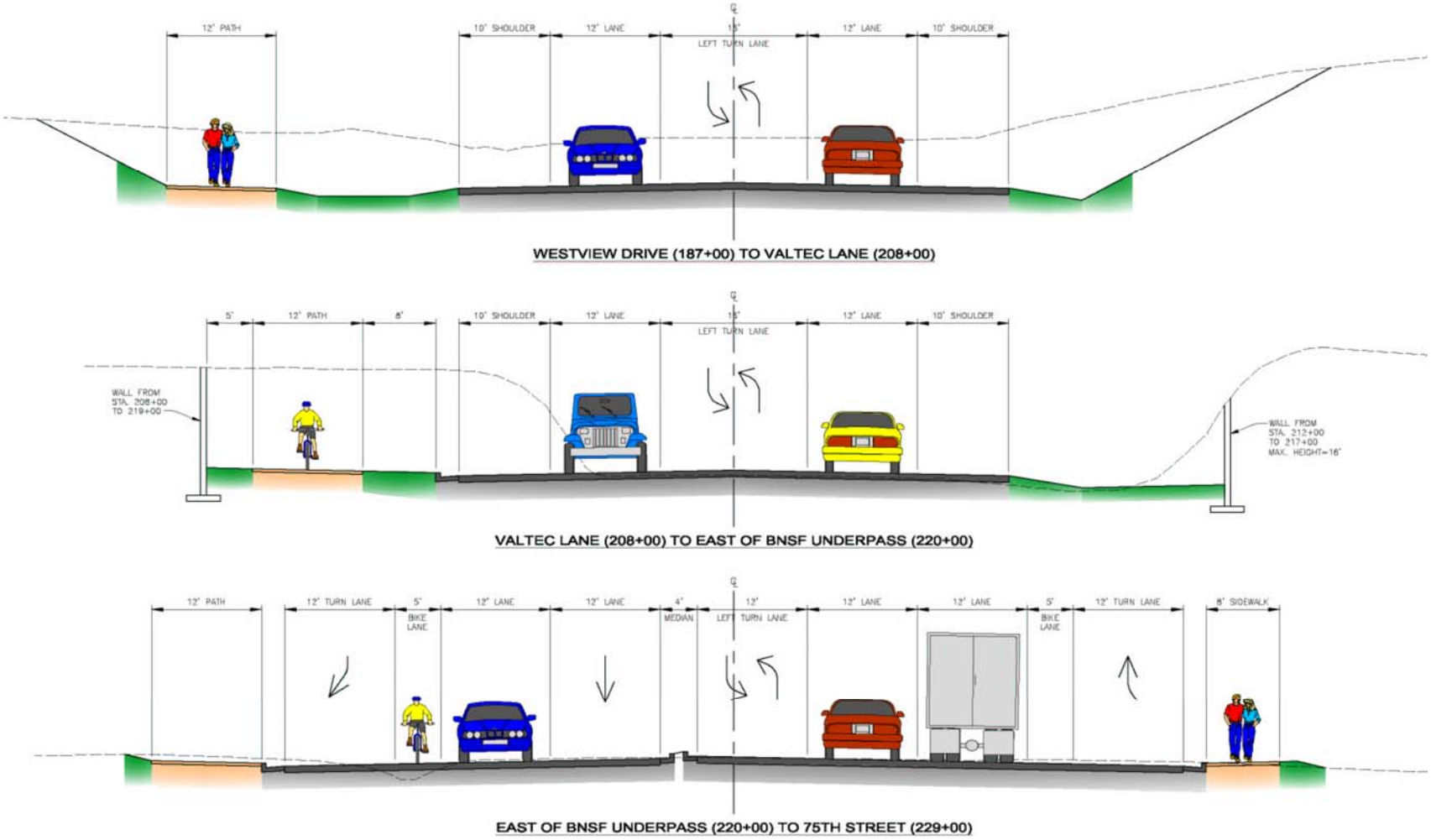


Figure 1-5
Preferred Alternative Typical Sections



1.2.2 Pedestrian/Bicycle Facilities

The Preferred Alternative includes bicycle lanes or shoulders along the entire length. The roadway section includes a five-foot bicycle lane in each direction in the urban sections, adjacent to the curb and gutter. Bicycle lanes would extend through intersections as exclusive lanes. In the rural section, the ten-foot shoulder would also function as a bicycle lane. Flattening the side slopes adjacent to the paved roadway and removing obstructions would provide a safer roadside by providing an unobstructed uniform clear zone adjacent to the roadway.

A continuous twelve-foot multi-use path on the north side of SH 7 is intended for both pedestrian and bicycle traffic. An eight-foot sidewalk is incorporated along the south side of SH 7 between Cherryvale Road and Westview Drive. Pedestrian and handicap access to transit facilities would be provided at intersections with 63rd Street, the BVSD access and at Valtec Lane. Handicap ramps would be provided at all intersections. Traffic signals would be enhanced to include pedestrian phases.

1.2.3 Alignment

The horizontal alignment is shifted from the existing roadway centerline and section line to avoid the National Register of Historic Places (NRHP)-eligible properties along the corridor. The proposed roadway centerline is shifted 37 feet south of the existing centerline adjacent to the historic gas station on the northeast corner of the 63rd Street intersection. The alignment is also shifted 29.5 feet south adjacent to the Harburg property. Finally, the roadway centerline is shifted 24.5 feet north adjacent to the Tenenbaum property and Cottonwood Ditch.

The vertical alignment would generally follow the existing alignment. The exception is at the existing hill east of Westview Drive. To achieve a design speed of 55 miles per hour (mph) and provide the required minimum stopping sight distance between Westview Drive and 75th Street, the existing hill east of Westview Drive would be lowered approximately 13 feet. The alignment is also slightly lowered below the BNSF railroad bridge to obtain the 16'-6" required clearance.

1.2.4 Access Management

All state highways in Colorado are limited access highways. CDOT is authorized to regulate vehicular access to or from any state highway under its jurisdiction from or to property adjoining that highway to protect the public health, safety and welfare; to maintain smooth traffic flow, to maintain highway right-of-way drainage; and to protect the functional level of the highway. Because of the high volume of traffic and in order to maintain the safe operation of traffic at intersections and in the vicinity of

intersections, access control has been incorporated into portions of the Preferred Alternative. From Cherryvale Road, through the 63rd Street intersection, auxiliary lane delineation and required intersection storage lengths create the need to control mid-block access.

In most cases, access locations and configurations are perpetuated along the corridor. In a few locations, for safety reasons, access control is incorporated into the Preferred Alternative.

Auxiliary lanes, where warranted by the CDOT *State Highway Access Code*, have been incorporated into the design.

1.2.5 Projected Traffic Operations

The traffic operations were evaluated for the key signalized intersections in the study area, and for the key roadway segment being evaluated. The Level of Service (LOS) analysis was done using the Highway Capacity Manual (HCM) methodology for signalized intersections and for roadway segments. The results are shown in **Table 1-1.**

Table 1-1
Traffic Alternatives, Level of Service

	Level of Service (LOS) AM Peak / PM Peak			
	Cherryvale Intersection	63rd Intersection	Votec \ RTD Intersection	Road Segment (BVSD to 75th)
Existing	C/C	C/C	B/B	E/E
2030:				
No-Action	C/D	E/D	D/D	E/E
Preferred Alternative	C/D	B/B	B/B	E/E

The HCM methodology for analysis of two-lane highways is based on highways that are more rural in character than this portion of SH 7. The methodology considers the capacity effects of improved shoulders but does not consider the effect of left-turn lanes at intersections. The LOS E for the rural segment between the Boulder Valley School District access and 75th Street is a reflection of the single-lane of peak traffic being at capacity. Although the LOS is E for this segment of the project, the difference in travel times between the Preferred Alternative and four-lane short-listed alternative described in the EA is minimal.

Safety and accidents should be considered when comparing the No-Action to the Preferred Alternative. While it is difficult to predict accident rates for roadways due to the complexity and abundance of variables on different roadways, the majority of

research conducted on the relationship of congestion and accident rates has determined that a U-shaped pattern will result when graphing number of accidents (vertically) versus traffic volume (horizontally).

At low traffic congestion levels, single-vehicle accident rates are high, and gradually decrease as congestion rises. This could be attributed to drivers taking more risks with fewer vehicles on the road, and could also include time-of-day factors.

Multiple-vehicle accidents most closely follow the U-shaped pattern. Accident rates are at the lowest levels when traffic levels are near LOS C, and the accident rates increase along with worsening congestion levels.

1.2.6 Railroad

For the Preferred Alternative, reconstruction of the BNSF railroad bridge is required. Railroad Alternative 2, which reconstructs the railroad bridge over SH 7 along the existing railroad alignment, is the Preferred Alternative. It has been determined that rerouting rail traffic is not practical, so a temporary bridge and offset rail alignment 25 feet east of the current location is required. The existing vertical alignment includes positive grades that are near the maximum allowed for the current track design speed of 30 mph. Therefore, the temporary vertical alignment of the offset alignment would be essentially the same as the existing alignment. The temporary alignment would require a temporary bridge or culvert for the Cottonwood Ditch #2 crossing. It is anticipated that the temporary embankment and track would be contained within the existing 100-foot-wide BNSF right-of-way limits.

The typical section for the new bridge accommodates a single track with walkways and handrails provided on both sides in accordance with BNSF design criteria. It is anticipated that an I-girder bridge with a center pier would be utilized. The bridge would require a total superstructure depth of approximately five feet. The bridge would consist of two 59-foot spans. SH 7 is realigned to the north in this location; therefore, the center railroad bridge pier can be constructed while still maintaining two lanes of traffic. The vertical alignment for SH 7 is lowered to provide 16'-6" of clearance with the new railroad bridge. Retaining wall abutments are required to minimize impacts to existing residences, businesses, frontage roads, and adjacent City of Boulder Open Space.

1.2.7 Cost

Construction costs were identified for the Preferred Alternative based on an initial opinion of probable construction costs, including contingencies, right-of-way, design

and construction engineering. The total conceptual-level estimated cost for the Preferred Alternative is approximately $23 million.

1.3 Clarifications to the EA

- On page 1-4 of the Environmental Assessment, there are descriptions of the consistency of the project with various plans. The project is also consistent with and included on the 2035 Fiscally Constrained Plan for the Denver region.

- On page 3-30 of the EA, there are several references to using travel forecasting from the Denver Regional Council of Governments (DRCOG). The correct citation is in the first sentence of Section 3.6.3.2, which states that "Traffic forecasting for 2030 was done using the Denver Regional Council of Governments (DRCOG) regional transportation plan (RTP) sketch plan model."

- The project will adhere to the Colorado Division of Wildlife's 2002 document called "Recommended Buffer Zones and Seasonal Restrictions for Colorado Raptors."

- The reconstruction of SH 7 – Cherryvale to 75th Street is included in the FY2008 - FY2013 Colorado State Transportation Improvement Program (STIP).

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Chapter 2.0: Summary of Impacts, Mitigation and Commitments

2.1 Summary of Impacts

A summary of impacts is depicted in **Table 2-1**.

Table 2-1 - Summary of Impacts for the Preferred Alternative

Category	Preferred Alternative Impacts
Land Use	The direct land use impact of the project would be in areas where right-of-way acquisition is required. In these areas, the current land use would be changed to a roadway use. The local agencies of the City of Boulder and Boulder County anticipate improvements as defined by the Preferred Alternative, which is consistent with local planning.
Social Conditions	The Preferred Alternative would reduce congestion and improve road conditions along SH 7, thereby improving accessibility to businesses and neighborhoods in the study area. Safety conditions would also be improved with this alternative, which also would improve access to local businesses and neighborhoods. Access changes and some out-of-direction travel may occur as a result of construction. Pedestrian and bicycle safety and access would be improved with the addition of the bicycle lanes and sidewalks, along the roadway. This alternative would temporarily reduce or degrade access to businesses and neighborhoods during construction, which could possibly impact businesses in the study area. Because there are very few residential land uses in the study area, adverse impacts on persons of advanced age or with disabilities are not anticipated. In addition, this alternative would address roadway safety concerns and include the addition of multi-use pathways, benefiting persons living in or traveling through the study area.
Environmental Justice	Minority populations are limited to three Census Blocks on the outer edges of the study area. These blocks extend well outside of the study area. The small number of households within these blocks (some possibly occurring in the portion of the Census Block that is outside of the study area) does not indicate a concentrated minority population. Impacts experienced by minority persons would be the same as those experienced by the non-minority population and would include temporary construction related impacts such as access changes, dust, noise, and construction related traffic and delays as well as longer term impacts including increased traffic, noise, and added pavement to the viewshed. Roadway improvements would also address traffic safety and access concerns, provide pedestrian and bicycle facilities, and increase mobility in the study area. These impacts would benefit minorities in the study area. In addition, several Census Blocks within the study area adjacent to the proposed improvements contain much larger non-minority populations that would bear these impacts. Therefore, impacts to minority populations are not considered to be disproportionately high and adverse. The Preferred Alternative would require the relocation of three business structures. One of these businesses is minority owned and has two full-time employees, one of which is a minority. Relocation impacts will be borne by all three businesses and associated employees and therefore, does not constitute a disproportionately high and adverse impact to minority owned businesses or minority employees. This alternative would require driveway reconstruction for twenty properties, as well as impacts to access for eight properties.

continued

Table 2-1 (cont.) - Summary of Impacts for the Preferred Alternative

Category	Preferred Alternative Impacts
Environmental Justice (cont.)	One of the structures that would be removed is a mobile home at the Columbine Mobile Home Park. Due to the sensitivity of the data and to protect confidentially, it is unknown whether this specific structure contains minority or low-income residents. Conversations with the property manager indicated that the majority of the residents of the mobile home park are low-income. Therefore, it is reasonable to assume that the residents of the impacted property are low-income. Additional impacts anticipated at the mobile home park include some right-of-way acquisition and access modifications. This would move SH 7 55 feet closer to the first mobile home in the park. This would result in increased noise and visual impacts at this mobile home park (more information is included in Section 3.7 of the EA). This would not be considered a disproportionately high and adverse impact because other noise impacts of greater magnitude occur to the general population areas along SH 7.
Economic Conditions	Selection of a build alternative could temporarily boost the economy of the study area during the construction period by providing employment of construction workers and revenue generated by the purchase of construction material from local sources. Additional employment could provide a temporary economic boost to the region, through increased wages and retail sales to firms in the project vicinity, partially offsetting any lost revenue from temporary increase in congestion and access restrictions during construction. With the Preferred Alternative there would likely be no direct permanent impacts to economic conditions in the study area. Short-term temporary impacts would occur during construction. Access to businesses located near construction sites may be impaired which could cause consumers to go elsewhere. This could be offset by sales to construction workers in the area. Due to improved access and mobility, this alternative could be expected to enhance the economic condition of the majority of the study area and would be consistent with economic growth areas identified in the comprehensive plans. Ease of access into and out of the businesses would be improved.
Right-of-Way	The Preferred Alternative would require the removal of four structures. Two structure removals are located near 63rd Street on the south side of SH 7 where the roadway improvements would be shifted south. The improvements are 55 feet south of the existing pavement. The first is the mobile home on the southwest corner of 63rd Street and SH 7. The proposed sidewalk is within four feet of the house. The second is a house that has been converted to an office for the storage facility business on the southeast corner of 63rd Street and SH 7. The proposed improvements would fall within the footprint of the building. The second two structures requiring removal are on the north side of SH 7 near Valtec Lane just west of the Burlington Northern Santa Fe Railroad (BNSF) overpass where the proposed improvements would be in the transition of the north shift of the roadway alignment. The first is a commercial warehouse. The second structure is a house that has been converted into a business. The Preferred Alternative would require a total of approximately 6.6 acres of right-of-way from 27 owners along the project and approximately 0.9 acre of permanent slope easement.
Transportation	The Preferred Alternative would improve transit for the corridor. This alternative would include pad and bench facilities along with sidewalk facilities for bus users. In the case of the intersection at 63rd Street, westbound deceleration and acceleration lanes are warranted and can be used as queue jump lanes for buses. The Preferred Alternative would improve the deficient roadway condition and thus improve safety by enhancing vertical geometry, improving drainage, improving sight distance, providing clear roadsides, providing required auxiliary lanes, consolidating and controlling access and providing refuge for stalled vehicles. Incorporation of accident counter measures into the final design and designing a roadway consistent with CDOT and American Association of State Highway and Transportation Officials (AASHTO) design standards would help to reduce accidents and thus provide a benefit to the users of the facility.

continued

Table 2-1 (cont.) - Summary of Impacts for the Preferred Alternative

Category	Preferred Alternative Impacts
Noise	According to the model, the Preferred Alternative would cause four of the modeled locations to have noise levels above the NAC in 2030. These four receptors approach or exceed the NAC with predicted future noise levels increasing between 3 and 5 dB(A). One of the sites, Receptor SW10 representing two residences, would experience noise levels above the impact NAC for Category B if the Preferred Alternative was constructed. Mitigation should be considered for this location. Receptors NE2, NE6 and SW7 would be acquired and removed, and therefore no mitigation needs to be considered for these locations. All remaining receivers falling below the NAC have modeled noise levels ranging from 53.8 to 67.2 dB(A) for Category B receivers and from 56.0 to 71.3 dB(A) for Category C receivers. Of these receivers, the greatest projected increase over existing noise levels is 3.4 dB(A).
Air Quality	The study area is located in Boulder County, which is included in the Denver metropolitan attainment/maintenance area for carbon monoxide (CO), ozone, and particulate matter (PM10). Therefore, the conformity provisions of the federal Clean Air Act apply. The impacts of motor vehicle emissions in the study area on concentrations of CO, ozone and PM10 were analyzed for the Preferred Alternative. Motor vehicle emissions in the study area would not result in any exceedance of the NAAQS.
Wetlands	Wetland impacts are based on 2001 wetland delineations and Spring 2005 field review. Based on these boundaries and preliminary design plans, the Preferred Alternative would permanently impact approximately 0.309 acre of non-jurisdictional wetlands and 0.013 acre of jurisdictional wetlands. Best management practices (BMPs) will be implemented to prevent temporary and indirect impacts that could also result from construction and operation activities, including sedimentation from erosion during earth moving, fuel spills in construction staging areas, and winter sanding operations.
Vegetation and Noxious Weeds	Direct impacts to vegetation would occur from clearing, excavation and grading for the proposed improvements. It is anticipated that numerous mature trees including cottonwood, box elder, Ponderosa pine, piñon pine, Chinese elm, and Russian-olive would be removed prior to construction. There are no conservation sites or sensitive plant communities within the study area. The Preferred Alternative would impact approximately 4.3 acres of well-developed vegetation in the Hoover Hill/Legion Park area. In this area, the Preferred Alternative would require the removal of approximately 100 trees on the south side of SH 7 (adjacent to and within City of Boulder Open Space) and 10 trees on the north side of SH 7 (in Legion Park). During final design, efforts will be made to minimize impacts to existing vegetation. Soil disturbance associated with construction of the Preferred Alternative is anticipated to provide further conditions for invasion of noxious weeds. Construction would disturb areas already inhabited by weeds as well as areas that currently have very minor weed cover, such as the grass and woodland community in and adjacent to Legion Park, and result in the potential for accelerated weed infestation of a park site. Temporary work areas would also be susceptible to weed invasion.
Wildlife and Aquatic Resources	The Preferred Alternative consists of widening the current road and would generally follow the existing roadway alignment. The southern border of Legion Park and vegetated area across from Legion Park on the south side of existing SH 7 would have temporary impacts from clearing and grading for the new roadway. Removal of vegetation in these areas could impact migratory bird nesting areas and reduce habitat for mammal species. No impacts are anticipated to the black-tailed prairie dog colonies, or to burrowing owls.

continued

Table 2-1 (cont.) - Summary of Impacts for the Preferred Alternative

Category	Preferred Alternative Impacts
Threatened, Endangered or Sensitive Species	No direct impacts to any federally listed threatened or endangered species would be expected from the Preferred Alternative. Potential habitat for Bald Eagle could exist around the perimeter of Valmont Reservoir. Any nesting eagles near the reservoir could occasionally occur in the study area and could be slightly affected by the Preferred Alternatives because of noise and disturbance during construction. Since the Preferred Alternative would be widening an existing roadway, any resident eagles are most likely adapted to vehicular presence in the area and would not be negatively affected in the long term.
Water Resources and Water Quality	The Preferred Alternative would add curb and gutter with a storm sewer system between Cherryvale Road and Westview Drive and between the BNSF railroad crossing and 75th Street. The addition of impervious area and a storm sewer system would cause the storm flows to reach the outfalls more rapidly and with more concentrated flows. Increased impervious area would result in larger quantities of sediment and pollutants to enter in the surrounding surface waters. From the crest of the hill to the west, stormwater would be captured in a storm sewer system that would outfall into South Boulder Creek. From the crest of the hill to the east, stormwater would flow in roadside ditches to the BNSF railroad crossing. It would then be captured in an existing storm sewer system and outfall into Dry Creek No. 3. Temporary impacts to water resources during construction are also expected. The primary pollutant carried from a construction site is sediment or total suspended solids (TSS). Erosion is prevalent when the surface vegetation is disturbed as is required for roadway widening side slope construction. The Preferred Alternative would result in an increased impervious surface area from an existing 11 acres with the No-Action Alternative to approximately 20 acres.
Wild and Scenic Rivers	There are currently no rivers near the study area designated or being studied for inclusion in the Wild and Scenic Rivers System.
Floodplains	The storm sewer outfall pipe into South Boulder Creek falls within the floodplain. The proposed 54-inch concrete pipe would outfall to a tail-water basin. There would be no additional fill required for the improvements; therefore, the floodplain would not be adversely impacted. All remaining improvements are outside the mapped floodplains.
Geology	No signs of major slope instability were observed. Natural hillsides in the area appear to have a stable geologic history. Construction activity in the vicinity of the Pierre Shale (between 63rd Street and the crest of the hill) may require slope stabilization when large cuts are made. These Pierre Shales can also exhibit expansion potential when exposed to moisture.
Historic Preservation	Roadway improvements have been planned in order to avoid permanent adverse impacts to the National Register of Historic Places (NRHP) eligible sites with the exception of the Cottonwood Ditch and a segment of the BNSF railroad. Below is a list of specific impacts to each property: • Butler-Smith Property (1880) – SH 7 would be widened in front of the Butler-Smith House and additional vegetation would be removed in the right-of-way between the road and the house. All improvements would stay within existing roadway right-of-way. There would be no direct impact to the house or the barn and no impact to the qualities that made this property significant. Very small temporary easement for construction of curb return may be required. As determined by CDOT and FHWA, the improvements to SH 7 would have no affect to the historic structures on this property. The temporary easement for construction would constitute no adverse effect to the property as a whole as concurred by SHPO.

continued

Table 2-1 (cont.) - Summary of Impacts for the Preferred Alternative

Category	Preferred Alternative Impacts
Historic Preservation (cont.)	• Gas Station (1920) and House – When SH 7 is reconstructed, the corner of this property, which is currently paved and used as roadway, would continue to be used as a roadway. In consultation with SHPO, it was determined that the corner of the property does not contribute to the significance of the property. All other improvements to SH 7 would occur to the south. Curb cut from 63rd would be installed on existing roadway right-of-way. Temporary easement for construction would be required to construct private access on private property. Tree removal may be required for access construction. As determined by CDOT and FHWA, the improvements to SH 7 would have no affect to the historic structures on this property. The temporary easement for construction would constitute no adverse effect to the property as a whole as concurred by SHPO. • Harburg House w/Barn & Gazebo (1930) – When SH 7 is widened some of the vegetation in the CDOT right-of-way would be removed, but would have no impact on the setting or direct impact on the Harburg property. Constructing two private driveways to match proposed improvements would require a temporary easement for the Preferred Alternative and may require some limited vegetation removal. Public road on the west side of the Harburg property would require reconstruction and may require a temporary easement. If headwall and wingwalls of Enterprise Ditch outlet are replaced in current location, this construction may be on Harburg property. As determined by CDOT and FHWA, the improvements to SH 7 would have no affect to the historic structures on this property. The temporary easement for construction would constitute no adverse effect to the property as a whole as concurred by SHPO. • DeBacker-Tenenbaum House (1913) – When SH 7 is widened a retaining wall may be constructed along a portion of the roadway right-of-way, north of the DeBacker-Tenenbaum property, but would not have a direct impact to the landscaped setting or the buildings. The BNSF railroad would be temporarily realigned to be east of the existing location, but there would be no direct impact to the landscaped setting or the buildings. There will be temporary fill slope impacts within this historic property. The ultimate railroad alignment would follow its existing alignment. A temporary easement may be required to build the temporary fill slope for the temporary railroad alignment. As determined by CDOT and FHWA, the improvements to SH 7 would have no affect to the historic structures on this property. The temporary easement for construction would constitute no adverse effect to the property as a whole as concurred by SHPO. • Cottonwood Ditch #2 (1863) North side Arapahoe to North 75th – The Cottonwood Ditch #2 currently crosses SH 7 just east of the Colorado Southern (BNSF) railroad bridge in an inverted siphon pipe. This existing structure would be replaced with a new inverted siphon. In order to accommodate the improvements, the inlet end of the siphon pipe (south end) would be located at the existing inlet end and the north end of the siphon pipe would be located approximately 20 feet north of the existing outlet end of the siphon pipe. This 20-foot portion (north end) of the existing open ditch would be removed and be in the pipe. Regrading of ditch at outlet end (north end) would be required when siphon is replaced. This has been determined as an adverse effect by CDOT and FHWA and confirmed by SHPO. • Cottonwood Ditch #2 (1863) South side Arapahoe – This segment crosses under the railroad south and west of the DeBacker-Tenenbaum property. In order to construct a new BNSF railroad bridge over SH 7, a temporary railroad alignment would be required 25 feet to the east of the current alignment. The temporary BNSF alignment would require a temporary bridge to be constructed over the Cottonwood Ditch. The temporary bridge would be removed when the temporary alignment is removed. The ultimate railroad alignment would be along its current alignment and would not result in a direct impact to the Cottonwood Ditch since it would be restored to its original function and appearance. This has been determined as no adverse effect by CDOT and FHWA and confirmed by SHPO.

continued

Table 2-1 (cont.) - Summary of Impacts for the Preferred Alternative

Category	Preferred Alternative Impacts
Historic Preservation	• Colorado and Southern Railway Company Segment (1870s) North and South of Arapahoe Road – The widening of SH 7 would require the removal of approximately 25 to 35 feet of existing track on the north side of the highway. This portion of the track alignment would ultimately be on the future bridge structure over SH 7. The Preferred Alternative involves the construction of a temporary railroad alignment offset 25 feet to the east of the existing alignment and the construction of a temporary bridge along this alignment over SH 7. This temporary alignment is required so that the new, longer bridge over SH 7 can be constructed while train operations can continue on the temporary alignment. The ultimate railroad alignment would follow the existing alignment. To construct the temporary alignment, approximately 500 feet of the existing railroad track would be temporarily impacted along the southern curve and approximately 600 feet of existing track would be temporarily impacted along the northern curve. A temporary bridge would be required to carry the temporary railroad alignment over the Cottonwood Ditch. This temporary bridge would be removed following the need for the temporary alignment. This has been determined as an adverse effect by CDOT and FHWA and confirmed by SHPO. (The existing railroad bridge over SH 7 is officially not eligible.) • Enterprise Ditch Segment (1870s) North and South of Arapahoe Road – For the Preferred Alternative, a 120-foot concrete box culvert would replace the southern 60 feet of the existing box culvert. Additionally, 250 feet of the existing ditch on the south side of SH 7 would be realigned and reconstructed as an open ditch. This has been determined as no adverse effect by CDOT and FHWA and confirmed by SHPO. • Enterprise Ditch Segment (1870s) North of Arapahoe Road Crossing under the BNSF Railroad – For the Preferred Alternative, a temporary railroad alignment would require approximately 100 feet of the ditch to be placed into a pipe. Once the temporary alignment is removed, the ditch would be restored to its original function and appearance. This has been determined as no adverse effect by CDOT and FHWA and confirmed by SHPO.
Hazardous Waste	• Transmission Technology Services, 6270 Arapahoe Road – The Preferred Alternative would shift the roadway closer to this property. Should right-of-way acquisition become necessary, mitigation requirements would be obtained from the appropriate regulatory agency. • Historic Gas Station and House, 6301-6303 Arapahoe Road – The Preferred Alternative would have no impact in this area since no right-of-way would be obtained, and testing has been completed.
Open Space / Recreation	The Preferred Alternative would have beneficial indirect impacts on all parks and recreational facilities within the study area by alleviating congestion along SH 7, thereby improving accessibility. There would be short-term increases in emissions from vehicles due to construction and both long-term and short-term increases in noise that may impact users' experience. Direct impacts to each individual property are described below. Bicycle improvements included for this alternative include a five-foot on-street bike lane in each direction on the west segment of the alignment and 10-foot shoulders serving as bike lanes along the eastern segment. In addition, a 12-foot multi-use path is included on the north side of SH 7 for the entire length of the corridor. On the south side of SH 7, an 8-foot sidewalk would be constructed between Cherryvale Road and Westview Drive. There is currently one access drive to the Legion Park that splits into a "Y" that has two access points onto SH 7. Direct impacts at Legion Park would consist of cut slopes that would require a temporary construction easement in an area of the park that has no public use, and the closure of the eastern leg of the "Y" access point. The western leg of the access point would be improved to accommodate all the traffic going in and out of the park. The proposed limits of the cut slope would require the removal of some vegetation. The eastern leg of the access point would be removed.

continued

Table 2-1 (cont.) - Summary of Impacts for the Preferred Alternative

Category	Preferred Alternative Impacts
Open Space / Recreation (cont.)	There would be no direct impacts to the Sombrero Marsh Open Space under the Preferred Alternative. There would be improvements made to the SH 7 and 63rd Street intersection that would allow the public to more easily access the open space area. There would be no direct impacts to the South Boulder Creek Path with this alternative. SH 7 improvements would begin to the east of where the path crosses the roadway. There would be some intrusion on Legion Park and on the City of Boulder Open Space parcel across the road from Legion Park. Approximately 0.5 acre of temporary easement would be needed to accommodate the grading for the road lowering and widening at Legion Park. Also, there would be a substantial amount of vegetation located along SH 7 that would need to be removed from the Legion Park property. For the City of Boulder Open Space, approximately 2.4 acres of temporary easement for grading would be required.
Visual Quality	Between Cherryvale Road and the Boulder Valley School District, added pavement and a raised median would alter foreground and middleground views. Because this portion of the study area is currently a four-lane urban section, these changes would be consistent with existing land uses and visual character. To accommodate roadway design speeds, the existing hill near Legion Park would have to be lowered approximately 13 feet, which may widen the viewshed and improve background views. At the top of Hoover Hill, 10 trees would be removed on the north side of the road and 100 trees on the south side of the road, exaggerating the presence of the roadway. Retaining walls up to 21 feet high (adjacent to the BNSF crossing) would alter foreground and middleground views where erected in the vicinity of the railroad overpass. Pedestrian and bicycle improvements include the addition of bicycle lanes and pedestrian pathways. These improvements would increase the amount of pavement in the viewshed, most notably near Legion Park. This alternative would not impact background views of the Rocky Mountains, Front Range, and Flatirons where currently visible throughout the study area. Overall, impacts to the visual quality of the study area would be most prominent east of the Boulder Valley School District (approximately 0.25 mile east of 63rd Street), where the existing roadway consists of two-lanes and the landscape begins to become more rural in character. In this area, a third two way left turn lane and twelve-foot detached concrete path would be added to the viewshed as travelers approach Legion Park.
Farmland	The Preferred Alternative would result in conversion of approximately 5.0 acres of Prime farmland from several parcels. This is based on additional right-of-way that would be required. A Farmland Conversion Impact Rating form (AD-1006) was completed in accordance with the Farmland Protection Policy Act (FPPA – 7 USC 4201, et seq.). This rating form indicated that 6.06 acres would be impacted. Since that time, the design has been refined to impact less farmland. There will be no impacts to the ability to irrigate the remaining farmland, nor to the access to and from fields.

continued

Table 2-1 (cont.) - Summary of Impacts for the Preferred Alternative

Category	Preferred Alternative Impacts
Energy/Utilities	The Preferred Alternative would impact several existing utilities. The lowering of the roadway profile east of Westview Drive and subsequent cut slopes from the widening would require the utility lines to also be lowered. This lowering would affect the 2-inch Xcel gas line and the underground telephone and electrical lines. Overhead and underground electric lines exist along the roadway alignment would be impacted. The power poles in conflict with the roadway work would require relocation to accommodate excavation and embankment activities. Fiber optic lines run between manholes in the existing roadway pavement. It is anticipated that the proposed roadway vertical profile and widening would create earthwork cut/fill activities. The fiber optic lines may be in conflict and the manholes would require reset work. The ICG fiber optic near the BNSF railroad may be impacted, depending on the depth of the existing line. Roadway widening activities may also impact existing underground Comcast cable television coaxial cable. Initial utility locating efforts show that more investigation would be required. In addition to the utilities mentioned above, underground sanitary sewer lines, water lines and fire hydrants are present. These features would be reset or adjusted in order to maintain service and match the proposed roadway section. Several drainage structures also exist adjacent to the existing roadway. The structures are part of a network of drainage ditches in the area. Widening activities for the two build alternatives would impact the drainage ditches and structures. The Cottonwood Ditch No. 2 siphon under SH 7 would require replacement. The temporary offset railroad alignment east of the existing alignment would require a temporary bridge crossing over the Cottonwood Ditch. The box culvert for the Enterprise Ditch crossing below SH 7 would be replaced in kind to accommodate the wider roadway improvements. The Enterprise Ditch siphon under the railroad would likely not require replacement. The East Boulder Ditch box culvert would be replaced in kind to accommodate the larger roadway footprint and the south shift of the improvements. All wells within the proposed right-of-way and construction easements would be located in the first stages of final design. Personal Septic Disposal Systems may be impacted by the build alternatives. It is anticipated that the footprint for the roadway widening may necessitate relocation of these systems.

continued

Table 2-1 (cont.) - Summary of Impacts for the Preferred Alternative

Category	Preferred Alternative Impacts
Construction	The Preferred Alternative would have temporary impacts during the construction period. The construction period for this alternative would likely be two years. Detailed construction phasing will be addressed during final design. It is anticipated that one lane of traffic in each direction in addition to a center left-turn lane at intersections would be maintained at all times and that most construction would take place during normal work hours. The contractor would be required to maintain access to all residences and businesses along the corridor. Construction of this alternative would have potential temporary impacts to the following resources: • Air Quality – Construction activities could have a temporary impact on air quality. These include fugitive dust during earthmoving operations and stockpiling. PM_{10} (particles less than 10 microns in diameter) dust particles are of particular pollution concern because the particles can travel further and are more likely to be inhaled by humans. Emissions from construction equipment can also contribute to air pollution. Gasoline and diesel engines emit exhaust, including particulate matter, carbon monoxide, sulfur dioxides, nitrogen oxides and other pollutants. Increased emissions would also result if congestion occurs as a result of construction closures or delays. • Noise – Temporary noise impacts to receptors along the construction corridor are expected. The increased noise during construction would be primarily due to construction equipment including earth moving, hauling, pile driving and paving equipment. • Water Quality – Construction activities can affect water quality through erosion and sedimentation. Erosion is usually greater during construction due to the exposed soil during grading and dirt moving operations. This sediment can reach waterways and impact water quality if not properly managed. Another concern during construction is water contamination from spilled fuels or other hazardous materials. • Visual – During the construction period, visual impacts would occur through the use of traffic control devices, dirt and construction material stockpiles, and equipment storage areas. • Section 4(f) – Impacts to 4(f) properties would include the construction of cut slopes north of SH 7 at Legion Park in an area of the park where there is no public use. Because of the lowering of the hill east of Westview Drive, grading of side slopes would be required for the Preferred Alternative. Removal of approximately 10 trees on park property would be required. During the construction of the cut slopes and during seeding operations, construction equipment would require access to Legion Park property. A temporary easement would be required during construction. • Sustainability – Both the Preferred and No-Action Alternative may affect environmental resources not regulated at the federal, state, or local level. Such impacts can include the consumption of natural resources such as fossil fuels and raw materials like gravel. The type of alternative selected may also affect social resources such as landfill capacity. In most cases, such impacts cannot be quantified, and cannot entirely be avoided. It is recognized that these impacts should be minimized to the extent practicable.

continued

Table 2-1 (cont.) - Summary of Impacts for the Preferred Alternative

Category	Preferred Alternative Impacts
Cumulative	The following cumulative impacts are associated with the Preferred Alternative: • Land Use – Land uses within the cumulative study area have remained fairly consistent in recent years. A large percentage (80 percent) of the cumulative study area is classified as open space, agriculture and low-density residential. Much of the open space and agricultural lands within the cumulative study area are owned by the City of Boulder and Boulder County and are protected from future development. As such, reasonably foreseeable development actions are limited and would have negligible impacts to land uses within the cumulative study area. The proposed commuter rail station at 63rd and Arapahoe would require the acquisition of approximately 12 acres of existing industrial and storage uses and convert those uses to a park-n-Ride. This change in use may affect the trail along the site. There may also be some conversion of use to higher density in the surrounding area. All of this will result in impacts to traffic, air quality, noise and other resources. Because much of the land within the cumulative study area is protected from future development, it is unlikely that substantial development or changes in existing development patterns would occur as a result of the construction of the Preferred Alternative. • Wildlife – Habitat for black-tailed prairie dogs, raptors and other wildlife has been negatively impacted by agricultural and land development activities in the area. It is, therefore, reasonable to assume that there have been significant reductions in the extent of these species within the study area. Today, the cumulative study area is for the most part, developed or preserved. Open space and agricultural lands that are owned by the City of Boulder and Boulder County will generally remain used for recreational and agricultural purposes. Future development and transportation projects planned for the area are few and would not result in a significant loss of habitat for wildlife within the cumulative study area; however, the proposed commuter rail station at 63rd and Arapahoe would create minor disturbances to wildlife habitat. Construction of the Preferred Alternative would impact 5.8 acres of vegetation in the Hoover Hill/Legion Park area and would require the removal of approximately 110 trees along the corridor. Even though this would be in an area that is immediately adjacent to the existing roadway, vegetation removal would contribute to the cumulative loss of habitat in the area. These impacts would not result in effects that would exceed the ability of wildlife to sustain itself or remain productive. Under the Preferred Alternative there would be no impact to black-tailed prairie dogs or burrowing owls. • Wetlands – Development adjacent to Sombrero Marsh could potentially degrade the quality of this only naturally occurring perennial open water body still present in the study area today. The remainder of Sombrero Marsh is under the management of the City of Boulder Open Space and Mountain Parks Department. Reasonably foreseeable development actions are limited and would have negligible impacts to the remaining wetlands and riparian corridors within the cumulative study area. There are wetlands and other Waters of the U.S. along the BNSF alignment north of Arapahoe Road in this study area. The proposed commuter rail project and park-n-Ride would directly impact approximately 0.5 acre of wetlands and 0.2 acre of impact to Boulder Creek. Other indirect impacts would occur to these resources, including sedimentation, erosion, noxious weed invasion, and loss of vegetation due to shadowing of bridges. Construction of the Preferred Alternative would impact several riparian corridors crossing SH 7 and would impact 0.322 acre of wetlands. Under the Preferred Alternative there would be no impact to any portion of Sombrero Marsh.

continued

Table 2-1 (cont.) - Summary of Impacts for the Preferred Alternative

Category	Preferred Alternative Impacts
Cumulative (cont.)	• Water Quality – Similar to many Front Range areas, the Boulder Creek Watershed area has experienced significant population growth over the years. Changes in land use, increased growth, and the conversion of agricultural lands to developed lands have collectively impacted water resources over time. Development throughout the cumulative study area will increase the impervious surface area, change runoff characteristics, and potentially degrade water quality. If the population of Boulder County were to increase as projected by the US Census (by approximately 71,000 persons or 25 percent), there would be an increased demand for water supplies and water treatment. Water depletion and treatment capacity may become a concern for the city. The new park-n-Ride at 63rd and Arapahoe will result in increased impervious surface (approximately 12 acres) which will increase contaminated stormwater runoff into surface waters. The treatment of this runoff will be done in compliance with Boulder County water quality standards. The length of roadway along SH 7 that is proposed for improvement under the Preferred Alternative consists of approximately two miles. The cumulative impacts study area for water quality consists of the 1,160-km^2 Boulder Creek Watershed. Because the proposed action is so small in scope, the cumulative impact of the project to this resource is negligible. In addition, because the proposed action would occur in the lower basin of the Boulder Creek Watershed, impacts to Boulder Creek headwater streams would be avoided.

2.2 Summary of Mitigation and Commitments

A summary of mitigation and commitments is depicted in **Table 2-2.**

Table 2-2 - Summary of Mitigation and Commitments for the Preferred Alternative

Category	Mitigation Measures and Commitments	Date Completed
Land Use	Mitigation for the change in land use will be through compensation to the landowner during the right-of-way acquisition process. The right-of-way mitigation is discussed later in this table under the Right-of-Way category.	
Social Conditions(including Environmental Justice)	Social: Good communication with emergency service providers, the community, and residents with regard to road delays, access, and special construction activities will be conducted during the construction phase. This will be accomplished using various strategies such as radio and public announcements, newspaper notices, on-site signage, and the use of CDOT's Web site. Environmental Justice: Every effort was made to avoid or minimize potential impacts to low-income and/or minority populations in the study area. This included eliminating the auxiliary/queue jump lane in order to narrow the width of the roadway in front of the mobile home park. Because of these efforts, no disproportionate impacts to low-income or minority populations are anticipated, and therefore, no mitigation measures are required. All property acquisition will follow the procedures outlined in the CDOT Right of Way Manual. CDOT follows the Federal Uniform Relocation and Real Property Acquisition Act of 1970 (Public Law 91-646), as amended in 1987 (Public Law 100-17), 1991 (Public Law 102-240) and 1997 (Public Law 105-117). The purpose of the act is "To provide for uniform and equitable treatment of persons displaced from their homes, businesses, or farms by Federal and federally assisted programs and to establish uniform and equitable land acquisition policies for Federal and federally assisted programs." See the Right-of-Way category in this table for more information regarding right-of-way acquisition.	
Economic Conditions	Good communication with the community, business owners, and residents with regard to road delays, access, and special construction activities will be conducted during the construction phase. This will be accomplished using various strategies such as radio and public announcements, newspaper notices, on-site signage, and through CDOT's Web site. Mitigation for relocation impacts is addressed in Section 3.5, Right-of-Way of the EA and . in this table under the Right-of-Way category.	

continued

Table 2-2 (cont.) - Summary of Mitigation and Commitments for the Preferred Alternative

Category	Mitigation Measures and Commitments	Date Completed
Right-of-Way	All property acquisition will follow the procedures outlined in the CDOT Right of Way Manual. CDOT follows the Federal Uniform Relocation and Real Property Acquisition Act of 1970 (Public Law 91-646), as amended in 1987 (Public Law 100-17), 1991 (Public Law 102-240) and 1997 (Public Law 105-117). The purpose of the act is "To provide for uniform and equitable treatment of persons displaced from their homes, businesses, or farms by Federal and federally assisted programs and to establish uniform and equitable land acquisition policies for Federal and federally assisted programs." For permanent right-of-way acquisitions, under CDOT right-of-way policy, owners will be compensated in a fair and equitable manner. Depending on the estimated value of the property, monetary compensation is determined through independent and impartial appraisals by qualified professionals (over $5,000) or by value finding (under $5,000). For permanent slope easements acquisitions, similarly to right-of-way acquisitions, owners will be compensated in a fair and equitable manner through the use of appraisals (over $5,000) or by value finding (under $5,000). For permanent slope easements, owners are compensated for the property but retain limited usage in ways that do not cause negative impacts to the roadway. For properties requiring relocation, the relocation benefits provided to those displaced are determined by eligibility guidelines based on federal regulations. For eligible businesses, this includes reimbursement of actual reasonable and necessary moving and related expenses and certain re-establishment costs, or a fixed payment in lieu of all other possible relocation benefits. For eligible residences, this includes reimbursement of moving and related expenses, a replacement housing benefit for owners, or a rental supplement for renters. The rental supplement payment may also be used towards the down payment for the purchase of a replacement dwelling to encourage renters to become property owners. The replacement housing benefit and rental supplement benefit have certain monetary limitations; however, these limitations can be exceeded in certain circumstances.	
Transportation	Because there are no adverse impacts, mitigation is not necessary.	
Noise	<u>Mitigation Barrier at SW10</u> A noise barrier was analyzed for Site SW10, which consists of two residences located at 6160 and 6180 Arapahoe Road. Noise mitigation at this site is not recommended because the resultant cost-benefit was unreasonable according to CDOT and FHWA guidelines. The feasible and reasonable analyses are detailed in Appendix B of the SH 7 *Noise Analysis Technical Memorandum,* which is located in Appendix E of the EA.	

continued

Table 2-2 (cont.) - Summary of Mitigation and Commitments for the Preferred Alternative

Category	Mitigation Measures and Commitments	Date Completed
Noise (continued)	An effective noise reduction of 5.7 decibels could be achieved at this location by constructing a continuous six-foot noise wall that is 310 feet long. The noise wall would require relocation of the two residential driveway accesses. Any gaps in the wall would decrease the effectiveness of the noise abatement, making the wall infeasible. The wall is shown in Figure 3-11 of the EA, illustrating the gaps created by intervening driveway access points. Construction of a continuous wall should not create safety hazards for vehicles or pedestrians along SH 7. The cost of a continuous wall of these dimensions would be approximately $55,800. Using the CDOT criterion for cost benefit in determining the reasonableness of noise abatement discussed in the paragraphs above, the cost benefit of this noise wall would be approximately $4,895 per receiver per decibel noise reduction. CDOT considers any amount over $4,000 not reasonable. Noise mitigation at this location is not recommended because, although relocating the two accesses would make this wall feasible, the extraordinary cost/benefit ratio would make the wall unreasonable.	
Air Quality	Motor vehicle emissions in the study area would not result in any exceedance of the NAAQS; therefore, no direct project air quality mitigation is necessary. During construction, dust emissions should be minimized by including techniques to control fugitive dust.	
Wetlands	The Preferred Alternative design includes avoidance and minimization of impacts to most study area wetlands. Impacts to wetlands will be avoided and minimized as much as practical during the final design process. The design shall comply with the policy of Executive Order 11990 regarding impacts to wetlands. The following specific BMPs from the *Erosion Control and Storm Water Quality Guide*, CDOT, 2002, will be required during construction to reduce the potential for wetlands to be indirectly affected by sedimentation from accelerated erosion or by hazardous materials (e.g., fuel, equipment lubricants): • All disturbed areas will be revegetated with native grass and forb species. Seed, mulch and mulch tackifier will be applied in phases throughout construction. • Where permanent seeding operations are not feasible because of seasonal constraints (e.g., summer and winter months), disturbed areas will have mulch and mulch tackifier applied to prevent erosion. • Erosion control blankets will be used on 3:1 or steeper, newly seeded slopes to control erosion and to promote the establishment of vegetation. Slopes should be roughened at all times. • Temporary erosion control blankets will have flexible natural fibers.	

continued

Table 2-2 (cont.) - Summary of Mitigation and Commitments for the Preferred Alternative

Category	Mitigation Measures and Commitments	Date Completed
Wetlands (continued)	• Erosion bales, erosion logs, silt fence or other sediment control device will be used as sediment barriers and filters adjacent to wetlands, surface waterways and at inlets where appropriate. • To minimize the loss of sand from the road surface during winter sanding operations, sediment catch basins will be included during construction and put in place permanently with continual maintenance. • Where appropriate, slope drains will be used to convey concentrated runoff from top to bottom of the disturbed slopes. Slope and cross-drain outlets will be constructed to trap sediment. • Storm drain inlet protection will be used where appropriate to trap sediment before it enters the cross-drain. • Check dams will be used where appropriate to slow the velocity of water through roadside ditches and in swales. Additionally, the following BMPs to minimize additional wetland impacts during construction will be employed: • All wetland areas and water bodies not impacted by the project will be protected from unnecessary encroachment by temporary fencing and will be seeded in phases throughout construction. Sediment control such as silt fence or erosion logs will also be used where needed to protect the area from sediment. Siltation control devices (e.g., fences) will be placed on the down-gradient side of construction areas to prevent soil from entering wetland areas. • No staging of construction equipment, equipment refueling or storage of construction supplies will be allowed within 50 feet of a wetland or any water-related area. • Standard erosion/sediment control measures will be observed and an erosion control plan will be developed prior to and for inclusion in the construction bid plans. All bare fill or cut slopes adjacent to streams or intermittent drainages will be stabilized as soon as practicable. • No fertilizers, hydrofertilizers, or hydromulching will be allowed anywhere on the project. • Work areas will be limited as much as possible to minimize construction impacts to wetlands	

continued

Table 2-2 (cont.) - Summary of Mitigation and Commitments for the Preferred Alternative

Category	Mitigation Measures and Commitments	Date Completed
Wetlands (cont'd.)	Wetlands, as well as their associated functions permanently impacted by the Preferred Alternative will be mitigated at a 1:1 ratio by purchase of credits at one of the three wetland mitigation banks within the primary service area. Wetland impacts will be reduced as much as possible during final design. Replaced wetland functions and values are anticipated to include bank stabilization, sediment/toxin retention, nutrient removal/transformation, food chain support, wildlife habitat, and visual quality. Wetland areas temporarily impacted by construction activities will be restored as soon as possible following completion of the activity.	
Vegetation and Noxious Weeds	All CDOT revegetation BMPs and guidelines will be followed to ensure adequate revegetation of the study area. All disturbed areas will be seeded in phases throughout construction. Although specific BMPs to be used will not be determined until final design, mitigation measures are anticipated to include: • Minimize the amount of disturbance of grading to 10 feet beyond the toe of slope. Project will follow CDOT standard specifications for amount of time that disturbed areas are allowed to be non-vegetated. • Avoid existing trees, shrubs and vegetation, to the maximum extent possible, especially wetlands and riparian plant communities. Coordinate with CDOT landscape architect prior to construction to determine which vegetation will be protected during construction. • Salvage weed free topsoil for use in seeding. • Implement temporary and permanent erosion control measures to limit erosion and soil loss. Erosion control blankets will be used on steep, newly seeded slopes to control erosion and to promote the establishment of vegetation. Slopes should be roughened at all times. • All disturbed areas will be revegetated with native grass and forb species. Seed, mulch and mulch tackifier will be applied in phases throughout construction. • Develop acceptable revegetation plan with the CDOT Landscape Architect, City of Boulder, and Boulder County. • A Senate Bill 40 (SB 40) Certification will be required by the Colorado Division of Wildlife for stream crossings or adjacent streambanks to avoid adverse effects to waterways and adjacent riparian vegetation. In these areas, trees and shrubs must be replaced at a 1:1 basis (trees) and square foot basis (shrubs).	

continued

Table 2-2 (cont.) - Summary of Mitigation and Commitments for the Preferred Alternative

Category	Mitigation Measures and Commitments	Date Completed
Vegetation and Noxious Weeds (continued)	Since soil disturbance with accompanying invasion by noxious weed species can be associated with highway construction, an Integrated Weed Management Plan will be incorporated into the project design and implemented during construction. Specific BMPs will be required during construction to reduce the potential for introduction and spread of noxious weed species, such as: • Mapping will be included in the construction documents along with appropriate control methods for noxious weeds. • Highway right-of-way areas will periodically be inspected by the City of Boulder or its consultants during construction and during post-construction weed monitoring for invasion of noxious weeds. • Weed management measures will include removal of heavily infested topsoil, herbicide treatment of lightly infested topsoil, limiting disturbance areas, phased seeding with native species throughout the project, monitoring during and after construction, other herbicide and/or mechanical treatments. • Use of herbicides will include selection of appropriate herbicides and timing of herbicide spraying, and use of a backpack sprayer in and adjacent to sensitive areas such as wetlands and riparian areas. • Certified weed-free hay and/or mulch will be used in all revegetated areas. • No fertilizers will be allowed on the project site. • Supplemental weed control measures may be added during design and construction planning. Preventative Control Measures for project design and construction may include: • Native Plants: Use of native species in revegetation sites. • Weed Free Forage Act: Materials used for the project will be inspected and regulated under the Weed Free Forage Act, Title 35, Article 27.5, CRS. • Topsoil Management: When salvaging topsoil from on-site construction locations, the potential for spread of noxious weeds will be considered. Importing topsoil onto the project site will not be allowed. • Equipment Management: Equipment will remain on designated roadways and stay out of weed-infested areas until the areas are treated. All equipment will be cleaned of all soil and vegetative plant parts prior to arriving on the project site.	

continued

Table 2-2 (cont.) - Summary of Mitigation and Commitments for the Preferred Alternative

Category	Mitigation Measures and Commitments	Date Completed
Wildlife and Aquatic Resources	• Disturbance to native plant communities will be minimized. • Tree removal will be minimized. • Erosion control techniques, such as silt fence or erosion logs, will be used to protect surrounding areas from construction related erosion. • Noxious weeds will be spot sprayed. In locations where spot application is not practical a wildlife biologist will inspect the area prior to spraying to ensure crucial habitat is not impacted. • Temporary erosion control blankets will have flexible natural fibers. • Follow requirements of the Colorado Department of Transportation, outlined in the note below: Note: The Migratory Bird Treaty Act (MBTA) protects all migratory birds, nests and eggs except English sparrow, European starling, and rock dove and resident game birds. For projects that could potentially result in the killing, taking, harassing, or harming of these birds, the following conditions must be adhered to: Tree Trimming/Removal Tree trimming and/or removal activities shall be completed before birds begin to nest or after the young have fledged. In Colorado most nesting and rearing activities occur between April 1st and August 31st. However, since some birds nest as early as February a nesting bird survey must be conducted by a biologist before any tree trimming or removal activities begin. Bridge/Box Culvert Work Bridge or box culvert work that may disturb nesting birds must be completed before birds begin to nest or after the young have fledged. No bridge or box culvert work may take place between April 1st and August 31st. If work activities are planned between these dates, nests must be removed (before nesting begins) and appropriate measures taken to assure no new nests are constructed. Failure to remove and keep nests from becoming established could postpone construction of the project.	

continued

Table 2-2 (cont.) - Summary of Mitigation and Commitments for the Preferred Alternative

Category	Mitigation Measures and Commitments	Date Completed
Wildlife and Aquatic Resources (continued)	Clearing/Grubbing Activities Clearing and grubbing of vegetation that may disturb ground nesting birds must be completed before birds begin to nest or after the young have fledged. If work activities are planned between April 1st and August 31st, vegetation must be removed and/or trimmed to a height of six (6) inches or less prior to April 1st. Once vegetation has been removed and/or trimmed, appropriate measures (i.e. repeated mowing/trimming) must be implemented to ensure vegetation does not grow more than six (6) inches. Failure to maintain vegetation height of six (6) inches or less could provide habitat suitable for nesting birds that could postpone construction of the project. Birds of Prey For birds or prey that could potentially nest near the project site, please refer to the Colorado Divisions of Wildlife's "Recommended Buffer Zones and Seasonal Restrictions for Colorado Raptors" guidelines, available at Colorado Division of Wildlife district offices. • Work activities, including the movement and placement of vehicles, shall not disturb black-tailed prairie dog colonies. If any sites are encountered, CDOT Region 4 Environmental Unit shall be notified so that all applicable clearances and permits may be obtained, including following CDOT prairie dog policy. • Although no Burrowing owls were observed in or near the study area, they are a state threatened species and are protected under MBTA. No human encroachment or disturbance within 75 yards of a nest site shall occur from April 1 to July 31. If project activities are scheduled to take place between March 1 and October 31, a burrowing owl survey must be completed before construction activities begin. If owls are identified on or adjacent to the project, CDOT Region 4 Environmental Unit shall be notified immediately.	
Threatened, Endangered or Sensitive Species	Mitigation is not necessary since there will be no impacts.	
Water Resources and Water Quality	For the high groundwater in the proximity of the railroad overpass, the design will accommodate this groundwater and direct it to the storm drainage system.	

continued

Table 2-2 (cont.) - Summary of Mitigation and Commitments for the Preferred Alternative

Category	Mitigation Measures and Commitments	Date Completed
Water Resources and Water Quality (continued)	This project commits to following CDOT's Erosion Control and Stormwater Quality Guide, sections 107.25 & 208 of the specifications for the Standard Specifications for Road and Bridge Construction and the Stormwater Management Plan. CDOT follows The Municipal Separate Storm Sewer System (MS4) requirements for water quality. These requirements will be followed on this project by the process outlined in Appendix I of the CDOT Drainage Design Manual. A Stormwater Management Plan (SWMP) will be completed during final design. It will address specific methods of reducing pollutants in stormwater runoff during construction. Stormwater BMPs during construction would consist of five major elements: 1. Implementation of BMPs for erosion control. These include, but are not limited to, phased seeding with mulch and tackifier, the use of erosion control blankets, the use of embankment protectors, the use of berm diversions or check dams, and outlet protection for storm sewer pipes. 2. Implementation of BMPs for sediment control. These include, but are not limited to, erosion bales or logs, silt fence, storm drain inlet and outlet protection, sediment traps, concrete washout and saw water containment basins, and stabilized construction entrances. 3. Implementation of BMPs for materials handling and spill prevention. These include, but are not limited to, stockpile management, material management, material use, and spill prevention and control. 4. Implementation of BMPs for waste management. These include, but are not limited to, concrete, hazardous, and contaminated waste management to ensure that solid or liquid wastes are not carried off the site by stormwater. 5. Implementation of BMPs for pollution prevention. These include treatment during dewatering and paving operations. It also includes the use of street sweeping and temporary waterway crossings. Permanent BMPs will be designed to protect stormwater quality and reduce pollutant discharges after construction is complete. The permanent BMPs are developed with the intention of mitigating the potential impacts typical of a roadway corridor. These can include petroleum or other vehicle fluids, hazardous spills, sand or other snow melting chemicals, and litter. General BMPs for this project will include the vegetation of all disturbed areas with erosion control blankets on slopes 3:1 or steeper. In addition to maintaining BMPs installed on the project, maintenance activities after construction will include consistent roadway sweeping and removal of sediment from storm inlets and basins.	

continued

Table 2-2 (cont.) - Summary of Mitigation and Commitments for the Preferred Alternative

Category	Mitigation Measures and Commitments	Date Completed
Water Resources and Water Quality (continued)	The EA evaluated a wide range of Best Management Practices (BMPs) for the use on SH7. During final design, a determination will be made of exact methods and locations of stormwater management during construction and will be outlined in the SWMP.	
Wild and Scenic Rivers	No mitigation is necessary.	
Floodplains	Since the improvements within the floodplain would not cause a rise in the floodplain, no mitigation measures are required for floodplains. A floodplain development permit from Boulder County would be required since work is taking place in the floodplain. This permit would be obtained during the final design of the project.	
Geology	The final design stages of the project will include a detailed geotechnical and pavement design to provide structural integrity of the roadway for the geological conditions. Bridge foundations, retaining walls and culvert structures will be designed based on specific geologic conditions. Deep foundations will be considered based upon the presence of potentially swelling or collapsible soils. Some locations east of Legion Park where sandstone and alluvial sands are present may allow structures founded on spread footings. The improvements will be designed to meet the seismic requirements for the area. Therefore, seismic events typical of the region will not affect the project.	
Historic Preservation	Agreement among the SHPO, ACHP, FHWA, and the Certified Local Government, represented by the Boulder Landmarks Preservation Board, has been reached through the Section 106 process of the National Historic Preservation Act on measures to minimize harm. Those measures are incorporated into the alternatives designs. A Memorandum of Agreement has been prepared and signed. No mitigation for paleontological resources has been recommended for the alternatives. However, if these resources are uncovered during construction, the CDOT Paleontologist will be notified immediately. In the event that archeological resources are exposed during the construction process, all activity would be immediately suspended in the area of discovery. The CDOT Staff Archeologist would be notified in order for the cultural materials to be properly evaluated for National Register of Historic Places (NRHP) significance. CDOT shall ensure that the Cottonwood Ditch and BNSF Railroad are documented in accordance with the guidance for Level II documentation found in OAHP Form #1595, *Historical Resource Documentation: Standards for Level I, II, III Documentation*. For the BNSF Railroad, the use of vertical bridge abutments will be employed to minimize the length of the new overpass bridge. The contractor's work area around the railroad will be limited to only the area that is directly impacted.	

continued

Table 2-2 (cont.) - Summary of Mitigation and Commitments for the Preferred Alternative

Category	Mitigation Measures and Commitments	Date Completed
Historic Preservation (continued)	The new Cottonwood Ditch siphon will be designed to be as short as possible. The new siphon will include reconstructed wingwalls, headwalls and short transition sections to the existing ditch. Retaining walls will be constructed along SH 7 which will minimize the length of the siphon. The rebuilt section of the ditch will be designed to carry no less than the minimum flow requirements as determined by the ditch owner. Construction will occur at such times as the ditch is not in use. If this is not possible, the hydraulic integrity of the ditch will be maintained through the use of temporary systems. The contractor's work area around the ditch will be limited to only the area that is directly impacted.	
Hazardous Waste	During construction, CDOT utilizes its Environmental Health and Safety Management Specification (250 Specification) on projects to address issues related to the transportation, handling, monitoring, and disposal of any hazardous or solid waste materials encountered during construction, including contaminated soils, lead-based paint, and other toxic substances. If deemed necessary, a materials management plan would be prepared regarding the removal and disposal of contaminated soils. A Health and Safety Plan would also be developed to protect workers during construction. During final design when right-of-way and access requirements are further developed, CDOT will obtain the status of any suspect sites in the study area and will take the necessary precautions during future construction activities. When contaminated properties are encountered, either during or prior to construction, CDOT coordinates with the affected property owners through the right-of-way process, as well as with the appropriate state, local and federal authorities. Prior to a construction project, CDOT ascertains the status of adjacent properties and updates all available information at that time. Construction contractors are required to comply with Section 250, Environmental Health and Safety Management (CDOT Standard Specifications), when applicable, during construction. Specific mitigation is unknown at this time, but will be incorporated into final design plans when more detailed design information becomes available. At the Historic Gas Station, further testing of soils and groundwater on site and off site may be necessary. At the time of final design, the necessary right-of-way acquisition and relocation processes would be initiated in accordance with the CDOT right-of-way manual, FHWA, and other federal guidance procedures involving acquisition and relocation. CDOT procedures concerning hazardous waste issues would also be followed to determine necessary project mitigation requirements.	

continued

Table 2-2 (cont.) - Summary of Mitigation and Commitments for the Preferred Alternative

Category	Mitigation Measures and Commitments	Date Completed
Open Space/Recreation	The land where the eastern leg of the access into Legion Park is removed will be revegetated with native plant seed mixtures. No other mitigation measures are necessary for any of the parks or recreation facilities. The following BMPs will mitigate the build alternatives impacts: • Minimize the amount of disturbance of grading to 10 feet beyond the toe of slope. Project will follow CDOT standard specifications for amount of time that disturbed areas are allowed to be non-vegetated. • Develop and implement a noxious weed management plan. This will be completed during final design. • Salvage weed free topsoil for use in seeding. • Implement temporary and permanent erosion control measures to limit erosion and soil loss. • Reseed all disturbed locations except rock cuts with native plant seed mixtures. • Develop acceptable revegetation plan with the CDOT Landscape Architect, City of Boulder, and Boulder County. Removed trees and shrubs in the Boulder Creek riparian zone will be replaced on a 1:1 basis as required by SB 40.	
Visual Quality	Visual mitigation measures would include: • Choose wall colors and textures that will fit into the landscape visually and aesthetically by complimenting the surrounding area to reduce visual impact to the community. • Revegetation of disturbed areas in a manner that is consistent with adjacent landscape features. Use native and indigenous species for revegetation. • Where feasible, slope modifications will be completed in a manner that maintains or accentuates foreground views. Techniques could include creating pockets for native vegetation, undulating finished grades, and application of erosion control measures.	
Farmland	Any crops that are damaged during construction will be compensated by CDOT. The total points on the Farmland Conversion Rating form (AD-1006) for impacts are less than 260. Therefore, under the provisions of 7 CFR 658.4(c), no mitigation is required by the NRCS.	

continued

Table 2-2 (cont.) - Summary of Mitigation and Commitments for the Preferred Alternative

Category	Mitigation Measures and Commitments	Date Completed
Energy/Utilities	All utility locations will be identified and field verified prior to construction. Exposed utilities will be protected during construction activities. If utility service must be interrupted, temporary service will be provided as needed and maintained during the disruption. It is expected that some of the utilities will be in conflict with the proposed improvements and require reset and/or relocation work to a new permanent location. Impacted utility owners will be contacted during the early stages of the design process to closely coordinate this work and design. An effort will be made to minimize impacting the existing ditches and drainage structures through efficient design and coordination with the owners. The exact location of personal wells and septic systems adjacent to the proposed action will be determined during the design process and noted on the plans, if applicable. Protection and/or relocation of the wells and septic systems might be needed and will be mitigated during the right-of-way acquisition process. Coordination with the affected residents, CDOT, Boulder County, and the City of Boulder will be necessary to minimize conflicts. Adequate public notice will be given for proposed work activities. Coordination with impacted residents will be maintained throughout the construction process. If it is determined that the improvements will impact the existing system, the owner will be notified in advance of roadway work for coordination efforts to protect or relocate the system. Design modifications, such as retaining wall installations instead of embankment or excavation roadway slopes, may be preferred.	
Construction	Air Quality To mitigate impacts to air quality during construction, water as a dust palliative will be used. Stockpile areas can be stabilized through covering or the application of water. Haul trucks should be covered during transport. Finally, to reduce emissions, the contractor can be encouraged to retrofit equipment to reduce pollution, to use clean burning fuels and to properly maintain construction equipment. Noise To limit noise impacts to residents, construction activities will primarily be conducted during daytime work hours. CDOT may allow night work for special circumstances such as activities requiring road closures or where major disruptions to traffic will occur. Also, the contractor shall be encouraged to phase as much of the noise inducing activities together to help limit the duration of higher noise levels. Finally, the contractor shall be required to use mufflers or noise blankets on equipment and quiet generators.	

continued

Table 2-2 (cont.) - Summary of Mitigation and Commitments for the Preferred Alternative

Category	Mitigation Measures and Commitments	Date Completed
Construction (continued)	Water Quality Impacts to stormwater quality can be mitigated during construction. This project commits to following CDOT's Erosion Control and Stormwater Quality Guide and sections 107.25 and 208 of the Standard Specifications for Road and Bridge Construction. An erosion control plan will be developed during final design and followed during construction. Inspections of erosion control and water quality devices should occur during construction. The following are stormwater quality methods to be implemented during construction: • Implementation of BMPs for erosion control. These include but are not limited to seeding, the use of erosion control blankets, the use of embankment protectors, and outlet protection for storm sewer pipes. • Implementation of BMPs for sediment control. These include but are not limited to erosion bales, silt fence, storm drain inlet protection, sediment traps, and stabilized construction entrances. • Implementation of BMPs for materials handling and spill prevention. These include but are not limited to stockpile management, material management, material use, and spill prevention and control. • Implementation of BMPs for waste management. These include but are not limited to concrete, hazardous, and contaminated waste management. • Implementation of BMPs for pollution prevention. These include treatment during dewatering and paving operations. It also includes the use of street sweeping and temporary waterway crossings. Visual Visual impacts will be minimized during construction by limiting stockpiles and equipment storage to designated areas. Any traffic control devices can be removed promptly after use. Section 4(f) Mitigation for temporary impacts to the Legion Park 4(f) property will include seeding with a native seed mix approved by Boulder County.	

continued

Table 2-2 (cont.) - Summary of Mitigation and Commitments for the Preferred Alternative

Category	Mitigation Measures and Commitments	Date Completed
Construction (continued)	Sustainability Sustainable practices incorporated into the project planning, construction, and maintenance can minimize resource impacts. As part of its environmental ethic and policy, CDOT encourages its staff, consultants, and contractors to identify and utilize opportunities and methods to reduce the impact of projects and programs on environmental resources through innovative programs and by providing flexibility in project planning and construction for the use of sustainable processes and materials. This may include such concepts as: natural resource conservation, waste minimization, materials reuse, minimal use of native virgin materials, conservation and efficient use of water and energy, air pollution prevention, preference for "green" purchasing including recycled, minimally processed and packaged items, and preference for locally-available resources. CDOT encourages the identification and incorporation of proven alternative materials that are as long or longer-lasting, and which require the same or less amount of maintenance, as long as such materials do not impact CDOT's ability to meet its primary obligations for providing a safe and efficient transportation system.	
Cumulative	The following measures could reduce the proposed action's portion of the cumulative impacts to the resources of concern: • Prior to construction, an NPDES Permit would be obtained from the CDPHE, in accordance with Section 402 of the Clean Water Act. Under the NPDES permit stipulations, BMPs would be detailed in the project plans for implementation in the field. • Use of Stormwater BMPs during construction. These are detailed in Section 3.13.5, Water Resources Mitigation, of the EA and would comply with local ordinances. • All CDOT revegetation BMPs and guidelines will be followed to ensure adequate revegetation of the study area. These are detailed in Section 3.10.3, Vegetation and Noxious Weed Mitigation of the EA. • Adherence to the conditions outlined by CDOT ensure compliance with the Migratory bird Treaty Act. These provisions are detailed in Section 3.11.4, Wildlife and Aquatic Resources Mitigation of the EA. • Implementation of BMPs from the *Erosion Control and Storm Water Quality Guide*, CDOT, 2002 will reduce the potential for impacts to wetlands and riparian areas. These are detailed in Section 3.9.4, Wetland Impact Minimization and Mitigation Measures of the EA.	

Chapter 3.0: EA Comments and Responses

3.1 Agency Comments and Responses

Appendix C includes the three e-mails and the five letters received from various agencies. Comments and responses are summarized below.

Document A-1. Email from Douglas Short, Public Works Director for the City of Lafayette, expressed his support for a four-lane roadway the entire length of the project from Cherryvale to 75th.

Response. The four-lane roadway the entire length of the project was evaluated as a short-listed alternative. Both the four-lane short-listed alternative and the Preferred Alternative address the purpose and need although the Preferred Alternative is also consistent with this prior local planning. A qualitative comparative evaluation was done as part of the EA and the following benefits of the Preferred Alternative compared to the short-listed four-lane alternative were identified: less right-of-way required, less vegetation impact to Legion Park and Boulder Open Space, less water quality impact, less grading impact to Legion Park, less visual impact, less Prime Farmland impact, lower construction cost, and higher local agency support based on consistency with prior local planning.

Document A-2. Email from Jim Blankenship, consultant for Boulder Valley School District (BVSD), requested contact information for the surveyors who prepared the base maps for CDOT for help with surveying the BVSD site.

Response. Surveyor information was provided to Mr. Blankenship.

Document A-3. Letter from Tracy Winfree, City of Boulder Director of Public Works and George Gerstle, Boulder County Transportation Director

A3-1. Boulder and Boulder County support a 45 mph design speed. They would like CDOT to use narrower lanes, recommending 11 foot travel lanes and 10 foot turn lanes. They also question the need for a 16 foot center turn lane.

Response. The 45 mph design speed will be used for the design of the project improvements. The Preferred Alternative was developed with a 45 mph design speed for the entire corridor with the exception of the segment over Legion Park hill. Utilizing the 45 mph design speed over Legion Park hill will result in a reduced impact due to a reduction in the amount of cut required. The change in design speed is not anticipated to affect traffic operations. The lane widths shown in the Preferred Alternative are consistent with CDOT design criteria and provide for

efficient and safe traffic operations. Changes to the typical roadway section, including lane width, will be considered during final design.

A3-2. Boulder and Boulder County expressed interest in constructing a narrower typical section with a defined trigger that would precipitate restriping of the lane usage. Documentation and approvals would need to be developed.

Response. CDOT, Boulder and Boulder County have had several meetings regarding this topic and coordination is ongoing with regard to the phasing of improvements.

A3-3. Boulder and Boulder County do not advocate adding queue jump lanes to the 5-lane roadway typical section.

Response. The queue jump lanes also serve as warranted auxiliary turn lanes to allow traffic to move from the through lanes when making a turning maneuver. Buses are allowed to utilize these auxiliary lanes as queue jump lanes to continue through the intersection rather than turning. If desirable by Boulder and Boulder County, the auxiliary lanes can be constructed as turn lanes only and can be signed as queue jump lanes in the future.

A3-4. Boulder and Boulder County would like CDOT to include auxiliary lanes only where they are warranted.

Response. Right turn acceleration and deceleration lanes are shown where they are anticipated to be needed based upon traffic operations. Left turn lanes are recommended at most intersections along the corridor and thus a two way left turn lanes has been incorporated into the typical section. The inclusion of these left turn lanes improves the operation of the traffic along the corridor and also improves safety by moving these turning vehicles from the through lanes of traffic. The close proximity of intersections and business driveway accesses along with the required lengths and tapers for these left-turn lanes, based upon design criteria, do not leave enough distance between intersections to transition to a reduced roadway width.

A3-5. Boulder and Boulder County would like CDOT to evaluate the appropriate location to begin the third westbound lane west of 63rd Street.

Response. The westbound deceleration lane at 63rd aligns with the westbound acceleration lane west of the intersection. It was anticipated that these auxiliary lanes would also serve as a queue jump lane. Considering that Boulder and Boulder County do not advocate adding queue jump lanes to the 5-lane typical section, the need for the westbound acceleration lane will be further evaluated during the

design process and should it be determined that it is not warranted, the transition to the third westbound lane will be shifted to the west.

A3-6. Consider detaching the sidewalk and multi-use path.

Response. The Environmental Assessment cleared the Preferred Alternative shown in the EA document. Consideration of detached sidewalks and multi-use trails would result in environmental impacts which are greater than those analyzed and documented in the EA. These design variations will be considered and evaluated further by CDOT, with additional input from Boulder and Boulder County, during final design. Should the final design result in impacts that differ from those identified in the EA, additional environmental analysis and documentation would be needed.

A3-7. Contingent upon agreement with the above stated comments, Boulder and Boulder County would like to pursue an agreement with DRCOG regarding utilizing City of Boulder federal funds for the construction of this project.

Response. Comment noted.

Document A-4. Letter from Sandy Goldman, Vice President of Operations, Naropa University

A4-1. The Naropa University campus, an important institution to the City and County of Boulder, will be affected by the construction and completed project, yet gets little mention or attention in the assessment.

Response. Naropa University campus will be impacted by the construction of a water quality pond. Some existing vegetation, including trees, will need to be removed. CDOT is designing the roadway and once more details are available, CDOT will contact Naropa University to discuss details of the impacts. However, no additional ROW impacts to Naropa University are anticipated outside those described in the Environmental Assessment.

A4-2. Naropa University should be added to Table 3-27 in regard to "Foreseeable Future Development".

Response. This table comes from a list of projects seen as reasonably foreseeable by the City of Boulder and Boulder County. After checking with Boulder planners again, there are no developments in the permitting process for 6287 Arapahoe Road. No change should be made to the table at this point.

A4-3. The EA states that 22,400 square feet of our property falls into the "area of acquisition". Representing about 10% of our campus, this is concerning.

Response. The area currently being considered for a water quality pond is in undeveloped native grass areas adjacent to 63rd Street and Arapahoe Road. If constructed as a water quality pond, this area will remain undeveloped and be seeded with native grass. See response to comment A4-1.

A4-4. Due to the alleged historic gas station, the widening of Arapahoe Road, east and west, will dip south near the intersection of 63rd Street. Not given any attention is that similarly, due to the location of the gas station, 63rd Street heading north from Arapahoe is projected to be moved extensively to the west. The plan, from all indications, intrudes largely on our eastern border. 63rd Street will then encroach on our classroom building, raising noise, carbon monoxide and visual concerns.

Response. 63rd Street was widened several years ago to accommodate the new railroad crossing north of Arapahoe Road (SH 7). The proposed improvements at the Arapahoe Road / 63rd Street intersection will tie directly into these improvements and 63rd Street will not be reconstructed closer to Naropa University. The noise and carbon monoxide modeling that was conducted did not result in any impacts at this location. In fact, the air quality, including carbon monoxide emissions, will improve with the Preferred Alternative because of a reduction in congestion. The visual impacts associated with the improvements at this intersection are not considered significant since they will be at-grade. SH 7 (which carries more traffic than 63rd) will be moved further away from the Naropa campus, and the proximity of 63rd Street will remain unchanged.

A4-5. Classrooms, studios, windows and many roof top units of our heating and air conditioning system run parallel to 63rd street.

Response. See response to comment A4-4.

A4-6. The moving of 63rd Street to the west will also likely require the destruction of trees along our eastern border.

Response. Some existing vegetation, including trees, will need to be removed. All disturbed areas will be revegetated.

A4-7. The widening of 63rd to the west might intrude on existing parking spaces that cannot be lost.

Response. The conceptual plan reflected in the EA does not show any loss of parking spaces for Naropa University.

A4-8. It is unlikely the university will agree to an increase in the right-of-way associated with the purchase of our land along the eastern border of our property.

Response. The comment has been noted. CDOT will coordinate directly with Naropa University during the design process regarding right-of-way needs.

A4-9. The university was not used as a site for noise testing during the EA and thus, if appropriate, has not been considered for a noise abatement structure. Obtrusive noise is a concern to a classroom environment. "According to CDOT guidelines, the 'feasibility and reasonableness' of mitigation needs to be considered for all locations that are projected to experience noise impacts."

Response. When existing noise measurements were taken in the area, none of them exceeded Federal or state criteria, including measurements that are closer to the roadways than the structures on the Naropa campus. In addition, the classroom building closest to 63rd Street was modeled as a sensitive receptor (Model ID NW 7) and was found that there would be no noise impacts with the Preferred Alternative. In fact, noise at this location would increase by only 0.7 decibels in the PM peak hour and 1.7 decibels in the AM peak hour by the year 2030 compared to existing modeled conditions. This increase is inaudible to the human ear. Therefore, no mitigation measures were considered for this location.

A4-10. Numerous trees parallel Arapahoe Road on Naropa's southern border. One of especial interest in an old, very large cottonwood tree, which sits close to the intersection to 63rd street. It is not clear from the engineer's drawings if this and other trees are endangered by the project. Considering the shift in 63rd Street to the west, curb and gutter work, the 12-foot wide multi-use sidewalk, the water quality pond, the widening of 63rd Street, the westbound acceleration lane servicing 63rd street and required RTD bus stop with its associated cement pad, some or all of these trees are likely in jeopardy. Naropa University frowns upon the possible destruction of these trees.

Response. The large cottonwood tree on the north side of SH 7 just west of the 63rd Street intersection is located adjacent to a proposed storm water quality pond and storm sewer outfall. This proposed water quality pond and storm sewer system will be designed and constructed with the intent to minimize or avoid impacts to this cottonwood tree. In addition, other existing trees, shrubs and vegetation will be avoided to the maximum extent possible. See response to comment A4-1.

A4-11. The size and location of the water detention pond along our borders is concerning but not overwhelming. Specifics of this proposed water quality structure need to be examined and brought to acceptable university understanding. We would like to be certain that details related to the location, size, maintenance of and impact on pedestrian circulation are addressed.

Response. Design details for the water quality pond are being developed. Once CDOT has more details, Naropa University will be contacted.

A4-12. The EA states, "Because there are very few residential land uses in the study area, adverse impacts on persons of advanced age or with disabilities are not anticipated". In fact, Naropa University does have among its ranks individuals in both above categories and attention does need to be brought forth in attending to their needs.

Response. The project will improve roadway and pedestrian conditions in the project area. Provisions of the Americans with Disabilities Act will be incorporated into the design.

Document A-5. Letter from James Blankenship, JLB Engineering Consultants, on behalf of Boulder Valley School District (BVSD)

A5-1. BVSD expressed concern about the effect construction will have on access to their site and school bus operations. BVSD requested that they be notified a minimum of 10 working days in advance with respect to any change to signals, traffic lane configurations and traffic flow.

Response. CDOT will coordinate with BVSD before construction begins.

A5-2. BVSD expressed concern that the removal of trees may impact the use and performance of the facility parking lot.

Response. CDOT will coordinate with BVSD during construction to ensure there are no impacts to the parking lot during tree removal.

A5-3. Due to the heavy bus traffic, BVSD requested that they be involved with the review of the design of the improvements to ensure that the intersection geometry and signalization appropriately address the site conditions.

Response. The comment has been noted. CDOT will coordinate directly with BVSD during the design process.

A5-4. BVSD has fiber optic communication utility lines in the project area and is concerned about impacts to this utility.

Response. The communication lines will be identified and field verified during design. These communication lines will be protected during construction. Should service need to be interrupted during construction, due diligence will be taken to ensure that utility systems stay in service and that any required outages are scheduled with the BVSD.

Document A-6. Email from Fred Sandal, Long Range Transportation Planning Coordinator, Denver Regional Council of Governments

A6-1. The document references the 2030 Metro Vision Regional Transportation Plan (MVRTP) even though the 2035 MVRTP was adopted in December 2007.

Response. The project has been around long enough that the 2020, 2025, and 2030 have previously been used. In each case, the forecast has been near 22,000 to 23,000 vehicles per day (vpd), which is a realistic daily capacity for a two-lane highway. Although we did not look at the 2035 model, it is assumed that 2035 numbers are in the similar range as well.

A6-2. The document should mention that the project is included in the Fiscally Constrained 2035 Regional Transportation Plan.

Response. The project is consistent with and included on the 2035 Fiscally Constrained Plan for the Denver region. This has been stated on page 11 of this document.

A6-3. There are references to "forecasting from DRCOG." The document should be consistent with previous pages that refer to "using" the DRCOG model.

Response. Traffic forecasting for 2030 was done using the DRCOG regional transportation plan sketch plan model. This has been clarified on page 11 of this document.

A6-4. The statements about SH 7 being at capacity based on 2030 forecasts should be clarified.

Response. Using very general planning numbers and examples of busy two-lane highways from around the state, a reasonable daily capacity for a two-lane highway is in the range of 20,000 to 25,000. It appears that the traffic model

approaches those recognized peak hour capacities, and adds traffic from 10 distinct periods throughout the day, to come up with a similar answer.

A6-5. Data to support statements about safety and accident rates of two-lane vs. four-lane facilities should be included in the document.

Response. This data is in a separate document in the project file. This type of detail is not normally included in EA text. CDOT will provide this data, upon request.

Document A-7. Letter from Willie R. Taylor, Director – Office of Environmental Policy and Compliance, United States Department of the Interior

A7-1. Recommended adhering to the Colorado Division of Wildlife's 2002 "Recommended Buffer Zones and Seasonal Restrictions for Colorado Raptors" to avoid and minimize the likelihood of violating the Bald and Golden Eagle Protection Act or the Migratory Bird Treaty Act.

Response. The Colorado Division of Wildlife provisions will be included in the project mitigation as indicated in Section 1.3 - Clarifications to the EA.

A7-2. Department of the Interior stated concurrence that there is no feasible or prudent alternative to the Preferred Alternative identified in the EA and that all measures have been take to minimize harm to the resources.

Response. The comment has been noted.

Document A-8. Letter from Larry Svoboda, Director, NEPA Program, Office of Ecosystems Protection and Remediation, United States Environmental Protection Agency

A8-1. EPA has reviewed the document and their review did no raise any issues or concerns and they do not plan to submit comments.

Response. The document has been noted.

3.2 Public Comments and Responses

One email (E-1) was received during the document review period and eleven comment sheets (F-1 to F-11) were returned at the close of the public hearing or by mail during the comment period. Appendix D includes the complete text of these emails and comments sheets. Comments and responses are summarized below.

E-1. Rose Mary Highman appreciates the effort in preserving the rural nature of the roadway by using a 45 mph speed, along with the addition of the bike and multi-use lanes. Ms. Highman wants CDOT to consider surfaces that are not conducive to graffiti.

Response. The comment has been noted. Anti-graffiti surface treatments on structures will be considered.

F-1. Lauren Facey-Muench is pleased that left-turn lanes are being added at the Westview Drive intersection. Ms. Facey–Muench indicated that if the funding for the project doesn't become available, she would like safety improvements to be made to the intersection.

Response. The comment has been noted.

F-2. Bill Roettker does not agree that a center left-turn lane is justified for the entire project length and wants to minimize the paved surface to minimize the environmental and right-of-way impacts. Mr. Roettker wants the overhead utility lines to be placed underground. Mr. Roettker believes the maximum design speed should be 45 mph.

Response. Left-turn lanes are recommended at most intersections along the corridor. The inclusion of these left turn lanes improves the operation of the traffic along the corridor and also improves safety by moving these turning vehicles from the through lanes of traffic. The close proximity of intersections and business driveway accesses along with the required lengths and tapers for these left-turn lanes, based upon design criteria, do not leave enough distance between intersections to transition to a reduced roadway width between intersections. Xcel will make the decision about placing relocated power lines underground. Both the 75th Street intersection reconstruction and the western portion of the existing roadway have a speed limit of 45 mph. Therefore, CDOT has decided to utilize a 45 mph design speed for the entire project.

F-3. Bill Boothby with Colorado Tennis Facilities is concerned that the proposed roadway will result in a loss of parking spaces. The property is currently being considered for annexation into the City of Boulder and the loss of parking spaces would negatively affect the configuration of the proposed tennis facilities and the potential revenues.

Response. This site is currently being designed to be used as a proposed tennis complex. The Preferred Alternative reflects the improvements extending to the edge of the existing parking lot of the previous (now out of business) lumber yard development. Actual site design configuration and requirements for the proposed tennis complex, including auxiliary lane needs, setbacks, parking configurations and drainage requirements are in the early stages of development. CDOT has begun and

will continue to coordinate with this development to address site specific design issues during the design process to mitigate impacts to proposed parking facilities.

F-4. James Hoffmeister from Park Lake Subdivision states that traffic has greatly increased in the last 30 years and expresses concern that the proposed three-lane section will not make a significant difference.

Response. The purpose and need identified in the EA had three elements: reduce congestion, enhance roadway deficiencies and safety and to improve mobility for multiple modes of transportation. In addition, this corridor has previously been studied by local governmental agencies, led by Boulder County, and proposed improvements have been documented from this previous planning work.

The Preferred Alternative addresses the purpose and need and is also consistent with this prior local planning. Of particular concern to Mr. Hoffmeister and others, is the inclusion of a single through lane in each direction along the project in the vicinity of the hill area adjacent to Legion Park. The Preferred Alternative along this segment includes widened shoulders, reduced grades, improved sight distance, a continuous left turn auxiliary lane, the addition of warranted right turn auxiliary lanes, all of which result in improvements to traffic flow and safety. In addition, an analysis of travel times indicated that there is little difference between the Preferred Alternative laneage and a two through lane (in each direction) typical section.

F-5. Albert Chapman with Boulder Door and Millwork Company does not want a raised median in front of his property (6655 Arapahoe Road), as it would restrict access to the property. Mr. Chapman also states that the historic gas station has a stone façade beneath the current wood board exterior.

Response. The median, as shown in the Preferred Alternative, will limit access to Boulder Door and Millworks to a right-in right-out movement in the westbound direction only. This configuration is intended to provide access control in the vicinity of the BVSD signalized intersection where there is insufficient space to provide for safe operations of left turning vehicles. The final median locations will be refined and access concerns will be discussed with the property owner during the design process.

F-6. Jason Sweeney would prefer to see the two eastbound through lanes continue to the crest of Legion Hill to prevent backups as vehicles slow prior to climbing the hill and to prevent vehicles from spinning out at Westview during inclement weather. Also, consider including both an eastbound right turn lane and a bike lane at the Westview Drive intersection.

Response. A right-turn deceleration lane for eastbound vehicles accessing Westview Drive is included in the Preferred Alternative based upon a warrant evaluation conducted as part of the EA. This lane will transition in usage from a second through lane in the eastbound direction at the BVSD signalized intersection to an auxiliary lane at the Westview Drive intersection. Signage and pavement markings will alert drivers of this transition so that through traffic can merge into the single through lane continuing over the hill. The transition location as shown in the Preferred Alternative limits further impact to City of Boulder Open Space. Warrants for auxiliary lanes, including an eastbound acceleration lane at Westview Drive, will be confirmed during the design process. Improved geometry is also being incorporated into the project to reduce vehicle operation problems during inclement weather. The Preferred Alternative includes a bicycle lane along the entire length of SH 7 in both directions. East of Westview Drive, the bicycle lanes also serve as a roadway shoulder.

F-7. Marcia Hoffmeister wants a four-lane section to be built from Cherryvale to 75th Street. Ms. Hoffmeister expresses concern about the safety of Arapahoe Road for bicycles between 75th and 95th Streets and states that access onto Arapahoe in this segment is nearly impossible during rush hours.

Response. See response to comment F-4. The project limits do not include the highway segment to the east of 75th Street. Within the project limits, bicycle lanes will be provided in the roadway template in both directions and a multi-use path will be provided along the north side of SH 7.

F-8. Carol Saunders is concerned that the reconstructed railroad bridge does not account for a future four-lane section and the multi-use path. Ms. Saunders wants access to the multi-use path across from Westview Drive, prefers roundabouts to signals at the 63rd Street, BVSD, and 75th Street intersections, would like more trees planted and would like the overhead lines buried.

Response. The multi-use path extends the length of the project and is included in the Preferred Alternative. The reconstructed railroad bridge accommodates this multi-use path. Since the new bridge structures will be built for a longer projected design life than the roadway improvements, which is typically 20 to 30 years, the new bridge structures will allow for a potential four-lane roadway, although an expansion of the roadway is not anticipated at this time. Access points for the multi-use path will be addressed during the upcoming design process. A roundabout was considered during the design of the recently completed improvements at the 75th Street intersection. Roundabouts will be considered during the design process for the major intersections in the project. All disturbed areas shall be revegetated and should trees and shrubs require removal, an acceptable revegetation plan will be developed with the CDOT

Landscape Architect, the City of Boulder and Boulder County. Xcel Energy will make the decision regarding burying existing overhead lines.

F-9. Tom Conway is concerned that the proposed access to both 7183 and 7191 Arapahoe Road does not provide for semitrailers and U-Haul trucks. The proposed roadway also requires acquisition of 7165 Arapahoe, resulting in loss of both revenue and customer/employee parking. The proposed roadway also requires the relocation of an existing storm water detention pond and existing septic tanks and leach field.

Response. The Preferred Alternative provides an access point along SH 7 to serve this property. Access to this property will be designed to accommodate the appropriate design vehicle, including U-Haul trucks. The building and parking at 7165 Arapahoe will be directly impacted by the construction as shown in the Preferred Alternative. Property acquisition will follow the procedures outlined in the CDOT Right-of-Way Manual. Based upon conceptual design information, the storm water detention pond, septic tank and leach field will be impacted by the project. The full extent of impacts will be determined during the design projects and mitigation will be provided. Mitigation may include reconfiguring or replacing the storm water detention pond, the septic tank and the leach field. CDOT will coordinate directly with Mr. Conway to address his concerns during the design process.

F-10. An anonymous comment wants the structure on the northeast corner of Arapahoe and Valtec to be removed, as it blocks the line of sight for vehicles exiting Valtec and vehicles heading west on Arapahoe.

Response. This structure is shown as being removed in the EA.

F-11. Historic Boulder, Inc. stated thanks for aligning the project to avoid the historic gas station at 63rd Street.

Response. The comment has been noted.

3.3 Public Hearing Comments and Responses

Pre and Post-Hearing Comments

Six pre and post-hearing comments (T-1 to T-6) provided to the court reporter are included with responses. Comments are numbered to match the transcript summary found in Appendix B. These comments are included in their entirety in Appendix B.

T-1. Anonymous commenter wants both eastbound through lanes to be extended past Westview Drive, over Legion Hill.

Response. See response to comment F-4.

T-2. The owner of **Boulder Door and Millwork** at 6655 Arapahoe does not want a raised median in front of the driveway impeding left-turn access to the property.

Response. See response to comment F-5.

T-3. Marcia and Jim Hoffmeister in the Park Lane Subdivision expressed concern about the safety of bicyclists along Arapahoe Road between 75th and 95th.

Response. See response to comment F-7.

T-4. Bruce Tenenbaum of 7279 Arapahoe expressed concern about the proposed retaining wall across from his property creating more noise.

Response. This will be kept in mind as the project team moves into final design. However, typically, to get an amphitheater effect, the noise would need to be enclosed. For example, another barrier would need to be in place parallel to the proposed retaining wall on the opposite side of the property. If it is reflective noise that is a concern, studies have shown that measuring a reflective increase in traffic noise has never increased over two decibels, which is inaudible to the human ear. Since it will not be traffic noise coming *from* the property, it depends upon the source of the noise as to how much reflection could occur. More than likely there will be no noticeable difference.

T-5. Jim Hoffmeister does not think a two-lane roadway can handle the future traffic and wonders about the cost benefit of this change.

Response. See response to comment F-4. Also, no formal benefit/cost study was conducted. A qualitative comparative evaluation was done as part of the EA and the following benefits of the Preferred Alternative compared to the short-listed four-lane alternative were identified: less right-of-way required, less vegetation impact to Legion Park and Boulder Open Space, less water quality impact, less grading impact to Legion Park, less visual impact, less Prime Farmland impact, lower construction cost, and higher local agency support based on consistency with prior local planning.

T-6. Joe Kent, owner of the property at 6551 Arapahoe, wants the existing trees planted as a sight barrier to be replaced. Also, semitrailers decelerating to access the property will block traffic, since a right-turn lane will not be provided.

Response. CDOT will compensate landowner during the right-of-way acquisition process if the impacted vegetation is on their private property. All disturbed areas shall be revegetated and should trees and shrubs require removal, an acceptable revegetation plan will be developed with the CDOT Landscape Architect, the City of Boulder and Boulder County. A deceleration lane for vehicles accessing this property from the east is not included in the Preferred Alternative based upon a warrant evaluation conducted as part of the EA. With the Preferred Alternative, turning vehicles will decelerate in the through lanes of traffic, resulting in the deceleration of vehicles traveling behind. Warrants for auxiliary lanes, including this westbound deceleration lane, will be confirmed during the design process

Hearing Public Comments

Comments (Q1 to Q12) and responses are summarized below. These comments are included in their entirety in the hearing transcript in Appendix B.

Q-1. Rosemary Highman requested that the overhead electric lines be buried during construction and asked for clarification about the cut depth of Legion Hill.

Response. Xcel will make the decision about placing relocated power lines underground. The Environmental Assessment evaluated the maximum impacts possible for the project, using a 55 mph design speed. The worst case scenario would be approximately 13 feet of cut at Legion Hill. However, using a slower design speed could reduce the cut considered in the Environmental Assessment. CDOT is currently considering using a 45 mph design speed for the improvements.

Q-2. Joe Kent asked about the purpose of alternating between a four-lane highway and a two-lane highway and expressed concern about traffic backing up on the two-lane section.

Response. See response to comment F-4.

Q-3. Jim Hoffmeister expressed concern that the existing roadway is already over capacity during peak hours and that the traffic numbers are not an accurate assessment of the current conditions.

Response. Although traffic peak hours will still occur, the traffic should flow better when the improvements are constructed, especially since the previous bottleneck at the 75th Street intersection has been corrected. Traffic was last counted in 2007. Also, see response to comment F-4.

Q-4. Bill Roettaer asked for the justification of providing a center turn lane along the entire length of the project.

Response. See response to comment F-2.

Q-5. Lorene Muench expressed concern about safety at the Westview Drive intersection and requested that CDOT consider improvements for a left-turn lane if funding is not available for this project.

Response. See response to comment F-1.

Q-6. Bob Condon does not think the two-lane roadway section proposed for the Preferred Alternative will sufficiently address the existing traffic volumes.

Response. See response to comment F-4.

Q-7. Tim Huddle expressed his opinion that a two-lane section over Legion Hill is not sufficient. Mr. Huddle also asked about the length of construction for the project.

Response. See response to comment F-4. The construction schedule for the project would most likely occur across two construction seasons, approximately 18 months. Construction is dependent upon funding availability but is currently anticipated to begin in 2010.

Q-8. Bruce Tenenbaum believes that the varying of the road between two lanes and four lanes will act to slow down traffic.

Response. The comment has been noted.

Q-9. Tom Conway has observed a decrease in accidents since the 75th Street intersection has been reconstructed. Mr. Conway asked if the new railroad bridge would accommodate a four-lane road.

Response. The comment has been noted. Since the new structure will be built for a 50-year plus life span, it will allow for a potential four-lane roadway, although an expansion of the roadway is not anticipated for the 30-year life span of the proposed roadway.

Q-10. Joe Sleeper asked what contingencies are in place to account for possible future increases in the cost of construction.

Response. The goal is to build what is shown in the Environmental Assessment as one project. If construction costs escalate beyond funding, decisions would be made at that time concerning any possible cutbacks on the project. These decisions cannot be made until the process has reached the final design stage.

Q-11. Bill Roettaer asked if the final design speed has been determined and if the speeds could be limited to a 45 mph maximum.

Response. The 75th Street intersection reconstruction had a 45 mph design speed, and the existing roadway to the west of the Boulder Valley School District property has a speed limit of 45 mph. Therefore, CDOT has decided to utilize a consistent 45 mph design speed for the project, rather than the 55 mph used for the Legion Park hill section in the development of the Preferred Alternative in the EA.

Q-12. Scott McLennon asked about how much additional traffic to expect from a possible park-n-Ride for FasTracks at 63rd and Arapahoe.

Response. Even though the park-n-Ride is not currently funded and it cannot be assumed that it will be built, a sensitivity analysis, with regard to traffic operations, was performed and included in the EA. The majority of the traffic utilizing the potential park-n-Ride is assumed to be originating from the west in the AM peak-hour and heading west in the PM peak-hour, opposite of current peak-hour flow directions. Based on these anticipated traffic patterns, it is assumed that the park-n-Ride would likely have minor impact to the overall traffic operations along SH 7 in the project area.

Chapter 4.0: Final Section 4(f) Evaluation

4.1 Section 4(f) – Department of Transportation Act of 1966

Section 4(f) of the United States Department of Transportation Act of 1966, as amended, and codified in 49 USC § 303, declares that "[i]t is the policy of the United States Government that special effort should be made to preserve the natural beauty of the countryside and public park and recreation lands, wildlife and waterfowl refuges, and historic sites." Congress amended Section 4(f) in 2005 when it enacted the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy For Users (Public Law 109-59, enacted August 10, 2005) (SAFETEA-LU). These changes have now been codified in 23 CFR Section 774.3. which became effective on April 11, 2008.

FHWA Regulations

Section 4(f) specifies that:

"The Administration may not approve the use, as defined in §774.17, of Section 4(f) property unless a determination is made under paragraph (a) or (b) of this section.

(a) The Administration determines that:

(1) There is no feasible and prudent avoidance alternative, as defined in §774.17, to the use of land from the property; and

(2) The action includes all possible planning, as defined in §774.17, to minimize harm to the property resulting from such use; or

(b) The Administration determines that the use of the property, including any measure(s) to minimize harm (such as any avoidance, minimization, mitigation, or enhancement measures) committed to by the applicant, will have a *de minimis* impact, as defined in §774.17[1], on the property." [23 CFR §774.3 (a) and (b)]

Section 4(f) further requires consultation with the Department of Interior and, as appropriate, the involved offices of the United States Department of Agriculture and the United States Department of Housing and Urban Development, and relevant state and local officials, in developing transportation projects and programs that use lands protected by Section 4(f)." (23 CFR 774.3)

[1]*De minimis impact.* (1) For historic sites, *de minimis* impact means that the Administration has determined, in accordance with 36 CFR part 800 that no historic property is affected by the project or that the project will have "no adverse effect" on the historic property in question.(2) For parks, recreation areas, and wildlife and waterfowl refuges, a *de minimis* impact is one that will not adversely affect the features, attributes, or activities qualifying the property for protection under Section 4(f).

The proposed action, as described in Chapter 2 of the EA, Alternatives Considered, is a transportation project that may receive federal funding and/or discretionary approvals through United States Department of Transportation; therefore, documentation of compliance with Section 4(f) is required.

This Section 4(f) evaluation has been prepared in accordance with the joint FHWA/FTA regulations for Section 4(f) compliance codified at 23 CFR §774. Additional guidance has been obtained from the FHWA Technical Advisory T 6640.8A (1987) and the revised FHWA Section 4(f) Policy Paper (2005).

This Section 4(f) evaluation summarizes and incorporates the results of this consultation process. The FHWA Division Administrator for Colorado is responsible for determining that this project meets the criteria and procedures set forth in the federal regulations. Application of 4(f) requires a determination of whether there are feasible and prudent alternatives that avoid the use of the 4(f) resource. Supporting information must demonstrate that there are unique problems or unusual factors involved in the use of alternatives that avoid these properties or that the cost, social, economic, and environmental impacts, or community disruption resulting from such alternatives reach extraordinary magnitudes.

The FHWA may not approve the use of land from a Section 4(f) resource unless there are no feasible and prudent alternatives and that the proposed action includes all possible planning to minimize harm. If no alternatives exist that avoid Section 4(f) use, then a least harm analysis must be performed to determine which alternative does the least overall harm to the Section 4(f) properties. In performing this analysis, the net harm (after mitigation) to the properties is the governing factor. The following sections describe and analyze the impacts to the 4(f) properties located within the study area of this project.

4.2 Description of Section 4(f) Properties

4.2.1 Section 4(f) Properties: Parks and Recreational Resources

Table 4-1 lists the properties and the resources that qualify for protection under Section 4(f), and which are potentially used by the project. Section 3.19 in Chapter 3.0 of the EA document gives a full description of park and recreational resources.

Table 4-1
Section 4(f) Resources: Parks and Recreational Resources

Section 4(f) Resource	Property Jurisdiction	Type of 4(f) Resource	Description of Resource
Legion Park	Boulder County	Park	Parking, benches, Legion Trail

Legion Park is owned and operated by the Boulder County Open Space department. Located on the north side of SH 7 between Valtec Lane and Westview Drive, Legion Park is open to the public and used for recreational purposes. On-site facilities include a multi-use trail, parking areas, and benches for scenic viewing. Currently, Boulder County has no future plans for improvements to the park.

Under Section 4(f) definition, a park or recreational property qualifies when:

- The parcel is publicly owned and operated.
- The parcel has public access.
- The parcel is presumed to be, or is determined by public officials with jurisdiction to be, for significant park, recreation, or wildlife refuge purposes.

With these determinants, Legion Park would qualify as a Section 4(f) resource.

4.2.2 Section 4(f) Properties: Historic Sites

Table 4-2 lists the historical and archaeological resources located within the area of potential effect (APE) that were determined to be listed on or eligible for the National Register of Historic Places (NRHP) and were determined to have a use under Section 4(f). Section 3.17 in Chapter 3.0 of the EA gives a full description of historic sites in the APE.

Table 4-2
Section 4(f) Resources: Historic Properties

Historic Properties	Site #	SHPO Determination of Eligibility for NRHP
Colorado and Southern Railroad- Burlington Northern Railroad	5BL400.5	Railroad segment eligible; Bridge not eligible and non-contributing
Cottonwood Ditch #2 Segment	5BL4488.2	Eligible Segment
Cottonwood Ditch #2 Segment	5BL4488.3	Eligible Segment
Enterprise Ditch Segment	5BL4164.2	Eligible Segment
Enterprise Ditch Segment	5BL4164.4	Eligible Segment
Butler/Smith Property	5BL8917	Eligible
Gas Station and Small House	5BL9021	Eligible
The Harburg House, Barn and Gazebo	5BL9024	Eligible
DeBacker-Tenenbaum House	5BL9029	Eligible

Source: Colorado Historical Society, State Historic Preservation Office, 2002 and 2005.

The following is a description of the historic properties located in the SH 7 study area for which there will be a Section 4(f) use:

Colorado and Southern Railroad - Burlington Northern Railroad

The Colorado and Southern Railroad-Burlington Northern (BNSF) Railroad (Site #5BL400.5) is eligible under NRHP Criterion A for its association with the history of rail transportation in Boulder County. This railroad line served to transport freight in the 19th century and both freight and passengers in the early part of the 20th century. The entire Colorado and Southern Railroad-Burlington Northern Railroad is considered eligible and this segment of the railroad was found to retain sufficient integrity to support the overall significance of the railroad. The SHPO concurred with this finding in correspondence dated March 29, 2005, which is located in Appendix E.

Cottonwood Ditch #2

The Cottonwood Ditch #2 (#5BL4488) is eligible under NRHP Criterion A as one of the oldest intact ditches in this area, for its importance in the agricultural history in Boulder County. This ditch, begun in 1863, still retains integrity of design, setting, feeling and association. It still flows past farms in a rural setting that has not been redeveloped. The entire ditch is considered NRHP- eligible. Segments 5BL4488.2 and 5BL4488.3 were found to retain sufficient integrity to support the significance of the entire resource. The SHPO concurred with this determination in correspondence dated March 2002, and March 29, 2005, which is located in Appendix E.

Enterprise Ditch

The Enterprise Ditch (#5BL4164) is eligible under National Register Criterion A. The ditch is very important in the agricultural development of Boulder County, but segments of it have lost historical integrity due to recent residential and commercial development. There are two segments of the ditch that are located in the project area. Segment 5BL4164.2 is located at SH 7 just west of Westview Drive. Segment 5BL4164.4 is a 1000-foot segment that extends north of SH 7 and crosses under the railroad in a siphon.

The initial determination for Enterprise Ditch was that it was not eligible to the NRHP and would therefore result in *no historic properties affected*; however, SHPO reversed its decision in a letter dated August 15, 2005 which stated that the property is NRHP-eligible. There was a recommended finding of *no adverse effect* for the entire ditch. Correspondence can be found in Appendix E.

Butler/Smith Property

Site #5BL8917 is the only property in the study area with a 19th Century house and barn. It is an excellent example of a 1880s farmhouse with clapboard siding and a Victorian front porch. This house meets Criterion C for a type, period, and method of construction. This is the earliest surviving house in this area of SH 7. The SHPO concurred with this finding in correspondence dated March 29, 2005 and August 15, 2005, which is located in Appendix E.

Gas Station and Small House
Site #5BL9021 meets Criterion C for its characteristics as a 1920s Craftsman style gas station in rural Boulder County. The combination of cinder block sheathed in wood siding is somewhat rare, as are early gas stations of any style. The SHPO concurred with this finding in correspondence dated March 29, 2005 and August 15, 2005, which is located in Appendix E.

The Harburg House, Barn and Gazebo
Site #5BL9024 is a complex of buildings that meets Criterion C for architectural significance relating to a 1930s rural complex in the Boulder Valley. The house and gazebo are excellent examples of Craftsman style. The property also meets Criterion A as one of the important farms and for its association with the history of the area and its agricultural development from the 1880s. The SHPO concurred with this finding in correspondence dated March 29, 2005 and August 15, 2005, which is located in Appendix E.

DeBacker-Tenenbaum House
Site #5BL9029 contains the distinctive characteristics of a type, period, and method of construction seen in the original house and older out buildings and meets Criterion C. The house, built in 1913 by a member of the DeBacker family, is notable for the fine decorative brickwork and wood shingle siding. In addition, the landscaping consists of the original 1913 plantings on the property that have grown into outstanding specimens not commonly seen. This building complex is one of the few intact farm properties in the survey area that retains its rural setting and represents the former rural agricultural nature of the area. According to the site form, the original landscaping is part of what makes the property significant. The SHPO concurred with this finding in correspondence dated March 29, 2005 and August 15, 2005, which is located in Appendix E.

4.3 Impacts to Section 4(f) Properties

There are three types of impacts to a designated 4(f) property that require an evaluation and determination as set forth in the statute:

- A direct impact to a Section 4(f) property when land is permanently incorporated into a transportation facility;
- A direct impact to a Section 4(f) property when there is a temporary occupancy of land that is adverse; or,
- Any action by the project, while not amounting to a direct use, which would "substantially impair" the current use of the property by such intrusions as

noise, air or visual impacts, as well as impairment of property access. This could constitute a "constructive use" of the 4(f) property as defined by 23 CFR 774.17.

No-Action Alternative

Under the No-Action Alternative, there would be no change to the current existing conditions due to this project, and therefore, there would be no direct or indirect impacts to either historic or recreation resources. See Chapter 2 of the EA for a complete description of the No-Action Alternative.

Preferred Alternative

Below is an explanation of impacts from the Preferred Alternative to eight Section 4(f) resources; one park and seven historic properties:

- **Legion Park:** Legion Park is owned and operated by the Boulder County Open Space department. Located on the north side of SH 7 between Valtec Lane and Westview Drive, Legion Park is open to the public and used for recreational purposes. On-site facilities include a multi-use trail, parking areas, and benches for scenic viewing. Currently, Boulder County has no future plans for improvements to the park. The area of impact to the park is located on a slope directly adjacent to SH 7 where there is only landscaped vegetation, an access drive, and no recreational facilities.

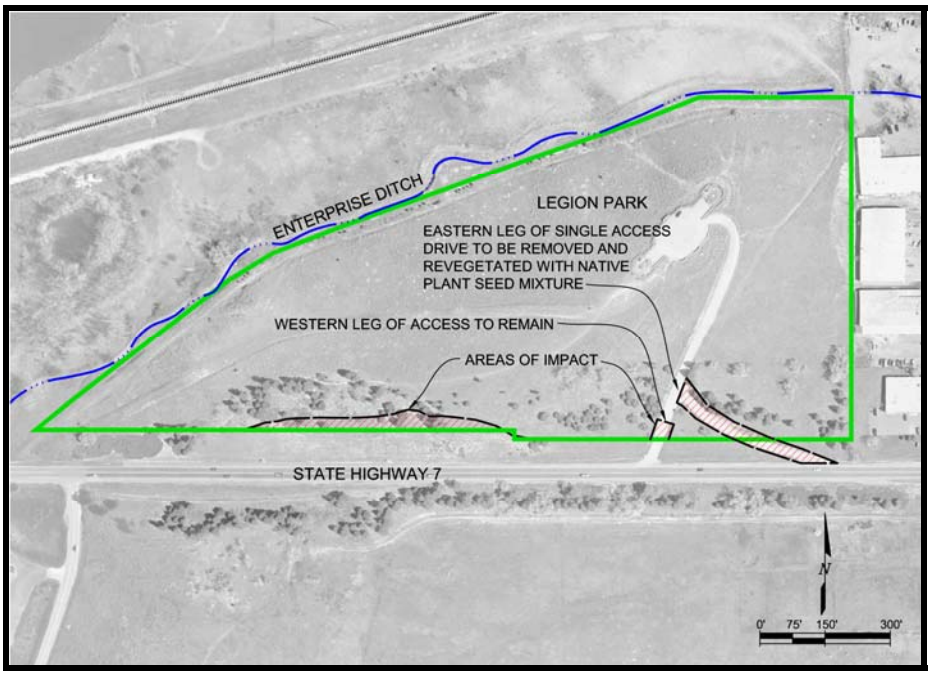
  For the Preferred Alternative, the roadway will be lowered adjacent to Legion Park in order to meet minimum sight distance requirements for the design speed. This lowering will require a cut slope inside the park in order to match back to existing grades. These cut slopes will generally match the steepness of the existing slopes. Some vegetation in Legion Park will require removal due to the construction of cut slopes, including grasses, shrubs and small trees. This vegetation will be replaced in kind by CDOT.

  There is currently a single access drive to Legion Park that is served by two access points on SH 7. For safety and access control reasons, the eastern leg of the single access drive into the park will be closed. This eastern leg will be removed and the land will be revegetated with a native plant seen mixture. The western leg of the single access drive will remain open. A temporary construction easement will be required to construct side slopes for roadway improvements and to reconstruct the western leg of the single access drive to accommodate the project. No trails within the park and no landform or usable portion of the park will be permanently affected. See **Figure 4-1** for the location of impacts.

  These impacts to Legion Park have been determined by FHWA and CDOT, and concurred by Boulder County (letter dated May 17, 2005 in Appendix E), to have

no adverse effect to the park. The impacts to the park would result in a *de minimis* use. Correspondence on FHWA's *de minimis* finding is dated November 28, 2007 and located in Appendix E.

Figure 4-1
Legion Park Impact



- **Colorado and Southern Railroad – Burlington Northern Railroad (5BL400.5):** The Preferred Alternative involves the construction of a temporary railroad alignment offset 25 feet to the east of the existing alignment and the construction of a temporary bridge along this alignment over SH 7. This temporary alignment is required so that the new, longer bridge over SH 7 can be constructed while train operations can continue on the temporary alignment. The ultimate railroad alignment would follow the existing alignment.

  To construct the temporary alignment, approximately 500 feet of the existing railroad track would be temporarily impacted along the southern curve and approximately 600 feet of existing track would be temporarily impacted along the northern curve.

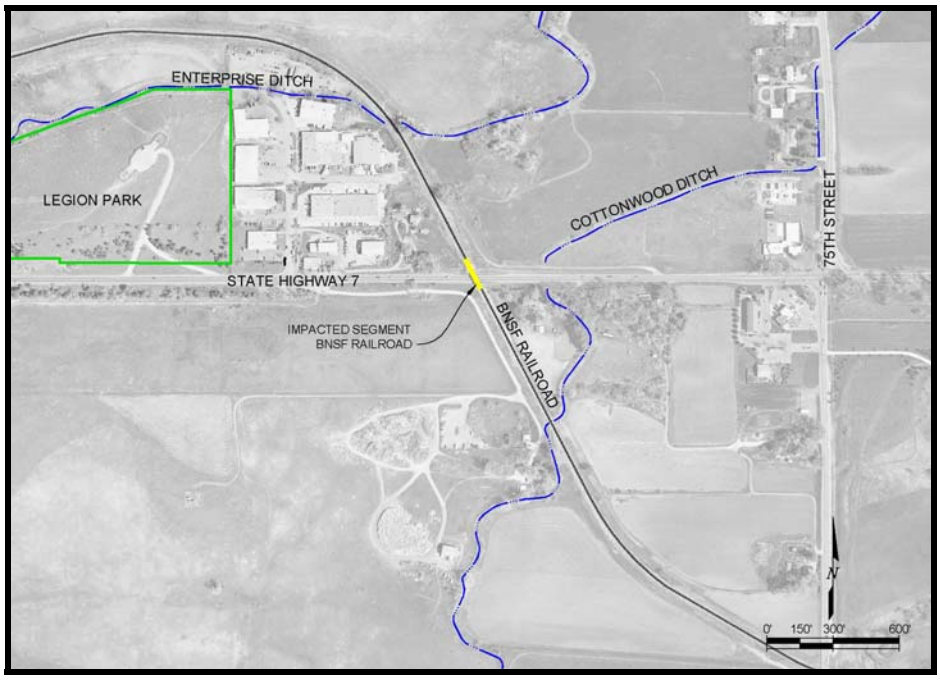
  The widening of SH 7 would require the removal of approximately 25 to 35 feet of existing track on the north side of the highway. This portion of the track alignment would ultimately be on the future bridge structure over SH 7.

  A temporary bridge would be required to carry the temporary railroad

alignment over the Cottonwood Ditch. This temporary bridge would be removed following the need for the temporary alignment. The existing railroad bridge over SH 7 is officially *not eligible*, as documented in the *Colorado Bridge Survey for Colorado Department of Transportation*, conducted in 2000 by Clayton Fraser.

FHWA and CDOT have determined that the permanent impact to 25 to 35 feet of the railroad segment would result in an *adverse effect* to the historic Colorado and Southern Railroad-Burlington Northern Railroad segment because that portion of the railroad bed and track would be removed and will ultimately be on the new railroad bridge. See **Figure 4-2**.

Figure 4-2
Colorado and Southern Railroad - Burlington Northern Railroad Impact

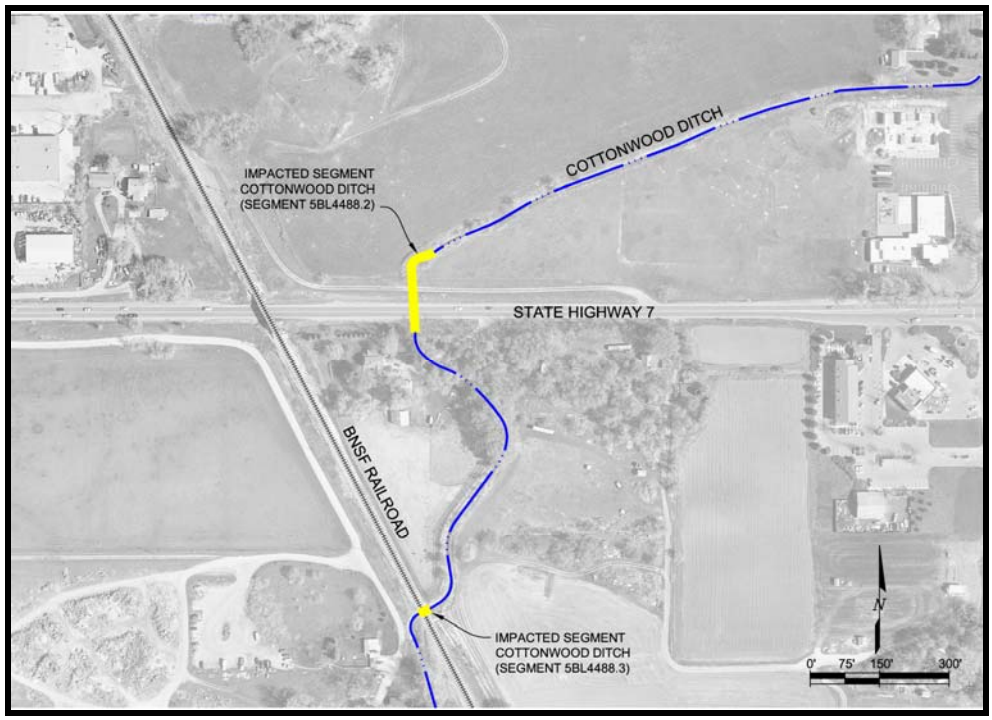


- **Cottonwood Ditch #2 (5BL4488):** For segment 5BL4488.2, located at SH 7 just east of the BNSF railroad, the siphon and pipe under the road and the concrete headwalls at the openings into the siphon would need to be reconstructed. On the north side of SH 7, it is anticipated that an approximate 20-foot segment of the ditch would have to be placed in a pipe. This would constitute an *adverse effect* to this segment of the property under Section 106 and would be a Section 4(f) use of the property.

  The second segment of the ditch (5BL4488.3) in the APE crosses under the railroad south and west of the DeBacker-Tenenbaum property. In order to construct a new BNSF railroad bridge over SH 7, a temporary railroad alignment would be required 25 feet to the east of the current alignment. The temporary

BNSF alignment would require a temporary bridge to be constructed over the Cottonwood Ditch. The temporary bridge would be removed when the temporary alignment is removed. The ultimate railroad alignment would be along its current alignment and would not result in a direct impact to this segment of the Cottonwood Ditch since it would be restored to its original function and appearance. This has been determined as *no adverse effect* by CDOT and FHWA and concurred by SHPO. This letter dated March 24, 2006 can be found in Appendix E. **Figure 4-3** shows the impacted segments of Cottonwood Ditch.

Figure 4-3
Cottonwood Ditch Impact

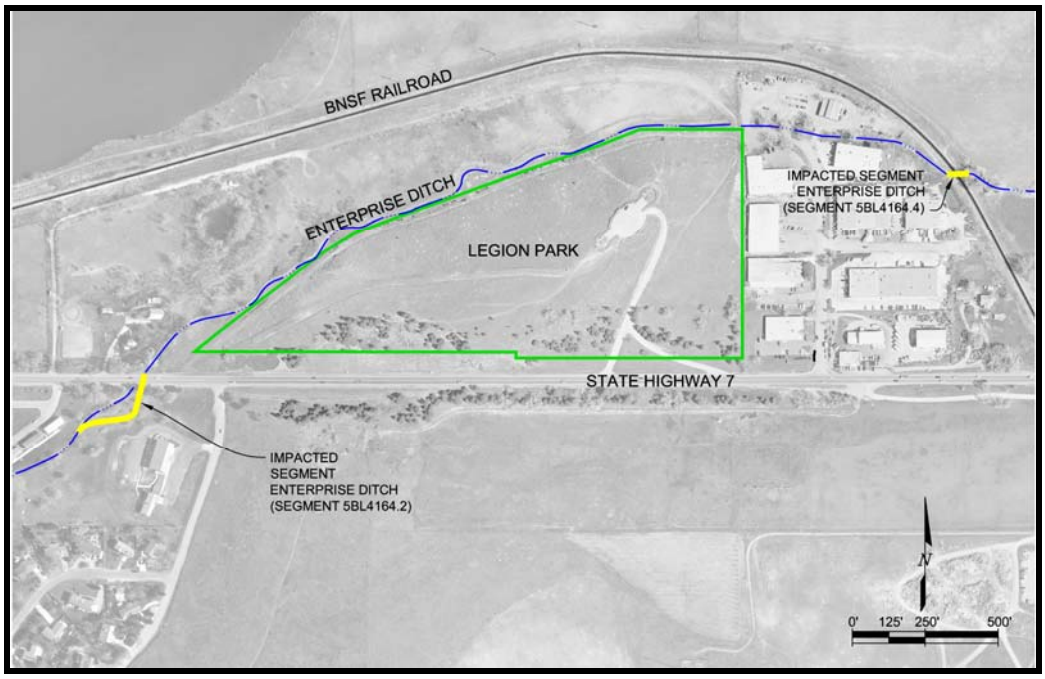


- **Enterprise Ditch (5BL4164):** For segment 5BL4164.2 of the ditch located just west of Westview Drive, the Preferred Alternative would require a 120-foot concrete box culvert to replace the southern 60 feet of the existing box culvert. Additionally, 250 feet of the existing ditch on the south side of SH 7 would be realigned and reconstructed as an open ditch. This has been determined as *no adverse effect* by CDOT and FHWA and concurred by SHPO. This is documented in a letter dated August 15, 2005 and is located in Appendix E.

  For the Preferred Alternative, the segment of the ditch that extends north of SH 7 and crosses under the BNSF railroad in a siphon (5BL4164.4) would require a temporary railroad alignment that would necessitate placement of approximately 100 feet of the ditch into a pipe. Once the temporary alignment is

removed, the ditch would be restored to its original function and appearance. This has been determined as *no adverse effect* by CDOT and FHWA and concurred by SHPO. This is documented in a letter dated June 24, 2006 and is in Appendix E. See **Figure 4-4**.

Figure 4-4
Enterprise Ditch Impact



- **Butler/Smith Property (5BL8917):** SH 7 would be widened in front of the Butler-Smith House and additional vegetation would be removed in the right-of-way between the road and the house. All improvements would stay within existing roadway right-of-way. There would be no direct impact to the house or the barn and no impact to the qualities that made this property significant. Very small temporary easement for construction of curb return may be required.

  As determined by CDOT and FHWA, the improvements to SH 7 would have no affect to the historic structures on this property. The temporary easement for construction would constitute no adverse effect to the property as a whole as concurred by SHPO.

- **Gas Station and Small House (5BL9021):** When SH 7 is reconstructed, the corner of this property, which is currently paved and used as roadway, would continue to be used as a roadway. In consultation with SHPO, it was determined that the corner of the property does not contribute to the significance of the property. All other improvements to SH 7 would occur to the south. Curb cut from 63rd would be installed on existing roadway right-of-way. Temporary easement for

construction would be required to construct private access on private property. Tree removal may be required for construction access.

As determined by CDOT and FHWA, the improvements to SH 7 would have no affect to the historic structures on this property. The temporary easement for construction would constitute no adverse effect to the property as a whole as concurred by SHPO.

- **The Harburg House, Barn and Gazebo (5BL9024):** When SH 7 is widened some of the vegetation in the CDOT right-of-way would be removed, but would have no impact on the setting or direct impact on the Harburg property. Constructing two private driveways to match proposed improvements would require a temporary easement for the Preferred Alternative and may require some limited vegetation removal. Public road on the west side of the Harburg property would require reconstruction and may require a temporary easement. If headwall and wingwalls of Enterprise Ditch outlet are replaced in current location, this construction may be on Harburg property.

  As determined by CDOT and FHWA, the improvements to SH 7 would have no affect to the historic structures on this property. The temporary easement for construction would constitute no adverse effect to the property as a whole as concurred by SHPO.

- **DeBacker-Tenenbaum House (5BL9029):** When SH 7 is widened, a retaining wall may be constructed along a portion of the roadway right-of-way, north of the DeBacker-Tenebaum property, but would not have a direct impact to the landscaped setting or the buildings. The BNSF railroad would be temporarily realigned to be east of the existing location, but there would be no direct impact to the landscaped setting or the buildings. There will be temporary fill slope impacts to some of the landscaping along the western boundary of this historic property. With the exception of a single juniper bush, the vegetation impacted by the toe of the slope is not part of the original plantings that contribute to the property's significance. CDOT will build a two-foot to four-foot tall retaining wall to minimize impacts inside the historic property boundary. Crews will remove the retaining wall after construction is completed. The ultimate railroad alignment would follow its existing alignment. A temporary easement may be required to build the temporary fill slope for the temporary railroad alignment. There will be no direct impacts to the property or the elements that make the property eligible for NRHP listing.

  As determined by CDOT and FHWA, the improvements to SH 7 would have no affect to the historic structures on this property. The temporary easement for

construction would constitute no adverse effect to the property as a whole as concurred by SHPO.

Table 4-3 summarizes the effects to the historic properties as determined by FHWA and CDOT, and concurred by SHPO.

Table 4-3
Historic Properties' Effect Determinations

Historic Properties	Site #	Determination of Effect
Colorado and Southern Railroad- BNSF Railroad	5BL400.5	Adverse Effect
Cottonwood Ditch #2 Segment	5BL4488.2	Adverse Effect
Cottonwood Ditch #2 Segment	5BL4488.3	No Adverse Effect
Enterprise Ditch Segment	5BL4164.2	No Adverse Effect
Enterprise Ditch Segment	5BL4164.4	No Adverse Effect
Butler/Smith Property	5BL8917	No Adverse Effect
Gas Station and Small House	5BL9021	No Adverse Effect
The Harburg House, Barn and Gazebo	5BL9024	No Adverse Effect
DeBacker-Tenenbaum House	5BL9029	No Adverse Effect

Source: Colorado Historical Society, State Historic Preservation Office, 2002 and 2005.

4.4 Finding of *De Minimis*

Under SAFETEA-LU (the most recent Transportation Act), Congress simplified parts of Section 4(f) by creating a *De Minimis* Finding. If impacts to a resource are minor or temporary, and there is no adverse effect to that resource, it can be cleared as *de minimis* and no avoidance alternative is necessary. Below is more detail about the legislation.

The SAFETEA-LU was enacted August 10, 2005. Section 6009(a) (1) of SAFETEA-LU added a new subsection to Section 4(f) which authorizes the FHWA to approve a project that uses Section 4(f) property, without preparation of an Avoidance Analysis, if it makes a finding that such uses would have *de minimis* impacts upon the Section 4(f) resource.

4.4.1 Parks, Recreation Areas, and Wildlife or Waterfowl Refuges

With regard to Section 4(f) resources that are parks, recreation areas, and wildlife or waterfowl refuges, Section 6009 of SAFETEA-LU adds the following language to Section 4(f):

> (b) *De Minimis* Impacts. --
> (1) REQUIREMENTS.--
>
> ******

> (B) REQUIREMENTS FOR PARKS, RECREATION AREAS, AND WILDLIFE OR WATERFOWL REFUGES.--The requirements of subsection (a)(1) shall be considered to be satisfied with respect to an area described in paragraph (3) if the Secretary determines, in accordance with this subsection, that a transportation program or project will have a *de minimis* impact on the area. The requirements of subsection (a)(2) with respect to an area described in paragraph (3) shall not include an alternatives analysis.
>
> (C) CRITERIA.--In making any determination under this subsection, the Secretary shall consider to be part of a transportation program or project any avoidance, minimization, mitigation, or enhancement measures that are required to be implemented as a condition of approval of the transportation program or project.
>
> (3) PARKS, RECREATION AREAS, AND WILDLIFE OR WATERFOWL REFUGES. --With respect to parks, recreation areas, or wildlife or waterfowl refuges, the secretary may make a finding of *de minimis* impact only if—
>
> (A) the Secretary has determined, after public notice and opportunity for public review and comment, that the transportation program or project will not adversely affect the activities, features, and attributes of the park, recreation area, or wildlife or waterfowl refuge eligible for protection under this section; and
>
> (B) the finding of the Secretary has received concurrence from the officials with jurisdiction over the park, recreation area, or wildlife or waterfowl refuge.

In order to clarify the language in SAFETEA-LU, the FHWA has stated that the following procedures must be met in order for the impacts to parks, recreational resources, and wildlife refuges to be considered *de minimis*:

1. The transportation use of the Section 4(f) resource, together with any impact avoidance, minimization, and mitigation or enhancement measures incorporated into the project, does not adversely affect the activities, features, and attributes that qualify the resource for protection under Section 4(f);
2. The official(s) with jurisdiction over the property are informed of FHWA's intent to make the *de minimis* impact finding based on their written concurrence that the project will not adversely affect the activities, features, and attributes that qualify the property for protection under Section 4(f); and
3. The public has been afforded an opportunity to review and comment on the effects of the project on the protected activities, features, and attributes of the Section 4(f) resource.

FHWA has determined that the impacts to Legion Park, with the mitigation measures proposed, constitutes a *de minimis* impact to this property and does not adversely affect the activities, features, and attributes that qualify the resource for protection under Section 4(f). In a letter dated May 17, 2005, the Boulder County Resource Planning

Manager (the official with jurisdiction) agreed that the proposed road improvements to SH 7 will not have an adverse impact on the use of Legion Park. See Appendix E for a copy of this letter. Furthermore, at a public meeting held on November 9, 2004, the public was afforded an opportunity to review and comment on the effects of the project to Legion Park. See Appendix H of the EA for comments received from this public meeting about Legion Park. In addition, information about Legion Park was provided at the EA Public Hearing, including the effects of the project on protected activities, features and attributes. No comments related to Legion Park were received at the public hearing during the comment period for the EA.

The following measures to avoid, minimize, mitigate, and enhance include the following best management practices (BMPs):

- The land where the eastern leg of the access into Legion Park is removed will be revegetated with native plant seed mixtures.
- The amount of disturbance of grading will be minimized to 10 feet beyond the toe of slope. Project will follow CDOT standard specifications for amount of time that disturbed areas are allowed to be non-vegetated.
- A noxious weed management plan will be developed and implemented. This will be completed during final design.
- Weed free topsoil will be salvaged for use in seeding.
- Temporary and permanent erosion control measures will be implemented to limit erosion and soil loss.
- All disturbed locations except rock cuts will be reseeded with native plant seed mixtures.
- An acceptable revegetation plan will be developed with the CDOT Landscape Architect and Boulder County.

Based on these actions and correspondence, and taking into consideration the harm minimization/mitigation measures that have been incorporated into the proposed action as documented in Section 3.19.3 of the EA, it is the conclusion of the FHWA that the proposed action would have *de minimis* impacts (see concurrence letter dated November 28, 2007 in Appendix E) and that an analysis of feasible and prudent avoidance alternatives under Section 4(f) is not required. CDOT, on behalf of FHWA, notified the Boulder County Resource Planning Manager (the official with jurisdiction) of the *de minimis* determination in a letter dated November 27, 2007 (see Appendix E).

The public was provided an opportunity to comment on the *de minimis* determination during the 30-day public review period for the EA.

4.4.2 Historic Resources

With regard to Section 4(f) resources that are historic resources, Section 6009 of SAFETEA-LU adds the following language to Section 4(f)[1]:

> (b) *De Minimis* Impacts. --
>
> (1) REQUIREMENTS.--
>
> (A) REQUIREMENTS FOR HISTORIC SITES.--The requirements of this section shall be considered to be satisfied with respect to an area described in paragraph (2) if the Secretary determines, in accordance with this subsection, that a transportation program or project will have a *de minimis* impact on the area.
>
> ******
>
> (C) CRITERIA.--In making any determination under this subsection, the Secretary shall consider to be part of a transportation program or project any avoidance, minimization, mitigation, or enhancement measures that are required to be implemented as a condition of approval of the transportation program or project.
>
> (2) HISTORIC SITES.--With respect to historic sites, the Secretary may make a finding of *de minimis* impact only if--
>
> (A) the Secretary has determined, in accordance with the consultation process required under section 106 of the National Historic Preservation Act (16 U.S.C.470f), that--
>
> (i) the transportation program or project will have no adverse effect on the historic site; or
>
> (ii) there will be no historic properties affected by the transportation program or project;
>
> (B) the finding of the Secretary has received written concurrence from the applicable State historic preservation officer or tribal historic preservation officer (and from the Advisory Council on Historic Preservation if the Council is participating in the consultation process); and
>
> (C) the finding of the Secretary has been developed in consultation with parties consulting as part of the process referred to in subparagraph (A).

FHWA's December 13, 2005 *de minimis* guidance that clarifies the SHPO role in *de minimis*, states that the SHPO must concur in writing on the Section 106 determination of "no adverse effect" or "no historic properties affected" and that CDOT must notify the SHPO of the FHWA intention to make a *de minimis* finding based on concurrence with the Section 106 finding.

[1] This provision will be codified as 23 U.S.C. § 138(b). Section 6009(a)(2) of SAFETEA-LU adds identical language at 49 U.S.C. § 303(d).

FHWA has made a determination, and the Colorado SHPO has concurred , that the use of the Enterprise Ditch segments (5BL4164.2 and 5BL4164.4), the Cottonwood Ditch #2 segment (5BL4488.3), the Butler/Smith property (5BL8917), the Gas Station and Small House property (5BL9021), the Harburg House property (5BL9024), and the DeBacker-Tenenbaum House property (5BL9029) that would be affected by the proposed action would result in "no adverse effect" for purposes of Section 106 of the NHPA (see description below). These determinations are documented in Appendix E in letters dated August 4, 2005 and August 15, 2005 for Enterprise Ditch segment 5BL4164.2, the Butler/Smith property (5BL8917), the Gas Station and Small House property (5BL9021), the Harburg House property (5BL9024), and the DeBacker-Tenenbaum House property (5BL9029); June 24, 2006 for Enterprise Ditch segment (5BL4164.4); and March 24, 2006 for Cottonwood Ditch #2 segment (5BL4488.3). They are also described in Section 3.17 of the Environmental Assessment.

The following measures to avoid, minimize, mitigate, and enhance the below listed 4(f) resources were taken into consideration in making the *de minimis* finding for project impacts to these historic properties:

Cottonwood Ditch #2 Segment (5BL4488.3)

The temporary BNSF alignment will require a temporary bridge to be constructed over the Cottonwood Ditch. The temporary bridge will be removed when the temporary alignment is removed. The surrounding area where the temporary alignment and bridge over the ditch was located will be restored to its original appearance. The ultimate railroad alignment will be along its current alignment and will not result in a direct impact to this segment of the Cottonwood Ditch since it will be restored to its original function and appearance.

Enterprise Ditch Segments (5BL4164.2 and 5BL4164.4)

The section of the ditch that includes segment 5BL4164.2 will be realigned and reconstructed as an open ditch. This will be an enhancement to the current condition of the ditch which has a low degree of integrity. In addition, the deteriorating existing box culvert that a portion of this segment flows through will be replaced.

A 100-foot section of the ditch located north of SH 7 that includes segment 5BL4164.4 will be placed into a pipe due to the construction of the temporary railroad alignment. Once the temporary alignment is removed, the ditch will be restored to its original function and appearance.

Butler/Smith Property (5BL8917)

The proposed design for the improvements to SH 7 was specifically created to avoid direct impacts to the house or barn, and to stay within the current right-of-way. Any disturbed area adjacent to the property will be revegetated with native plant seed mixtures.

Gas Station and Small House (5BL9021)
The proposed design for the improvements to SH 7 was specifically created to avoid direct impacts to the gas station and small house, and to stay within the current right-of-way. A new private access from 63rd that is proposed to be constructed for the property would be an enhancement measure. Any disturbed area adjacent to the property will be revegetated with native plant seed mixtures.

The Harburg House, Barn and Gazebo (5BL9024)
The proposed design for the improvements to SH 7 was specifically created to avoid direct impacts to the house, barn and gazebo, and to stay within the current right-of-way. Two private drives that access the property are proposed to be reconstructed for the property in order to match the improvements to SH 7. This would be an enhancement measure. Any disturbed area adjacent to the property will be revegetated with native plant seed mixtures.

DeBacker-Tenenbaum House (5BL9029)
The proposed design for the improvements to SH 7 was specifically created to avoid direct impacts to the house, and to stay within the current right-of-way. The temporary fill slope that may be required on the property will be removed at the end of construction and the area will be restored to its original function and appearance. Any disturbed area adjacent to the property will be revegetated with native plant seed mixtures.

These findings of "no adverse effect" with regard to these six properties reflect a conclusion that these impacts will not "alter, directly or indirectly, any of the characteristics of the historic property that qualify the property for inclusion in the National Register in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association" as described in 36 CFR § 800.5(a)(1). This conclusion takes into consideration the measures above that have been incorporated into the proposed action. It is the conclusion of the FHWA that the proposed action would have *de minimis* impacts and that an analysis of feasible and prudent avoidance alternatives under Section 4(f) is not required. CDOT, on behalf of FHWA, notified the SHPO of the *de minimis* determination in letters dated April 25, 2007 and November 2, 2007, and March 7, 2008 (see Appendix E).

4.5 Avoidance Alternatives

The Cottonwood Ditch #2 (Site #5BL4488) is eligible under NRHP Criterion A as one of the oldest intact ditches in this area, for its importance in the agricultural history in Boulder County. This ditch, begun in 1863, still retains integrity of design, setting, feeling and association. It still flows past farms in a rural setting that has not been redeveloped. The entire ditch is considered NRHP- eligible. The existing siphon pipe

and adjacent open ditch sections of the Cottonwood Ditch can currently only accommodate the existing two-lane, substandard roadway section, which does not meet the purpose and need. The purpose and need for improvements are to reduce congestion, enhance roadway deficiencies and safety, and to improve mobility for multiple modes of transportation. These are described in detail in Chapter 1 of the EA.

The Colorado and Southern Railroad-Burlington Northern Railroad (Site #5BL400.5) is eligible under NRHP Criterion A for its association with the history of rail transportation in Boulder County. This railroad line served to transport freight in the 19th century and both freight and passengers in the early part of the 20th century. The entire Colorado and Southern Railroad-Burlington Northern Railroad is considered eligible and this segment of the railroad was found to retain sufficient integrity to support the overall significance of the railroad. The existing BNSF railroad bridge can currently only accommodate the existing two-lane, substandard roadway section, which does not meet the purpose and need.

A range of alternatives, including those outlined in Chapter 2 of the EA, were considered and analyzed in order to determine if they were reasonable avoidance alternatives to these resources. All of the alternatives screened out in the alternatives evaluation process outlined in Chapter 2 of the EA did not meet the purpose and need. Also, as part of this EA, improvements to roadway corridors either north or south of SH 7 were considered in order to avoid the ditch and railroad. These corridors include Valmont Road/Pearl Parkway, approximately 1.5 miles north of SH 7, and Baseline Road, approximately one mile south of SH 7. Due to the linear nature of the ditch and railroad, improvements to these other roadway corridors would still not avoid impacts to these historic resources.

Avoidance Alternative Number 1

In order to completely avoid the impacts to the BNSF railroad (segment 5BL400.5) and the Cottonwood Ditch (segment 5BL4488.2), and stay on the current roadway alignment, SH 7 would have to be reconstructed over both of these resources. This would require SH 7 to be raised approximately 55 feet on a bridge structure. To avoid impacts to other 4(f) resources in the vicinity, retaining walls would have to be incorporated into the design of the approaches to the bridge which would traverse over the BNSF railroad. The approaches to the bridge would have to begin approximately 1500 to 2000 feet in advance of the bridge location. Access to the Valtec commercial development would likely not be feasible since it is located between the BNSF railroad, Legion Park and SH 7, and the vertical grade change on SH 7 would not allow direct access, which would take away the ability of the property to remain operational. Similarly, access to other adjacent land uses would become very difficult, including access to the Tenenbaum property, the Jacobs property and the Aldridge property, which raises safety concerns. At the intersection of SH 7 and 75th, the vertical alignment change would require the reconstruction of the intersection due to the

required change in vertical grade required to traverse the railroad. It is likely that the Conoco convenience store and the commercial development would not be able to remain operational due to access issues. In addition to the access and safety concerns, the raised profile of SH 7 in this vicinity would have major impacts to the visual quality and view shed in the study area.

This alternative would be feasible as a matter of sound engineering judgment, and could possibly be prudent by meeting purpose and need, however, it would not be prudent due to unacceptable safety and operational problems because of access changes. In addition, after mitigation, it causes severe visual impacts, and would likely require the closure of SH 7 during the construction resulting in impacts to the traveling public possibly lasting 1 year or more. Finally, the additional cost of this avoidance alternative is likely $20 to $30 million above the cost of the Preferred Alternative. Therefore this avoidance alternative would not be feasible and prudent.

Avoidance Alternative Number 2

In order to completely avoid the impacts to the BNSF railroad (segment 5BL400.5) and the Cottonwood Ditch (segment 5BL4488.2), and stay on the current roadway alignment, SH 7 would have to be reconstructed beneath both of these resources along a depressed roadway alignment and through a tunnel. This would require SH 7 to be lowered approximately 60 feet on a depressed alignment and through a 500 foot long tunnel. To avoid impacts to other 4(f) resources in the vicinity, retaining walls would have to be incorporated into the design of the approaches to the tunnel. The approaches to the tunnel would have to begin approximately 2000 feet in advance of the tunnel location from the west and approximately 1000 feet in advance of the tunnel from the east. Access to the Valtec commercial development would likely not be feasible since it is located between the BNSF railroad, Legion Park and SH 7, and the vertical grade change on SH 7 would not allow direct access, which would take away the ability of the property to remain operational. Similarly, access to other adjacent land uses would become very difficult, including access to the Tenenbaum property, the Jacobs property and the Aldridge property, which raises safety concerns.

This alternative would be feasible as a matter of sound engineering judgment, and could possibly be prudent by meeting purpose and need, however, it would not be prudent due to unacceptable safety and operational problems because of access changes. In addition, after mitigation, it would likely require the closure of SH 7 during the construction resulting in impacts to the traveling public possibly lasting 1 year or more. Finally, the additional cost of this avoidance alternative is likely $30 to $35 million above the cost of the Preferred Alternative. Therefore this avoidance alternative would not be feasible and prudent.

No-Action Alternative

With the No-Action Alternative, congestion (approaching maximum capacity in 2030) and the current unsafe condition of the roadway (currently accidents occur related to the substandard roadway conditions) would continue. The No-Action Alternative also does not improve the corridor for multiple modes of transportation including busses, bicycles and pedestrians. Finally, the No-Action does not meet the purpose and need of the project. Due to these reasons, this would not be a feasible and prudent avoidance alternative.

Due to the effect that these avoidance alternatives would have on surrounding properties, the cost of the alternatives, impact to the traveling public, or the fact that they do not meet the purpose and need of the project, and due to the limited use of, and the value of the two Section 4(f) resources (i.e. while important for association with railroad and agricultural history, the railroad bridge is non-contributing and the parts of the resources that are being used are not unique for these resources), do not outweigh the problems with the avoidance alternatives that make them not prudent. The Preferred Alternative would result in the least harm while still achieving project goals. This Preferred Alternative would be feasible and prudent.

4.6 Measures to Minimize Harm

Since there are no prudent and feasible alternatives to the impacts to Cottonwood Ditch (segment 5BL4488.2) and the BNSF railroad (segment 5BL400.5), the proposed action must demonstrate that it includes all possible planning to minimize harm to both resources. Planning measures incorporated into the proposed action include the following:

- A Memorandum of Agreement regarding the Cottonwood Ditch #2 (segment 5BL4488.2) and the BNSF railroad (segment 5BL400.5) has been prepared which incorporates the views of the SHPO on the proposed action. A copy of the MOA is located in Appendix E.
- CDOT shall ensure that the ditch and railroad are documented in accordance with the guidance for Level II documentation found in OAHP Form #1595, *Historical Resource Documentation: Standards for Level I, II, III Documentation*.
- The new siphon would be designed to be as short as possible. The new siphon will include reconstructed wingwalls, headwalls and short transition sections to the existing ditch.
- Retaining walls will be constructed along SH 7 which will minimize the length of the siphon.

- The rebuilt section of the ditch would be designed to carry no less than the minimum flow requirements as determined by the ditch owner.
- Construction would occur at such times as the ditch is not in use. If this is not possible, the hydraulic integrity of the ditch would be maintained through the use of temporary systems.
- The contractor's work area around the ditch would be limited to only the area that is directly impacted.
- For the railroad, the use of vertical bridge abutments would be employed to minimize the length of the new overpass bridge.
- The contractor's work area around the railroad would be limited to only the area that is directly impacted.
- In general, all efforts will be made during final project design to minimize impacts to the ditch and the railroad.

4.7 Coordination

In consultation with the SHPO, the FHWA and CDOT have determined this project will have an adverse effect on Cottonwood Ditch #2 (segment 5BL4488.2) and Colorado and Southern Railroad-Burlington Northern Railroad (segment 5BL400.5). FHWA, CDOT and the SHPO have agreed this project will have no adverse effects on the Cottonwood Ditch #2 (segment 5BL4488.3), Enterprise Ditch (segments 5BL4164.2 and 5BL4164.4), the Butler/Smith property (5BL8917), the Gas Station and Small House property (5BL9021), the Harburg House property (5BL9024), and the DeBacker-Tenenbaum House property (5BL9029).

Agreement among the SHPO, Advisory Council on Historic Preservation (ACHP), FHWA, and the Certified Local Government, represented by the Boulder Landmarks Preservation Board, has been reached through the Section 106 process of the National Historic Preservation Act on measures to minimize harm and those measures are incorporated into the project. A Memorandum of Agreement was signed by FHWA on December 4, 2006. There are no federal interests on any of the historic sites, so there are no appropriate agencies to be contacted for their comments on the proposed action.

The impacts to Legion Park have been determined by FHWA and CDOT, and concurred by Boulder County (letter dated May 17, 2005 in Appendix E), to have *no adverse effect* to the park.

A requirement under Section 4(f) is that the public has the opportunity to specifically comment on a *de minimis* finding for a park. At the public hearing for the EA,

information about Legion Park was presented, including the effects of the project on the protected activities, features, and attributes. No comments from the public were received.

In their August 7, 2008 letter, the Department of the Interior concurred that there is no feasible or prudent alternative (related to the de minimis use of Legion Park) to the Preferred Alternative, and that all measures have been taken to minimize harm to Legion Park. Their letter is included in Appendix C.

4.8 Section 4(f) Determination

Based upon the above coordination, there is no feasible and prudent alternative to the use of land from the Cottonwood Ditch #2 (segment 5BL4488.2) and Colorado and Southern Railroad-Burlington Northern Railroad (segment 5BL400.5), and the proposed action includes all possible planning to minimize harm to the Cottonwood Ditch #2 (segment 5BL4488.2) and Colorado and Southern Railroad-Burlington Northern Railroad (segment 5BL400.5) resulting from such use.

In addition, the Federal Highway Administration determined that the use of seven historic properties (Cottonwood Ditch #2 Segment - 5BL4488.3; Enterprise Ditch Segment - 5BL4164.2; Enterprise Ditch Segment - 5BL4164.4; Butler/Smith Property - 5BL8917; Gas Station and Small House - 5BL9021; Harburg House, Barn and Gazebo - 5BL9024; and the DeBacker-Tenenbaum House - 5BL9029), and one park property (Legion Park), including any measures to minimize harm (such as any avoidance, minimization, mitigation or enhancement measures) committed to by the CDOT, will have a de minimis impact as defined in 23 CFR 774.17 on the properties.

Chapter 5.0: Selection of the Preferred Alternative

Based on the *SH 7 – Cherryvale Road to 75th Street Environmental Assessment and Draft 4(f) Evaluation*, the public hearing summary and the summary of comments, FHWA has determined that the alternative described in Section 1.2 of this document is the Preferred Alternative.

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Chapter 6.0: Finding of No Significant Impact

FHWA has prepared the *SH 7 – Cherryvale Road to 75th Street Environmental Assessment and Draft 4(f) Evaluation* in compliance with all applicable environmental laws and Executive Orders.

FHWA has determined that the Preferred Alternative described in Section 1.2 of this document will have no significant impact on the human or natural environment. This Finding of No Significant Impact (FONSI) is based on the Environmental Assessment which has been independently evaluated by FHWA and determined to adequately and accurately discuss the need, environmental issues, and impact of the proposed project and appropriate mitigation measures. It provides sufficient evidence and analysis for determining that an Environmental Impact Statement is not required. FHWA takes full responsibility for the accuracy, scope and content of the Environmental Assessment.

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