

3.23 CUMULATIVE IMPACTS

This section describes the analysis conducted to evaluate the cumulative environmental impacts associated with the implementation of the New Pueblo Freeway project. The Council on Environmental Quality (CEQ) regulations implementing the National Environmental Policy Act (NEPA) (40 CFR 1508.7) define cumulative impacts as *“the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.”*

The cumulative impacts analysis was guided by agency scoping identification of resources, identification of the project’s temporal and spatial boundaries, and documentation of impacts on selected resources. The analysis is resource-specific and generally performed for environmental resources that would be directly impacted by construction of one of the Build Alternatives. However, the analysis also focuses on resources for which the New Pueblo Freeway project would have effects similar to other past, present, and future actions and/or resources that have been historically affected by cumulative actions. The results of this impact analysis are discussed for the overall project except where there are differences in impacts between the two Build Alternatives (the Existing I-25 Alternative and the Modified I-25 Alternative).

3.23.1 Methodology and Framework for Assessing Cumulative Impacts

The key environmental resources selected for a cumulative impact assessment for the New Pueblo Freeway project were identified through project scoping ongoing agency coordination and project impact evaluation. Project scoping was completed in 2003 for the New Pueblo Freeway project, as described in **Chapter 6 – Comments and Coordination**. The scoping meetings included representatives from CDOT, FHWA, resource agencies, local government, and the public. Resources evaluated for cumulative effects were identified by public agencies during the scoping process and included community cohesion, historic resources, parks and recreation, and the Fountain Creek floodplain.

3.23.2 Key Resources and Geographic Extent

Key environmental resources were selected based on the potential for direct or indirect impacts as a result of the project action, resources of concern by the public, and those identified during project scoping as resources of importance. The key resources that were considered as part of the cumulative impacts assessment are:

- ❖ Transportation
- ❖ Historic Resources
- ❖ Parks and Recreation
- ❖ Wetlands
- ❖ Noise
- ❖ Social Resources and Land Use
- ❖ Fish and Wildlife
- ❖ Floodplains
- ❖ Global Climate Change

The geographic area of analysis was developed to encompass the area in which a cumulative impact on key resources would be expected to occur, as well as areas that may affect regional travel patterns (such as new developments).

3.23.3 Timeframe for Analysis

The proposed timeframe for past and reasonably foreseeable future activities was established as 1949 through 2035. The analysis begins in 1949 with the initial construction of I-25. This timeframe allows a view of the history of the corridor as well as an understanding of how the highway has affected the area. The year 2035 was selected because it is the current planning horizon year for the Pueblo Area Council of Governments (PACOG) and this DEIS.

3.23.4 Identification of Past, Present, and Future Projects

The identification of other past, present, and reasonably foreseeable future projects is important in assessing how the New Pueblo Freeway project, in conjunction with other actions, may contribute to cumulative impacts on key resources. A list of these projects, separated into transportation and urban development projects, is included in **Exhibit 3.23-1**.

While the actions listed are not intended to be an exhaustive list of every project in the study area, they provide a representative illustration of the quantity and magnitude of projects affecting the overall trend for each resource.

The reasonably foreseeable future projects were identified through coordination with local officials and projects listed in state and local transportation and land use plans.

This list encompasses projects currently planned, and these projects may change (either over time or by location) as development pressures fluctuate and local politics and policies affect private development decisions, as acknowledged in the amended (April 2011) *Pueblo Area 2035 Long Range Transportation Plan (Pueblo Regional Transportation Plan (PACOG, 2008))*.

EXHIBIT 3.23-1

Past, Present, and Future Projects in the Study Area

Project	Timeframe	Description
TRANSPORTATION PROJECTS		
I-25	Past	Construction of the Pueblo Freeway through Pueblo between 1947 and 1959.
US 50B	Past	Construction of US 50 expressway bypass in 1957.
SH 96	Past	Rerouted south in 1971 to accommodate Pueblo Reservoir.
SH 47	Past	Regional connection for northeastern Pueblo. Construction of SH 47 from I-25 to Bonaforte 1971; Bonaforte to US 50/SH 96 1979; US 50/SH 96/ SH 47 interchange 1982.
I-25/US 50/SH 47	Past	Interchange improvements to US 50/SH 47 in 2002; includes extension of Dillon Drive between SH 47 and 29th Street, improvements to Eagleridge, Gateway, 29th Street interchanges; improved stormwater conveyance.
Pueblo Transit Center	Past	Transportation hub constructed in 2004 in downtown Pueblo.
Dillon Drive/Eden-Platteville Boulevard Interchange	Present	Planned construction of new interchange at Dillon Drive with I-25 to facilitate east-west regional connection.
4th Street Bridge Replacement	Present	Safety improvements and replacement of existing bridge.
US 50 Corridor East Tier 1 EIS	Present	Environmental study of four-lane widening from Pueblo to Kansas state line.
Defense Access Roads to Chemical Agent Destruction Pilot Plant	Present	Widening and overlay of existing facilities, construction of new roadway to complete Defense Access Roads. Expected in 2011.
US 50 West Congestion Relief	Future	Expansion of US 50 from four lanes to six lanes between Morris Avenue and Baltimore Avenue.
US 50 West PEL	Future	Study of seven interchanges Swallows Road and Baltimore Avenue.
DEVELOPMENT PROJECTS		
Pueblo Memorial Airport	Past	Originally constructed in 1942, Pueblo Army Air Base becomes City-owned Pueblo Memorial Airport for commercial flights in 1953.

EXHIBIT 3.23-1

Past, Present, and Future Projects in the Study Area

Project	Timeframe	Description
Southern Colorado State College (now Colorado State University-Pueblo)	Past, Present	College relocated from its Orman campus downtown to its current campus at SH 47 and Bonaforte in 1964; 275 acres, 5,000 students currently; Crestone residence hall constructed 2009 (253 student capacity); Greenhorn and Culebra residence halls, Fall 2010 (500 student capacity).
Pueblo West	Past, Present, Future	Establishment of the unincorporated community of Pueblo West in 1969; development and expansion of community continues.
Pueblo Dam	Past	One of five reservoirs constructed under the Fryingpan-Arkansas Project for flood control purposes and winter water storage in 1970.
Lake Pueblo State Park	Past	Became state recreational facility in 1974; third most visited recreational site in Colorado.
Pueblo Mall	Past	Original construction of 561,000 square feet of enclosed retail in 1976.
Fountain Creek Levees and Channelization Projects	Past	Project to improve flooding conditions in the Fountain Creek floodplain in 1989.
Historic Arkansas Riverwalk of Pueblo	Past, Present, Future	Urban renewal project consisting of commercial and residential uses along the historic location of the Arkansas River. Construction began in 1996.
Eagleridge Shopping Center	Past	Regional shopping center constructed at the Eagleridge/I-25 interchange in 1997.
Vestas Towers	Present	Construction of 600,000 square-foot facility for the production of wind energy towers; will provide as many as 500 jobs.
North Vista	Future	New 1,200 acre mixed-use development near Colorado State University-Pueblo.
Seranto	Future	New 1,100 acre mixed-use development north of Pueblo.
Ice House	Future	Redevelopment of historic warehouse into residential and retail space.
Sol Plaza	Future	New development of 20,000 square feet of retail on Pueblo Boulevard near Mirror Street.
Pueblo Chemical Agent Destruction Pilot Plant	Future	Construction of facility to destroy the chemical weapons stockpile currently in storage at the United States Army Pueblo Chemical Depot.

Source: CDOT Project Team, 2010.

EIS = Environmental Impact Statement
I-25 = Interstate 25

SH = State Highway
US = United States Highway

3.23.4.1 Development Patterns and Cultural Context

Early History of Pueblo

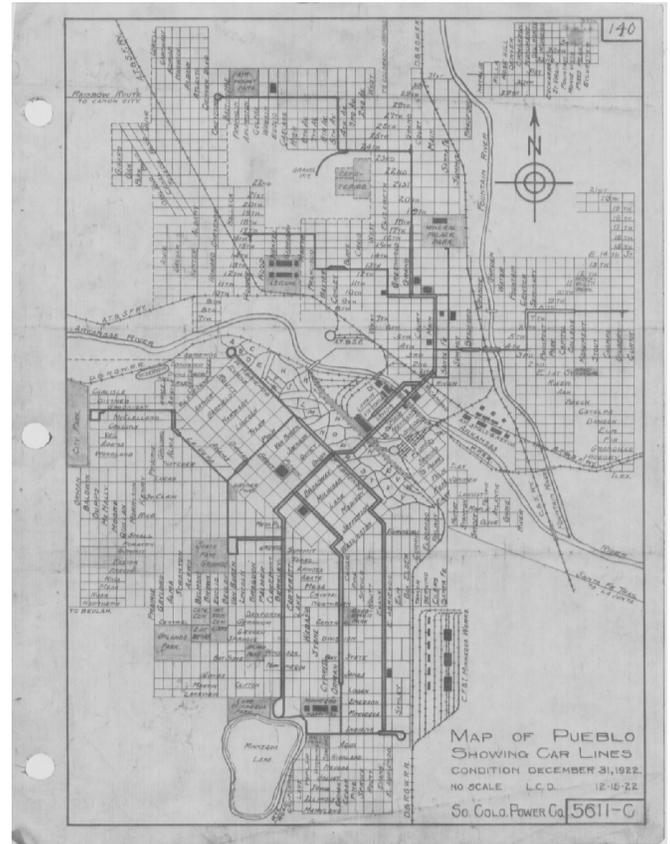
When the City of Pueblo incorporated in 1870, the original City boundary included 7th Street to the north, Bradford Street to the east, River Street to the south, and Grand Avenue to the east. The arrival of the railroad gave rise to expanded settlement, including South Pueblo (the Mesa Junction neighborhood) and Central Pueblo. The town of Bessemer was incorporated in 1886 as the company town for the Colorado Fuel & Iron Company (CF&I). Pueblo, South Pueblo, and Central Pueblo consolidated into one community in 1886, and Bessemer was annexed into the City of Pueblo in 1894.

Pueblo was primarily a smelting town and secondly a railroad town. The urban environment was typical of early settlement patterns, with integrated land uses. The first residential neighborhoods in Pueblo were established adjacent to jobs, including the Goat Hill, Smelter Hill, and Grove neighborhoods. Steel workers lived in the Bessemer Neighborhood, and railroad workers lived in the Blocks Neighborhood (now known as Mesa Junction). Professionals, steel mill managers, and bankers tended to reside in the North Side and Goat Hill neighborhoods. The early growth in Pueblo's immigrant population saw the expansion of ethnic neighborhoods. Within these communities, ethnic grocery stores and churches sprouted up to serve immigrant needs.

The flood of the Arkansas River and Fountain Creek in 1921 marked a new period of suburbanized development in Pueblo. The Arkansas River shifted its course from approximately Elizabeth Street to its current location near Abriendo Avenue, causing a permanent population shift. Residents migrated from the center of town to the peripheries, away from the river. Additionally, the flood forced the closure of the last remaining smelting operation, signaling the end of an economic era.

Modern Pueblo developed along streetcar lines that served as the original transportation spines around which City services and planned developments expanded. Service by horse-drawn streetcars commenced in the 1880s and was replaced by the electric streetcar in the 1890s. Rubber tire buses replaced the electric streetcar in 1947, but they continued to follow the same routes. The contemporary local

roadway network remains along the original streetcar lines, as illustrated in the map below.



Historic Transportation Network (1922)

The advent of the automobile as a primary mode of transportation, combined with a land use-based zoning code, ultimately reformed Pueblo's land use patterns, replacing many neighborhood businesses with automobile-centric uses and segregating residential neighborhoods from commercial districts. However, the growth of the automobile coupled with the influence of the railroad reinforced Pueblo's importance as the business and trade center of southeastern Colorado in the early 20th century.

Throughout the Depression years in the 1930s, the fundamental patterns of manufacturing and trade remained intact, but the New Deal recovery programs launched construction of new public infrastructure and facilities throughout Pueblo and contributed to a new layer of the City's urban fabric. The boom of World War II led to resurgence in Pueblo's economy with the steel mills and other war-related plants operating at capacity (Dodds, 1982).

Construction of I-25 through Pueblo

The Federal Highway Act of 1916 examined the need for a national highway system. Between the 1920s and the end of the 1940s, US 85-87 provided the principal route through Pueblo north to Colorado Springs and south to Walsenburg. Originally, the route travelled through the center of town on Lake-Union-Main-15th-Court-25th-Elizabeth. However, the 1949 highway alignment departed from the previously used local network.

On a federal level, the Cold War underscored the need for a modern interstate highway network. Furthermore, Colorado's leaders understood the importance that highway travel played in economic development. The Pueblo Freeway project, a modernization of US 85-87, started in 1949. After 10 years of construction, the segment of highway through Pueblo opened in 1959.

The Pueblo Freeway (later named I-25) marked a new era for the City and its role as a transportation hub in southeastern Colorado. Modern architectural movements and the demand for denser housing influenced the styles and forms of new infill in older neighborhoods. Construction of the new highway severed neighborhoods (particularly Grove, Goat Hill, and Bessemer), and much of Pueblo's historic urban fabric was lost, as evidenced by the deterioration of housing stock abutting the highway. In commercial areas, changing shopping and merchandising patterns led to a loss of older commercial establishments. New development was often at a larger scale or with

dramatically different setbacks and forms to accommodate the automobile.

Land Use Changes – 1950 through Present

Pueblo experienced the largest expansion of population during the 1950s and 1960s due to the steel boom. To house new residents, new residential development occurred on the north, east, and southwest edges of the City. Unlike the older neighborhoods, these new neighborhoods were mostly developed as tract housing. Between 1940 and 1970, the City's population grew from 52,000 to 97,774 (PACOG, 2008b), accounting for 82 percent of the total Pueblo County population in 1970. **Exhibit 3.23-2** presents past U.S. Census Bureau populations and future projections.

Despite the economic strengthening of the former CF&I Steel Mill in the 1950s and 1960s, the United States steel industry became unable to compete with low foreign wages and subsequently collapsed. With the bankruptcy of the former CF&I Steel Mill and near closure of the plant during the 1980s, the Pueblo region lost thousands of jobs. More than anything, the disappearance of the neighborhood grocery stores indicated the change in business environment from locally supported to nationally owned.

By the end of the 20th century, the clothing retail district in Pueblo completely shifted as well. Union Avenue was the center of this shopping activity during the early decades of the century. However, by the 1990s, most of these stores

EXHIBIT 3.23-2
Existing and Future Populations

Year	City of Pueblo		Pueblo County	
	Population	Rate of Growth	Population	Rate of Growth
U.S. Census 1960	91,181	n/a	118,707	n/a
U.S. Census 1970	97,774	7.2	118,213	-0.4
U.S. Census 1980	101,686	4.0%	125,972	6.5%
U.S. Census 1990	98,640	-3.0%	123,051	-2.3%
U.S. Census 2000	102,121	3.5%	141,472	15.0%
U.S. Census 2010	106,595	4.4%	159,063	12.4%
Projected 2015	121,390	16.5%	179,706	18.9%
Projected 2025	140,928	16.1%	212,115	18.1%
Projected 2035	163,194	15.8%	248,012	16.9%

Source: PACOG, 2008b; DOLA, 2009.

were found on Dillon Drive, the site of a newly constructed commercial district of strip shopping centers strung along I-25 north of town (Polk, 1997). This shift, from a centrally located shopping district to shops on the City's edges, reflected the trends found in most parts of the United States during the late 20th and early 21st centuries.

Pueblo's economy, which had been heavily dependent on steel and government jobs from the World War II economic era, diversified during the 1980s. Pueblo lacked the high-tech manufacturing jobs that other Colorado communities gained. However, as the number of manufacturing jobs was reduced, jobs in the service, retail, and wholesale industries increased.

Initial, unconstrained employment forecasts estimate 98.9 percent job growth between 2005 and 2035 (PACOG, 2008). However, even as Pueblo witnesses economic strengthening, approximately one third of Pueblo County's workforce commutes outside of the County for work; 10 percent of those workers commute to El Paso County (PACOG, 2008b). Population growth reflects this similar trend. The City continues to experience a population shift away from the City center into emerging population centers, including Pueblo West. This has produced and will continue to produce commuting patterns outside of places of residence, and peripheral growth trends and unrestrained mobility will encourage development outside of the City. It is anticipated that by 2030, only 62 percent of Pueblo County's total population will reside in the City (PACOG, 2004).

3.23.4.2 Cumulative Impacts Assessment

This section evaluates the potential for cumulative impacts caused by the New Pueblo Freeway project in conjunction with other actions. The analysis was conducted by identifying the potential impacts of past, present, and reasonably foreseeable future projects on key resources in the project area.

The following discussion describes potential cumulative effects by key resource. **Exhibit 3.23-3** lists the projects that have occurred or are planned within the geographic extent of study for cumulative effects, along with their potential contribution to resource impacts within the study area. The effects of the past, present, and reasonably foreseeable projects are considered in conjunction with the No Action

Alternative, which serves as a baseline against which the Build Alternatives are assessed.

Transportation

The geographic extent of study for the cumulative effects to transportation includes the roads comprising the regional network between I-25 milepost 102 on the north and milepost 94 on the south. A cumulative impact to transportation results in diminished mobility from increased congestion or an incongruent roadway network. A cumulative benefit adds to a network's mobility, improves safety, and relieves congestion.

Beginning in the 1950s, growth of the greater Pueblo metropolitan area generated the need for development of a regional roadway network. The past transportation projects listed in **Exhibit 3.23-1**, including the original Pueblo Freeway (I-25), SH 47, US 50B, and SH 96, established the regional network needed to connect the emerging communities. Many routes ringed the City (SH 47) or improved east-west connections (SH 96 and US 50). The Pueblo Freeway rerouted US 85-87 from its downtown alignment on the local road network to the current I-25 highway alignment, providing the main north-south connection through the City. The construction also severed many local roadway connections. Construction of I-25 closed some local routes, limited others, divided neighborhoods, and limited east-west access across Pueblo. Without a separate route for US 85-87, I-25 through Pueblo serves as the sole north-south connection for both through-travelers and local traffic. The highway no longer serves today's operational needs, with its insufficient capacity, inadequate spacing between interchanges, tight curves, and short on- and off-ramps. Continued development on the periphery of the City has increased vehicle miles traveled (VMT) and has increased demand on I-25 and other highways and local roads. Recently completed and current transportation projects continue to expand or enhance the roadway network by adding new connections, including the Dillon Drive extension at Platteville Boulevard and from US 47 to 29th Street. These projects increase connectivity (Defense Access Roads), improve transit mobility (Pueblo Transit Center), provide congestion relief (US 50 West), and replace aging infrastructure (4th Street bridge).

EXHIBIT 3.23-3

Summary of Contribution of Cumulative Effects to Resources within the Study Area by Project

Project	Transportation	Historic Resources	Parks and Recreation	Wetlands	Noise	Social Resources/ Land Use	Fish and Wildlife	Floodplains
Transportation Projects								
Construction of I-25 (1947-1959)	X	X	X	X	X	X	X	X
Pueblo Airport (1942, 1953)	X			X			X	X
Construction of US 50 (1957)	X	X		X	X	X	X	X
Reroute of SH 96 (1971)	X	X		X	X	X	X	X
SH 47 (1971-1982)	X	X		X	X	X	X	X
I-25/US 50/SH 47 Interchange (2002)	X	X		X	X	X	X	X
Pueblo Transit Center (2004)	X							
Dillon Drive (2011-2012)	X			X			X	
4th Street Bridge Replacement (2007-Present)	X	X		X				
US 50 Corridor East EIS (Present)	X			X		X	X	X
Defense Access Roads to Chemical Agent Plant (Present)	X							
US 50 West Congestion Relief (Future)	X			X		X	X	X
US 50 West PEL (Future)	X					X		
Development Projects								
Colorado State University-Pueblo (1969-Present)	X							
Pueblo West (Past, Present, Future)	X		X	X		X	X	X
Pueblo Dam (1970)	X			X			X	X
Lake Pueblo State Park (1974)	X		X					
Pueblo Mall (1976)	X			X		X	X	X
Fountain Creek Levees and Channelization (1989)				X			X	X
Pueblo Historic Arkansas River Project (HARP) (1996)	X	X				X		
Eagleridge Shopping Center (1997)	X			X		X	X	X
Vestas Towers (2010-Present)	X							
North Vista Development (Present, Future)	X		X	X		X	X	X
Seranto Development (Future)	X		X	X		X	X	
Ice House Re-development (Future)	X	X	X			X		
Sol Plaza Urban Renewal Development (Future)	X		X					
Pueblo Chemical Agent Destruction Pilot Plant (Future)	X							

*Note: the area of influence evaluated for cumulative impacts from all past, present, and reasonably foreseeable future projects is defined for each resource in the text for this section. While some projects may have impacted a resource within that project's study area, if it not located within this project area of influence, it would not be considered a cumulative impact and is not included on the above chart.

Population, employment, recreation, and retail centers serve as regional traffic generators and include the Pueblo Mall, Eagleridge Shopping Center, Lake Pueblo State Park, Pueblo Airport, Colorado State University-Pueblo, Vestas Towers facility, and the Chemical Agent Destruction. As the future development projects in **Exhibit 3.23-1** are realized, and population growth continues as shown in **Exhibit 3.23-2**, roadway improvements will be needed to serve the City's increased transportation demand.

The past, present, and future transportation projects continue to expand the network and improve mobility regionally, but the residual impacts that the original I-25 construction had on the local network remain. Additionally, the population, employment, and retail centers included in the past, present, and future development projects have been and will continue to be large traffic generators.

The Build Alternatives being considered for the New Pueblo Freeway would provide the capacity to meet increased demand on I-25 caused by development and population growth, correct existing safety deficiencies, reestablish east-west connections across I-25, and ultimately encourage travelers to use local roads for local trips. Under both Build Alternatives, sidewalks and multi-use paths would be constructed for increased pedestrian and bicycle mobility and safety. Both Build Alternatives would enhance the local roadway network by extending Dillon Drive between 26th Street and US 50B. In addition, the Modified I-25 Alternative would shift I-25 to the east, and Santa Fe Avenue would be extended between Ilex Street and Minnequa Avenue. Both the Dillon Drive extension and the Santa Fe Avenue extensions would offer a north-south alternative to I-25. Both Build Alternatives would connect Abriendo Avenue to Santa Fe Drive/US 50C. The Modified I-25 Alternative would reconfigure Stanton Avenue to provide alternative access to the Runyon Field Sports Complex and over the Arkansas River.

The Build Alternatives, combined with the past, present, and future transportation projects, would provide a cumulative benefit for both local and regional transportation networks and facilitate mobility between population, employment, retail, and recreational centers.

Historic Resources

Historical development patterns in Pueblo have resulted in a high concentration of historic properties and historic districts adjacent to I-25. The study area under consideration for the cumulative effects analysis includes the North Side, Second Ward, Goat Hill, Corona Park, Grove, and Steelworks Historic Districts, and the eligible and contributing properties located within the Area of Potential Effect (APE). Refer to **Section 3.2 Historic Properties** for a detailed description of these resources and definition of the APE.

The original construction of the Pueblo Freeway severed some historically contiguous neighborhoods and divided the former CF&I Steel Mill from the company housing to the west where many employees resided. It also contributed to the loss of historic structures in these historic districts and in the APE. The US 50 bypass bisected the first and second filings of the Belmont subdivision of the East Side Neighborhood and isolated the Eastwood Heights subdivision of the East Side Neighborhood (Historitecture, 2009). The present and reasonably foreseeable future transportation projects that have been identified in **Exhibit 3.23-1** are located outside of the APE.

Private development projects (specifically infill and urban redevelopment) that demolish or alter properties also contribute to the loss of historic resources. Development projects that restore buildings to their original state contribute to the preservation of historic properties. While the Pueblo has lost historic structures and sites to development, redevelopment, and transportation projects, the restoration efforts of community organizations have made an overall improvement to the conditions of the City's "historic core." The City has preserved and maintained the Union Avenue Historic District, which invested in reconditioning and connecting the depot and City Hall for retail, tourism, and historic educational opportunities. The Ice House and Historic Arkansas Riverwalk of Pueblo (HARP) are two of the development projects listed in **Exhibit 3.23-1** that refurbished historic buildings, contributing to the preservation of historic properties in Pueblo.

Many historic structures still exist in the historic districts within the APE. The maturity of the neighborhoods and well-established land uses in the study area (paired with limited redevelopment) have helped to maintain the integrity of

many of the historic neighborhoods and historic properties. The Existing I-25 Alternative would adversely affect 33 historic properties in the study area. The Modified I-25 Alternative would adversely affect 40 historic properties. The Steelworks, North Side, and Grove Historic Districts would also be adversely affected by the acquisition of historic structures that contribute to the Districts.

Specific mitigation measures have not yet been identified for the Build Alternatives but will be agreed upon by FHWA, CDOT, the Advisory Council on Historic Preservation, the State Historic Preservation Officer (SHPO), and the consulting parties in a Programmatic Agreement prior to publication of the FEIS.

The Build Alternatives, when combined with past, present, and reasonably foreseeable future projects, would result in a cumulative adverse impact on the historic districts and structures in Pueblo.

Parks and Recreation

A cumulative impact to parks and recreation facilities occurs from the addition to or removal of lands, amenities, or other features from parks, trails, or recreational facilities over time. For this analysis, the study area includes the parks and recreational resources located in the neighborhoods adjacent to I-25.

Some of Pueblo's parks date back to the late 19th and early 20th centuries, and many more have been built or expanded upon since that time. Today the City's Parks and Recreation Department manages over 3,330 acres of City parks and continues to develop new parks. Additionally, as new residential development occurs, neighborhood parks have been and will continue to be incorporated into those communities. Because of the City's parkland dedication requirements, new development projects that add residential units will improve and add to the parks system. These include some of the development projects listed in **Exhibit 3.23-1**, such as North Vista and Ice House. The City and private development projects have contributed to an overall gain in parkland acreage in Pueblo since the creation of the City's Parks and Recreation Department.

Although overall park acreage in Pueblo has increased over time, the acreage of Mineral Palace Park has been gradually reduced. Original construction of Mineral Palace Park occurred in 1891. For financial reasons, in the 1930s

the City drained half of Lake Clara and sold all of the parkland south of 14th Street. Both Lake Clara and the park were again reduced in size as US 85-87 was constructed along the eastern edge of the park in 1935. Construction of the Pueblo Freeway in 1949 further reduced the size of the park along the eastern edge. Mineral Palace Park was the only park resource in the I-25 corridor study area to be impacted by the original Pueblo Freeway construction.

Section 4(f) of the U.S. Department of Transportation Act of 1966 mandates the avoidance, minimization, and mitigation of impacts to park resources by federally funded transportation projects. Section 6(f) legislation requires that parklands that have been purchased or improved with Land and Water Conservation funds, and that would be converted by any federally funded project, must be replaced with like parkland or improvements. Given the requirements to replace parkland under Section 4(f) and Section 6(f) legislation, it is unlikely that the reasonably foreseeable transportation projects (which are all federally funded) listed in **Exhibit 3.23-1** would generate an anticipated loss of parkland.

Prior to mitigation, the Build Alternatives would result in the acquisition of park and recreational resources in the study area. Both Build Alternatives require the acquisition of parklands from Mineral Palace Park, Benedict Park, and Fountain Creek Park Land. The Modified I-25 Alignment would have temporary impacts to the Runyon Lakes State Wildlife Area, but would not have a permanent impact on recreation. Noise impacts would occur at the detention ponds (Pits Park), Mineral Palace Park, and JJ Raigoza Park. The Modified I-25 Alternative would improve access to the Runyon Field Sports Complex by providing access via the local street network instead of by I-25.

After mitigation, the Build Alternatives would result in an overall beneficial impact to parks and recreational resources in Pueblo. The Build Alternatives would reverse the trend of the loss of acreage of Mineral Palace Park. Mitigation would include increasing the size of Mineral Palace Park from 50.07 acres to 52.38 acres, restoring the historic rose garden, constructing gateway features, and providing a swimming pool, among other amenities. Under the Existing I-25 Alignment mitigation, Benedict Park, which is currently 1.92 acres, would be enlarged to 4.05 acres; under the Modified I-25 Alignment, a 4.30-acre park would be newly

constructed. Trail linkages between Fountain Creek Park Land and Mineral Palace Park would be strengthened, and a pedestrian overpass over I-25 would be provided.

The Build Alternatives in conjunction with other past, present, and reasonably foreseeable future projects would result in increased acreage of parklands, improved trails and connections among parklands, and improved park amenities. These actions would result in beneficial cumulative effects on parklands in Pueblo.

Wetlands

The wetlands study area includes the Lower Fountain Creek watershed and the Upper Arkansas River watershed. Due to Colorado's unique hydrology, wetlands primarily occur within riparian corridors. The riparian corridors associated with the Arkansas River and Fountain Creek have been reduced over time as urban growth has converted these corridors to developed lands. After the flood of 1921, the Arkansas River was channelized through the City of Pueblo to contain the floodway and prevent future flooding.

In 1938, Fountain Creek flooded, and historic photos of this time show only scrub and desert climate vegetation due to repeated flood scouring; no wetlands vegetation was present. Channelization of both waterways limited the opportunity for wetlands to expand or for new wetlands to establish. Flood control structures also removed the water source of existing wetlands along the Arkansas River. After flood control measures were installed on the Arkansas River and Fountain Creek between 1939 and 1942, channels were more stable and wetlands vegetation was able to establish.

The original construction of the Pueblo Freeway, specifically the 13th Street interchange and the segment of I-25 between US 50B and 8th Street, approached Fountain Creek just east of Mineral Palace Park. By constructing along the edge of Fountain Creek, the Pueblo Freeway limited the opportunity for wetlands to expand or for new wetlands to establish; however, due to repeated flood scouring, large tracts of wetlands would not have been present at the time the Pueblo Freeway was constructed.

The construction of US 50B over Fountain Creek in 1957 also removed wetlands where the road bisects the Fountain Creek riparian corridor. Additionally, urban development has encroached upon riparian corridors and has limited the opportunity for expansion of existing wetlands or

establishment of new wetlands. The flood control measures listed in **Exhibit 3.23-1** (such as the levee system in 1989 and Pueblo Dam in 1970) have led to channelization of surface water features and reduction of flooded areas adjacent to them. These actions have led to a loss of wetland acreage in the study area over time.

Prior to the issuance of the federal Clean Water Act (CWA) of 1972, impacts to wetlands, including the removal of wetlands, were not regulated. The CWA requires all projects impacting greater than 0.10 acre of jurisdictional wetlands to mitigate for those losses. The Pueblo Mall, constructed in 1976, removed a wetland from near Fountain Creek. The construction of the Dillon Drive extension associated with the I-25/US 50/SH 47 transportation project in 2002 impacted approximately 1.5 acres of wetlands; however, those impacts were offset by wetland mitigation requirements, thus resulting in no net wetland loss from the projects. It is unlikely that the reasonably foreseeable future transportation projects listed in **Exhibit 3.23-1** would generate a net loss of wetlands because of the requirements to replace wetlands under CWA legislation. The Fountain Creek Watershed Study, commissioned by the U.S. Army Corps of Engineers (USACE) in 2006, revealed that wetlands in the Lower Fountain Creek sub-watershed have decreased slightly from 3,189 acres to 3,069 acres between the 1970s and 1990s (USACE, 2006). Additionally, USACE provided records of CWA Section 404 permit applications in Pueblo County for the period between 2001 and 2005. For the 16 permits granted, a total of 2.975 acres of wetlands were impacted in Pueblo County (USACE, 2006).

The Existing I-25 Alternative would impact 0.22 acre of wetlands (0.20 acre of which are jurisdictional), and the Modified I-25 Alternative would impact 1.1 acres of wetlands (1.08 acres of which are jurisdictional). However, avoidance, minimization, and mitigation measures will be implemented after the FEIS to determine final impacts and identify mitigations needed to offset impacts to wetlands. Location-specific mitigation measures have not yet been agreed upon by the USACE and FHWA, but the study area includes several locations that may be suitable for replacing the functional values of the wetlands that would be lost or impacted by the New Pueblo Freeway project. Discussions will continue as the project progresses. CDOT mitigates

impacts to all wetlands, including wetlands not under the jurisdiction of the USACE. Therefore, the Build Alternatives are not expected to result in a net loss of wetlands in the Fountain Creek and Arkansas River watersheds. Because all impacted wetlands would be replaced, the project would contribute to neutral cumulative impacts to wetlands in the watersheds. CDOT will work with USACE to determine an acceptable mitigation site to establish replacement wetlands.

Noise

A cumulative noise impact occurs when an increase or decrease in noise levels from the proposed project is added to noise level changes from previous projects in the area and/or future projects that are likely to occur. The community has been subjected to noise since the construction of the railroad and the steel mill. Because noise effects are localized based on the surrounding activities, the New Pueblo Freeway project does not contribute to the cumulative noise effects outside of the area impacted by the Build Alternatives. Therefore, the geographic extent of the cumulative effects analysis for noise encompasses I-25 and 500 feet on either side of the highway edge of pavement.

Noise in the corridor has increased over time with the construction of I-25 and the increase in traffic. The original highway construction cut through residential neighborhoods in the North Area and Central Area of the project, introducing high traffic volumes and speeds that generate noise. Highway noise in the South Area has likely been less noticeable given the industrial nature of the corridor, which includes a steel mill and railroads. Two past transportation projects, US 50B and I-25/US 50/SH 47, have expanded the roadway network, bringing heavily travelled roads closer to residences and businesses. Increased noise levels occur in the North Area, near the US 50B and I-25/US 50/SH 47 projects, and existing measurements (2003) indicate noise impacts at residences, the detention ponds (Pits Park), and the Fountain Creek Park Land. Modifications near the I-25/US 50/SH 47 interchange within the last 5 to 10 years included the removal of some homes and the addition of an acceleration lane on I-25, bringing traffic closer to sensitive receptors. Elsewhere in the study area, noise impacts occur at residences where the highway abuts the neighborhoods.

For the majority of sensitive receptors in the corridor, noise levels are predicted to increase above current or No Action Alternative levels by an average of approximately 3 A-weighted decibels (dB[A]) under the Existing I-25 Alternative and by approximately 2 dB(A) under the Modified I-25 Alternative. Noise levels are predicted to decrease at some limited locations where I-25 would shift from its current alignment away from sensitive receptors. Under both Build Alternatives, noise barriers would be constructed to mitigate noise impacts associated with the project, as detailed in **Section 3.5 Noise**.

Cumulative noise impacts are controlled by the successful abatement of noise for major transportation actions. Under both Build Alternatives, noise mitigation measures are expected to result in a decrease in current noise levels adjacent to the project, as detailed in **Section 3.5 Noise**. The proposed noise mitigation benefits would impact businesses and residences along the corridor.

All of the transportation and development projects listed in Exhibit 3-23.1 already experience urban noise levels at 60 to 70 dBA (see **Section 3.5 Noise, Exhibits 3.5-3, 3.5-5, and 3.5-7**). Noise generated at these levels is jointly contributed by non-transportation urban activities as well as freeway and local road noise. There are no sites within the study area that currently experience near-rural levels of quiet, and the urban quality of life is not anticipated to change with construction of the New Pueblo Freeway. However, the impacts of the Build Alternatives, along with the past, present, and reasonably foreseeable future projects in the study area, would reduce noise and provide a cumulative benefit to noise receptors.

Social Resources and Land Use

Cumulative impacts to social resources occur when community facilities are removed or enhanced, neighborhood cohesion is reduced or strengthened, or pedestrian and bicyclist safety is degraded or improved. A cumulative impact to land use occurs when a transportation project serves as the impetus for large changes to existing land use patterns. The cumulative impacts study area for social resources and land use includes the neighborhoods adjacent to I-25 between SH 47 and Pueblo Boulevard.

Residential and commercial neighborhoods in the study area were established prior to the construction of the Pueblo Freeway and other transportation projects. Many neighborhoods developed around employment centers (steel mill, smelters, railroads), and many were formed by pockets of various ethnic groups who worked for these employers. Since the original development of Pueblo, land uses along the I-25 corridor have evolved. The City witnessed the evolution of auto-centric development patterns in the corridor. In many cases, national chains replaced iconic, locally owned, neighborhood-serving retailers. Vacant plots of land have been developed into commercial and residential uses. Where transportation projects were constructed through an established urban area, impacts to neighborhoods were felt; where highways were constructed along the peripheries of neighborhoods, new access often provided growth opportunities for new neighborhoods and community resources. For example, US 50B and I-25/US 50/SH 47 skirted the Sky View, Club and Belmont, and East Side neighborhoods, while the Pueblo Freeway bisected many residential neighborhoods. The I-25/US 50/SH 47 project provided new access to the west, around which Pueblo West developed.

Populations forecast by PACOG are anticipated to increase by 16 percent every 10 years between 2010 and 2035 (PACOG, 2002). In April 2011, PACOG updated the *Pueblo Regional Transportation Plan* (PACOG, 2008) and published population forecasts out to 2035. The agency found that although developments have slowed or postponed growth since approval in 2007, these projects would not change the future corridor vision plans (including reconstruction of I-25) proposed in the *Pueblo Regional Transportation Plan* (PACOG, 2008). The cumulative effect of the Build Alternatives and past, present, and foreseeable future projects would support the predicted population growth in the City of Pueblo and Pueblo County.

In the past, transportation projects were implemented with limited consideration for environmental or human concerns. When the Pueblo Freeway was first built, it bisected many of the City's original neighborhoods, including the Goat Hill (bisected from downtown), Grove, and Bessemer neighborhoods. The chosen alignment for I-25 formed isolated pockets of these neighborhoods, separated neighborhood businesses from their service base, and

resulted in insensitive right-of-way (ROW) acquisition along the corridor. Examples include the residences along Schley Street that no longer have access to a neighborhood street and must be entered through an alleyway, the removal of rows of homes, and leaving some houses to back directly up to I-25.

ROW acquisitions and relocations occur as part of transportation projects when existing ROW is constrained. Transportation projects that come before urban development generally require less ROW acquisition and result in less change to land uses than those projects that transect established development.

Neighborhood-focused community resources have given way to regionally important social resources. Past, present, and future private development projects occurring within Pueblo generate opportunities for the rebirth of community cohesion by providing gathering locations, park or plaza space, or community resources. These projects include the Pueblo Mall, HARP, Eagleridge Shopping Center, Colorado State University-Pueblo, and Lake Pueblo State Park. Furthermore, the growth of new communities, such as Pueblo West, offers opportunities for new neighborhoods to expand. The past, present, and foreseeable future development projects have increased the number of community resources available to the residents of Pueblo.

Continuing cumulative impacts social resources and land use would include increased traffic and associated noise intrusion into areas where neighborhoods of low-income and minority populations are prevalent. There are higher concentrations of low-income and minority populations in Pueblo than regionally or in the state overall, and these concentrations are within older, established neighborhoods located along I-25, as shown in **Section 3.6 Social Resources, Economic Conditions, and Environmental Justice, Exhibit 3.6-2**. Outside of direct impacts from construction of the freeway, the projects listed in **Exhibit 3.23-1** are not anticipated to cumulatively contribute to relocations of low-income or minority populations within the study area. On the other hand, improvements to I-25 and other local roads would provide better access for all populations, including low-income and minority populations.

One benefit of the New Pueblo Freeway project is that it corrects some of the historic construction impacts and

ensures social resources are not further degraded by the Build Alternatives. Embedded within the Build Alternatives are benefits to historically affected neighborhoods along the corridor. Both Build Alternatives would result in improvements in these neighborhoods, including a safer transportation system, improved mobility for motorists and emergency responders, restoration of neighborhood connectivity, installation of noise barriers for existing and future noise impacts, improvements to neighborhood parks, and coordinated aesthetics of highway infrastructure throughout the I-25 corridor to replace the aging transportation facilities now in place.

Extensive outreach targeted at these neighborhoods helped the Build Alternatives take shape with an emphasis on restoring community cohesion. The Existing I-25 Alternative restores east-west connections between neighborhoods in the Central Area and South Area. The Modified I-25 Alternative restores neighborhood connectivity by re-connecting severed neighborhoods and re-establishing local east-west and north-south street connections in the Central Area and South Area. Both Build Alternatives improve Mineral Palace Park and Benedict Park (see **Section 3.3 Parks and Recreation**). Mineral Palace Park is a historic and regional community amenity. Benedict Park is an under-utilized neighborhood pocket park that when reconstructed will be able to serve as a neighborhood gathering place. The Build Alternatives would result in improvements to community cohesion and connectivity in Pueblo.

The Build Alternatives do generate impacts to residences and businesses. The Existing and Modified I-25 Alternatives could displace 87 to 117 residences and 53 to 55 businesses along the corridor, respectively. CDOT will work to relocate those businesses and residences within the City. The project would change land use in localized areas of the study area, but it is not anticipated to spur large-scale changes to land use and remains consistent with adopted future land use plans.

The Build Alternatives in conjunction with other reasonably foreseeable future projects would provide a cumulative benefit to community cohesion in Pueblo by re-establishing neighborhood connections and creating opportunities for community gathering places to reemerge at Benedict Park and Mineral Palace Park. They would generate a neutral

cumulative impact upon land use due to the developed character of the study area.

Fish and Wildlife

A cumulative impact to fish and wildlife in the study area consists of the collective loss of habitat or the disruption of wildlife migration linkages from multiple projects as Pueblo has incorporated north and west of the City center. Conversely, a cumulative benefit can include the restoration of wildlife migration linkages and habitat or improvement in habitat quality. Because wildlife effects are contained to a primarily urbanized corridor, and suitable habitats only exist in the Fountain Creek Park Land and Arkansas River corridor, the New Pueblo Freeway project does not contribute to the cumulative effects on wildlife outside of the area impacted by the Build Alternatives. Therefore, the geographic extent of the cumulative effects analysis for fish and wildlife resources consists of habitats within the parks and at locations crossing the Arkansas River and Fountain Creek.

Prior to the City's acquisition of the Fountain Creek parklands in 1971, the Fountain Creek corridor was barren and provided minimal fish and wildlife habitat. Photos provided by the City Engineering Division of the Fountain Creek flooding in 1938 show extensive scour and siltation. When the City and the Bureau of Reclamation added the levees and flood control structures to Fountain Creek, vegetation, fish, and wildlife reclaimed Fountain Creek and its floodplain. With the acquisition of the Fountain Creek parkland in 1971, habitats were protected and began providing important habitats for fish and wildlife.

Where I-25 crosses the Arkansas River, below the existing riprap dam and east of the Runyon/Fountain Lakes State Wildlife Area, habitats consist of the river and riparian areas in the woodland understory on the primary flood terrace. Similar to the Fountain Creek habitats, this area provides wildlife habitat for nesting migratory birds and other wildlife using the impacted wetland and riparian areas. The Runyon/Fountain Lakes State Wildlife Area, located east of I-25, also provides important wildlife habitat.

Urban uses of parks and recreation resources along wooded uplands, wetlands, and riparian corridors, and the degradation of open water habitat, has resulted in an overall loss of fish and wildlife habitat in the study area. Remaining fish and wildlife habitat in urban Pueblo occurs principally

along the Arkansas River and Fountain Creek; these habitat areas (floodplains and riparian areas) have been protected through incorporation as parks. The Fountain Creek parkland, Runyon/Fountain Lakes State Wildlife Area, and Arkansas River corridor are protected from future local development through Federal Emergency Management Agency and local regulations (including long-range plans for infill redevelopment). Therefore, construction and operation of the New Pueblo Freeway would not contribute to cumulative effects on fish and wildlife habitat within these parks resulting from future or unplanned development .

As transportation projects convert undeveloped land to a transportation facility, fish and wildlife habitat is lost. This is especially true of the transportation projects that are located along waterways. The original construction of the Pueblo Freeway, I-25/US 50/SH 47, and 4th Street Bridge Replacement projects constructed transportation infrastructure in and near the Arkansas River and Fountain Creek, depleting fish and wildlife habitat. The proximity of the Pueblo Mall and the Eagleridge Shopping Center to Fountain Creek, and the conversion of undeveloped land to commercial land, resulted in further loss of habitat. The Fountain Creek channelization project also narrowed the floodplain, which resulted in a decrease in riparian and wetland habitat. Planned future developments will re-construct existing development or newly construct on greenfields that do not acquire habitats and are therefore not anticipated to impact fish or wildlife habitat.

The Build Alternatives would benefit open water habitat by treating stormwater runoff before it enters water bodies. The Existing I-25 Alternative would impact 8.95 acres of combined wooded uplands and wetland habitats. The Modified I-25 Alternative would impact 18.04 acres of habitat; it would remove up to 60 percent of the wooded upland habitat and almost all of the wetlands near Santa Fe Avenue. Even after mitigation, both Build Alternatives would result in a loss of fish and wildlife habitat.

The Build Alternatives, in combination with past, present, and reasonably foreseeable future projects, contribute to a cumulative loss from directly impacted wooded upland and riparian habitat in the study area and a cumulative benefit to open water habitat.

Floodplains

Cumulative impacts to floodplains result from continual encroachment by development into the floodplain or from an increased rate at which stormwater flows into receiving bodies; this can lead to flooding and erosion of streambeds and banks. Conversely, a cumulative benefit to floodplains involves removing structures from the floodplain, reducing the flood volumes where possible, or slowing the rate at which runoff enters a water body. The study area used to evaluate cumulative impacts to floodplains includes the Lower Fountain Creek watershed and the Upper Arkansas River watershed 100-year floodplains through the City of Pueblo. The Arkansas River is channelized through the City to restrict flooding. None of the current I-25 alignment is located within the Fountain Creek floodplain, but project improvements at US 50B and 8th Street occur within the floodplain.

Flooding along Pueblo's two main water bodies has shaped the face of Pueblo today. The Arkansas River flood of 1921 served as an impetus to shift development away from the confluence of the Arkansas River and Fountain Creek. The Fountain Creek flood of 1965 prompts the construction of the Fountain Creek Levees in Pueblo (FCVTF, 2009).

Past public improvement projects increased the conveyance capacities of waterways, reduced the width of the floodplain, stabilized channels, and slowed the attenuation of stormwater into receiving bodies throughout Pueblo. The Fryingpan-Arkansas River Project, which included construction of the channelized portion of the Arkansas River, construction of the levee and flood wall along Fountain Creek, bank stabilization of Fountain Creek, the Pueblo dam, and construction of the Pueblo reservoir to prevent flooding of the Arkansas River, greatly reduced the width of the floodplain along these waterways and removed many structures that were contained within or adjacent to the floodplain.

Past, present, and future transportation projects that have impacted the Fountain Creek or Arkansas River floodplains also include the I-25/US 50/SH 47 project, which widened the bridge over Fountain Creek to convey greater volumes of water to reduce flooding, constructed an embankment on the west side of the floodplain between SH 47 and 8th Street, and provided multiple detention ponds to slow the peak discharge of stormwater into receiving water bodies.

Non-transportation projects, such as the Pueblo Mall, contribute greater impervious surfaces that also drain to these floodplains. However, stormwater collection and off-channel treatment, such as the detention ponds (Pits Park), reduce stormwater discharges and improve flood conditions. The combination of past, present, and reasonably foreseeable future projects in the study area minimize the size of the floodplain and stabilize channels.

For future projects, local development standards require stormwater detention facilities to be constructed for large-scale commercial and residential developments to slow the volume of stormwater being discharged back into the waterways after a storm event. Additionally, local development standards have been adopted that restrict the construction of structures within the floodplains. Future local development projects will be required to locate outside of the floodplain. These two local development standards contribute to an overall benefit to the floodplains in the study area.

Both Build Alternatives encroach upon the Fountain Creek floodplain at the Dillon Drive extension, but the replacement US 50B bridge would have a wider span than the current bridge and would convey greater volumes of water, reducing the base flood elevation downstream and improving conditions over the current configuration. A slight rise in base flood elevation at the US 50B bridge over Fountain Creek is anticipated, although the Fountain Creek floodplain is wide enough to accommodate the rise.

The Existing I-25 Alternative would replace the existing I-25 bridge over the Arkansas River and would reduce the floodplain width; the river is confined on both banks by floodwalls. The Modified I-25 Alternative includes the construction of new bridges over the Arkansas River for the realigned highway and for the Stanton Avenue extension and would encroach upon the floodplain. The Existing I-25 Alternative bridge over the Arkansas River has one set of piers between the floodwalls. The proposed bridge would also have a single set of piers inside the floodwalls. The similar configuration of the bridges would result in minimal impacts to the base flood elevation of the Arkansas River floodplain.

The Modified I-25 Alternative bridge over the Arkansas River would be located east of the existing bridge and

confined to the portion of the river that is controlled by backwater from Fountain Creek. In this area, channel velocity is significantly lower, and the effect of new piers on the base flood elevation would be minimal.

The Arkansas River analysis showed minimal impacts to the 100-year floodplain and floodway flow characteristics regardless of the Build Alternative chosen. Impacts to the floodplain are minimized because most improvements are located in a portion of the river that is controlled by backwater from flooding in Fountain Creek.

Cumulative impacts from other projects crossing these floodplains include the 4th Street Bridge Replacement and the HARP redevelopment. The 4th Street Bridge Replacement project (CDOT, 2006) replaced piers in the floodplain and added 0.2 inch of rise to the Arkansas River base flood elevation. When adding cumulative impacts from all projects on the Arkansas River, the base flood elevation would be below the allowable rise of 1.0 feet in a Zone A floodplain and would not constitute a significant impact to floodplains.

The encroachments by the Build Alternatives may be less than estimated. In some places, the encroachments may be reduced or removed from the floodplain once the Fountain Creek Watershed Study is completed (USACE, 2006); this study is anticipated to indicate that the flood limits are much smaller than indicated in the 1986 Flood Insurance Rate Map (FIRM).

Through appropriate mitigation, reasonably foreseeable impacts to the floodplain from the New Pueblo Freeway project would be minimal. The Build Alternatives, along with the past, present, and reasonably foreseeable future projects listed in **Exhibit 3.23-1**, would not significantly contribute to cumulative effects on either the Fountain Creek or Arkansas River floodplains.

Global Climate Change Cumulative Impacts Discussion

The issue of global climate change is an important national and global concern that is being addressed in several ways by the federal government. The transportation sector is the second largest source of total greenhouse gases (GHG) in the United States, and the greatest source of carbon dioxide (CO₂) emissions – the predominant GHG. In 2004, the transportation sector was responsible for 31 percent of all CO₂ emissions nationwide. The principal anthropogenic

(human-made) source of carbon emissions is the combustion of fossil fuels, which accounts for approximately 80 percent of anthropogenic emissions of carbon worldwide. Almost all (98 percent) transportation-sector emissions result from the consumption of petroleum products such as gasoline, diesel fuel, and aviation fuel.

Recognizing this concern, the FHWA is working nationally with other modal administrations through the United States Department of Transportation (USDOT) Center for Climate Change and Environmental Forecasting to develop strategies to reduce transportation's contribution to GHGs—particularly CO₂ emissions—and to assess the risks to transportation systems and services from climate changes.

At the state level, there are also several programs underway in Colorado to address transportation GHGs. The Governor's Climate Action Plan, adopted in November 2007, includes measures to adopt vehicle CO₂ emission standards and to reduce vehicle travel through transit, flex time, telecommuting, ridesharing, and broadband communications. CDOT issued a policy Directive on Air Quality in May 2009. This Policy Directive was developed with input from a number of agencies, including the Colorado Department of Public Health and Environment, United States Environmental Protection Agency, FHWA, Federal Transit Administration, Denver Regional Transportation District, and Denver Regional Air Quality Council. This Policy Directive addresses unregulated Mobile Source Air Toxics (MSAT) and GHGs produced from Colorado's state highways, interstates, and construction activities.

As a part of CDOT's commitment to addressing MSATs and GHGs, some of CDOT's program-wide activities include:

1. Developing truck routes/restrictions with the goal of limiting truck traffic in proximity to facilities, including schools, with sensitive receptor populations.
2. Continuing research on pavement durability opportunities with the goal of reducing the frequency of resurfacing and/or reconstruction projects.
3. Developing air quality educational materials specific to transportation issues for citizens, elected officials, and schools.

4. Offering outreach to communities to integrate land use and transportation decisions to reduce growth in VMT, such as smart growth techniques, buffer zones, transit-oriented development, walkable communities, access management plans, etc.
5. Committing to research additional concrete additives that would reduce the demand for cement.
6. Expanding travel demand management efforts statewide to better use the existing transportation mobility network.
7. Continuing to diversify the CDOT fleet by retrofitting diesel vehicles, specifying the types of vehicles and equipment contractors may use, purchasing low-emission vehicles, such as hybrids, and purchasing cleaner burning fuels through bidding incentives where feasible. Incentivizing is the likely vehicle for this.
8. Exploring congestion and/or right-lane-only restrictions for motor carriers.
9. Funding truck parking electrification (mostly via exploring external grant opportunities)
10. Researching additional ways to improve freight movement and efficiency statewide.
11. Committing to incorporating ultra-low sulfur diesel for non-road equipment statewide before June 2010, likely using incentives during bidding.
12. Developing a low-volatile organic compound emitting specification for tree landscaping.

Because climate change is a global issue, and the emissions changes resulting from project alternatives are very small compared to global totals, the GHG emissions associated with the alternatives were not calculated. Because GHGs are directly related to energy use, the changes in GHG emissions would be similar to the changes in energy consumption presented in **Section 3.17 Energy**.

The relationship of current and projected Colorado highway emissions to total global CO₂ emissions is presented in **Exhibit 3.23-4**. Colorado highway emissions are expected to increase by 4.7 percent between now and 2035. The benefits of the fuel economy and renewable fuels programs in the 2007 Energy Bill are offset by growth in VMT; CDOT's draft 2035 Statewide Transportation Plan (CDOT, 2011c)

EXHIBIT 3.23-4Relationship of Current and Projected Colorado Highway Emissions to Total Global CO₂ Emissions

Global CO ₂ Emissions, 2005, MMT ¹	Colorado Highway CO ₂ Emissions, 2005, MMT ²	Projected Colorado 2035 Highway CO ₂ Emissions, MMT ²	Colorado Highway Emissions, Percent of Global Total (2005) ²	Project Corridor VMT, Percent of Statewide VMT (2005)
27,700	29.9	31.3	0.108	0.78%

Source: CDOT Project Team, 2010.

¹ United States Energy Information Administration, 2007.² Calculated by FHWA Resource Center.CO₂ = carbon dioxide

MMT = million metric tons

VMT = vehicle miles of travel

predicts that Colorado VMT will double between 2000 and 2035. **Exhibit 3.23-4** also illustrates the size of the project corridor relative to total Colorado travel activity.

3.23.5 Conclusion

Overall, the Build Alternatives, in combination with past, present, and reasonably foreseeable future projects, contribute to a beneficial cumulative impact on transportation, noise, social resources, and parks in the project area. The Build Alternatives would produce a neutral cumulative effect on land use, wetlands, floodplains, and GHG emissions. Historic properties and fish and wildlife would both experience adverse cumulative impacts as a result of the Build Alternatives in combination with other past, present, and reasonably foreseeable future projects.

Impacts to these resources will be mitigated as appropriate. Specific mitigation measures for historic resources have not yet been identified for the Build Alternatives but will be agreed upon by FHWA, CDOT, the Advisory Council on Historic Preservation, the SHPO, and the consulting parties in a Programmatic Agreement prior to publication of the FEIS.

Fish and wildlife habitat replacement, restoration, or enhancement will be conducted to mitigate for impacts that could not be avoided, including impacts to the wetland and riparian areas along Fountain Creek and adjacent to the Arkansas River. BMPs such as limiting sedimentation, revegetation, and clearly marking construction boundaries to prevent equipment or other intrusion into habitat located outside the construction zone will be adopted to minimize construction impacts on wildlife and habitat resources within the study area.