

Environmental Assessment for Powers Boulevard (SH 21)



between Woodmen Road and SH 16 in Colorado Springs, Colorado

PIKES PEAK COMMUNITY COLLEGE



U18940 0708945

RESERVE

Colorado Department of Transportation
CDOT Project Number STU R200-108
Project Control Number 13589
April 2010





**POWERS BOULEVARD ENVIRONMENTAL ASSESSMENT
INSTRUCTIONS FOR PUBLIC COMMENT**

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STU R200-109
Project Control No. 13589

**POWERS BOULEVARD (SH 21)
BETWEEN WOODMEN ROAD AND STATE HIGHWAY 16
IN COLORADO SPRINGS, COLORADO**


ENVIRONMENTAL ASSESSMENT

Submitted Pursuant to:
42 USC 4332 (2)(C)
and
49 USC 303

By the

**US Department of Transportation
Federal Highway Administration
and the
Colorado Department of Transportation**

Submitted by:

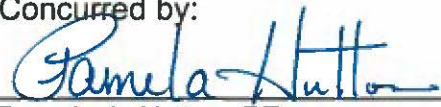


Timothy J. Harris, PE
Region 2 Transportation Director
Colorado Department of Transportation

4-12-10

Date

Concurred by:




Pamela A. Hutton, PE
Chief Engineer
Colorado Department of Transportation

4-19-10

Date

Approved by:

for 

Karla S. Petty, PE
Division Administrator, Colorado Division
Federal Highway Administration

5-4-2010

Date

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COMMONLY USED ACRONYMS AND ABBREVIATIONS

AFB	Air Force Base
APCD	Air Pollution Control Division
BMP(s)	Best Management Practice(s)
CD	Compact disc
CDOT	Colorado Department of Transportation
CDPHE	Colorado Department of Public Health and Environment
CO	Carbon monoxide
CSS	Context Sensitive Solutions
DOLA	Colorado Department of Local Affairs
EA	Environmental Assessment
EPA	United States Environmental Protection Agency
FHWA	Federal Highway Administration
GHG(s)	Greenhouse gas(es)
I-25	Interstate 25
LOS	Level of Service
mph	Miles per hour
MSATs	Mobile source air toxics
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act of 1969
NRHP	National Register of Historic Places
PM	Particulate matter
PPACG	Pikes Peak Area Council of Governments
ppm	Parts per million
RCEA	Regional Cumulative Effects Analysis
SH	State Highway (e.g., SH 16, SH 21, SH 83)
SHPO	State Historic Preservation Officer
USACE	United States Army Corps of Engineers
USAFA	United States Air Force Academy
USDOT	United States Department of Transportation
USFWS	United States Fish and Wildlife Service
US 24	U.S. Highway 24
VMT	Vehicle miles traveled
VOC	Volatile organic compound

CHAPTER 1 – INTRODUCTION & PROJECT PURPOSE AND NEED

The purpose of this project is to reduce current and future traffic congestion on the Powers Boulevard expressway (State Highway 21) between Woodmen Road and State Highway 16, consistent with the corridor needs as identified in local and regional long-range transportation plans, and to accommodate connections with the region's planned transportation network.

1.1 INTRODUCTION

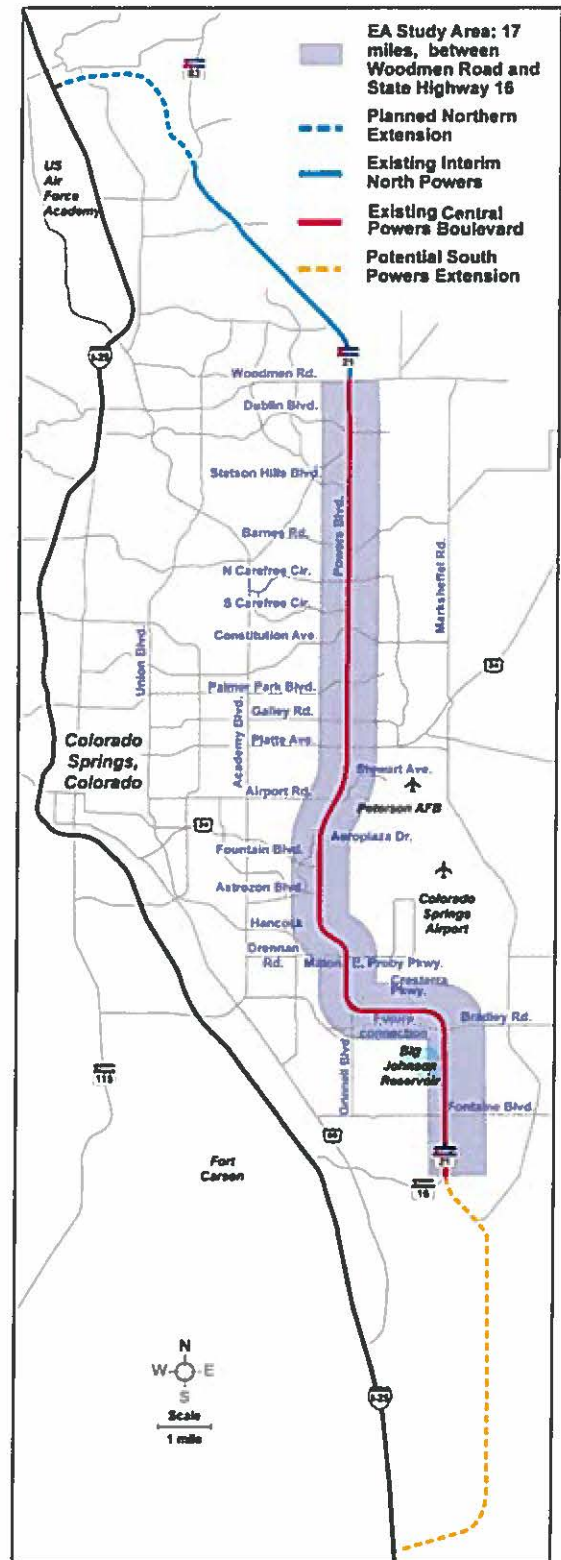
This Environmental Assessment (EA) was prepared by the Federal Highway Administration (FHWA) and the Colorado Department of Transportation (CDOT) to address the problem of current and future traffic congestion on Powers Boulevard, the second busiest north-south roadway in the State's second largest metropolitan area. This existing expressway serves rapidly growing eastern Colorado Springs and unincorporated El Paso County.

In 2007, Powers Boulevard was added to the State Highway System as State Highway 21 (SH 21). Powers Boulevard is also part of the National Highway System and is locally designated as a truck route.



The focus of this EA is the "central" portion of Powers Boulevard, between Woodmen Road on the north and State Highway 16 (SH 16) on the south, a distance of approximately 17 miles. In the future, Powers Boulevard is planned to be about 33 miles long, connecting to Interstate 25 (I-25) north and south of Colorado Springs, as shown in Exhibit 1-1.

Exhibit 1-1. Study Area





Peak-period congestion is experienced today on six miles of Powers Boulevard, between Barnes Road and Fountain Boulevard. By the year 2035, extremely congested conditions are predicted on the 11 miles between Woodmen Road and Milton E. Proby Parkway. The portion of Powers Boulevard between Milton E. Proby Parkway and SH 16, which will not be congested by 2035, was included in the study area in order to identify potential future improvements, as well as to examine alternative modes and routes at an appropriate scale.

This central portion of the Powers Boulevard expressway varies from four to six lanes, plus turn lanes at intersections. North of Woodmen Road, Powers Boulevard continues as SH 21 and is a four-lane expressway. To the south, where Powers Boulevard meets SH 16, the four-lane expressway continues westward as SH 16 to connect with I-25. These connections are discussed below. The Pikes Peak Area Council of Governments (PPACG) *Moving Forward: 2035 Regional Transportation Plan* adopted in 2008 calls for capacity improvements on Central Powers Boulevard between Woodmen Road and SH 16 by the year 2035 (PPACG, 2008a). Linkages between the PPACG transportation planning process and Powers Boulevard are discussed in Chapter 2 of this EA.

North of Woodmen Road, Powers Boulevard currently extends to SH 83, and is planned to continue westward to meet I-25 south of the existing North Gate interchange. An EA was completed in 1997 for the entire "North Powers" extension from Woodmen Road to I-25 (City of Colorado Springs, 1997). The adopted PPACG's regional transportation plan indicates that Powers Boulevard will be constructed between SH 83 and I-25 as an expressway, or possibly a tollway, in the 2010-2015 timeframe.

South of Powers Boulevard, the expressway continues westward as SH 16, and connects to I-25 near the Fort Carson U.S. Army post. The westernmost mile of SH 16 has long been a congested traffic bottleneck at a key entrance into Fort Carson, the region's largest employer. In 2007, CDOT and FHWA completed an EA that examined the potential impacts of widening SH 16 to four lanes (CDOT, 2007). The widening of SH 16 began in early 2008 and will continue through at least 2010.

In the long-term future, PPACG's *Moving Forward* identifies the need for a "South Powers" extension from SH 16 approximately nine miles to I-25, but funding for this extension is not included in the plan. When warranted, this extension may be the subject of a future environmental study. For the foreseeable future, however, SH 16 will serve as the southern connection between Powers Boulevard and I-25.

Moving Forward uses 2005 socioeconomic and traffic data as a baseline and 2035 as the future planning horizon year. To be consistent with the regional planning efforts documented in *Moving Forward*, this EA reflects the baseline and future conditions used in that plan. It should be recognized, however, that traffic volumes on Powers Boulevard today (2010) are higher than the numbers that are presented as the 2005 baseline volumes.

As studies for this EA progressed, PPACG continually updated the regional transportation planning process. As new plans were adopted, the traffic data used in this EA were re-evaluated. In November 2009, PPACG staff concurred that the EA was consistent with the latest transportation planning data and assumptions reflected in the *Moving Forward* plan. Additional information about relevant plan updates and the processes used to assure consistency with them can be found in Appendix B, Traffic Analysis Report.

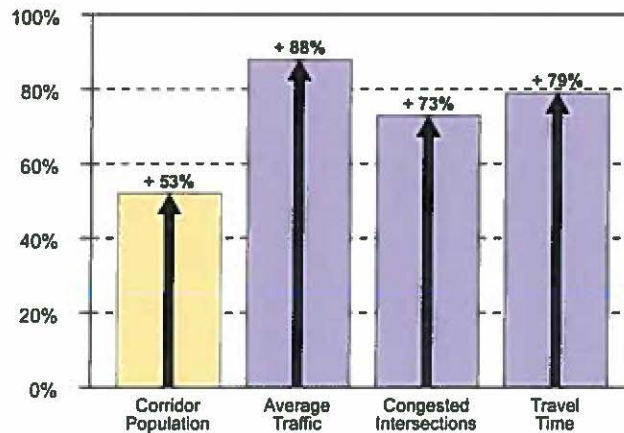
1.2 PROJECT PURPOSE

The purpose of this project is to reduce current and future traffic congestion on Powers Boulevard between Woodmen Road and SH 16, consistent with the corridor needs as identified in local and regional long-range transportation plans, and to accommodate connections with the region's planned transportation network.

1.3 NEED FOR ACTION

Today, Powers Boulevard is congested for about six miles, between Barnes Road and Airport Road. With continued development along the corridor, 11 miles of Powers Boulevard will be extremely congested, between Woodmen Road and Milton E. Proby Parkway. The paragraphs below provide a better understanding of why this will occur and what it will mean, based on the four projected corridor changes illustrated in **Exhibit 1-2**.

Exhibit 1-2. Projected Changes Associated with Powers Boulevard Congestion, Baseline and 2035 Conditions



Corridor Population

Rapid urban development will likely continue in eastern Colorado Springs and El Paso County. Powers Boulevard is the primary north-south roadway serving the growth that has occurred near it. Since 1960, the Colorado Springs metropolitan area has grown by approximately 100,000 residents each decade, a rate that is projected to increase between the years 2005 and 2035. The 2000 Census recorded a population of approximately 517,000 for El Paso County, and the Colorado State Demographer's Office estimates that this total increased to 565,000 by 2005 (DOLA, 2007). PPACG, the region's Metropolitan Planning Organization, predicts that by 2035, the county's population will be approximately 936,000, reflecting a 30-year increase of about 370,000 new residents (PPACG, 2008b).

Due to growth constraints to the west of Colorado Springs, including Pikes Peak, the Pikes Peak National Forest, and military bases (e.g., Fort Carson and the U.S. Air Force Academy), the city has been growing eastward. Residential development surrounded Powers Boulevard between 1985 and 2005, and intense retail development has occurred since the late 1990s.

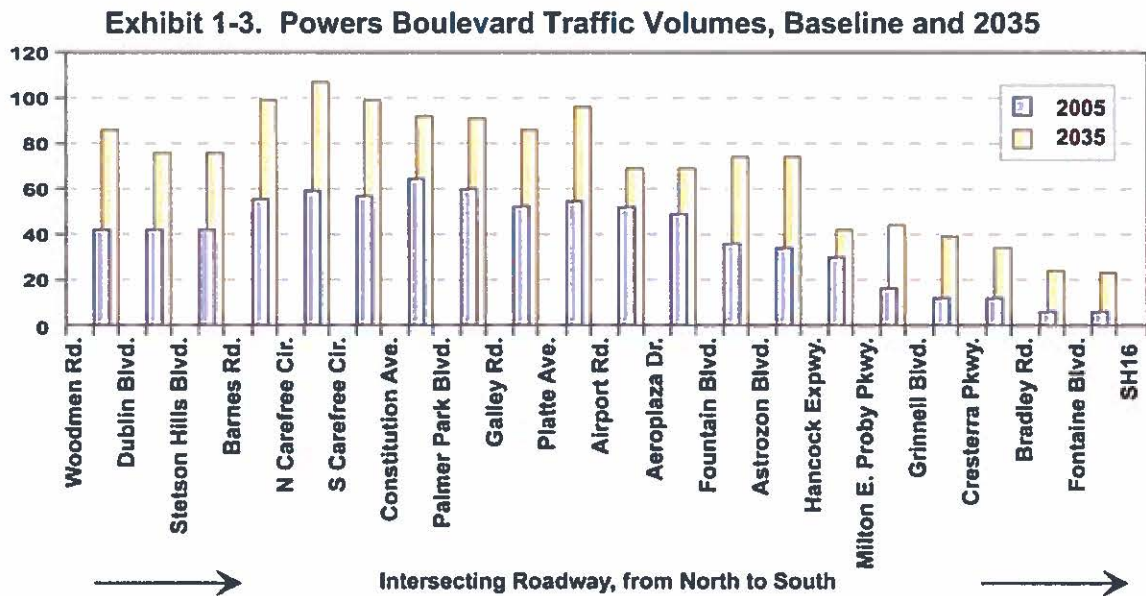
New businesses are under construction and remaining parcels have all been zoned and/or platted for development.

The population along central Powers Boulevard (i.e., between Academy Boulevard and Marksheffel Road, from Woodmen Road to SH 16) was approximately 172,000 in 2005, and is projected by PPACG to grow to 263,000 by 2035, an increase of 53%.

Increased Traffic Volume

In the baseline conditions (traffic counts taken in 2004-2005) volumes on Powers Boulevard ranged from less than 10,000 vehicles per day at the south end of the corridor, between Fontaine Boulevard and Mesa Ridge Parkway, to just under 65,000 vehicles per day in the north central portion of the corridor between Constitution Avenue and Palmer Park Boulevard.

Exhibit 1-3 indicates average weekday traffic volumes for the baseline conditions and year 2035 between major cross-streets for each section of the corridor.



Traffic data for 2005 are depicted above because that is the most recent year for which traffic counts were collected for the corridor in a comprehensive manner. A few, more recent traffic counts for 2006 and 2007 are provided in the Traffic Analysis Report which is Appendix B on the CD attached at the back of this EA.

Future traffic volumes were projected using the PPACG Regional Travel Model, with the assumption that no capacity improvements would be made on Powers Boulevard. Traffic growth will vary by location, increasing everywhere by a minimum of 40% and more than doubling near the northern and southern ends of the corridor. As a corridor-wide average, traffic volumes are expected to increase approximately 88% by 2035. In the most heavily used portions of the corridor, volumes will increase by about 50,000 vehicles per day (CDOT, 2009a).

The highest projected volume, 107,000 vehicles per day, would occur between North Carefree Circle and South Carefree Circle. This volume is comparable to the amount of traffic on I-25 in the vicinity of downtown Colorado Springs.

Congested Intersections

As an expressway -- with existing at-grade signalized intersections spaced typically one mile apart and in some cases more closely -- Powers Boulevard does not have the capacity to handle the projected year 2035 volumes that are identified in Exhibit 1-3. Some portions of Powers Boulevard are already nearing or over capacity during peak commuter periods. Increased traffic demand by 2035 will cause major deterioration in the traffic Level of Service during peak periods, and congestion would spread to additional hours of the average weekday. Delays for mainline traffic on an expressway occur due to signalized intersections, where through-traffic sits idle as left turns are made or when cross-street traffic has the green light.

LEVELS OF INTERSECTION CONGESTION

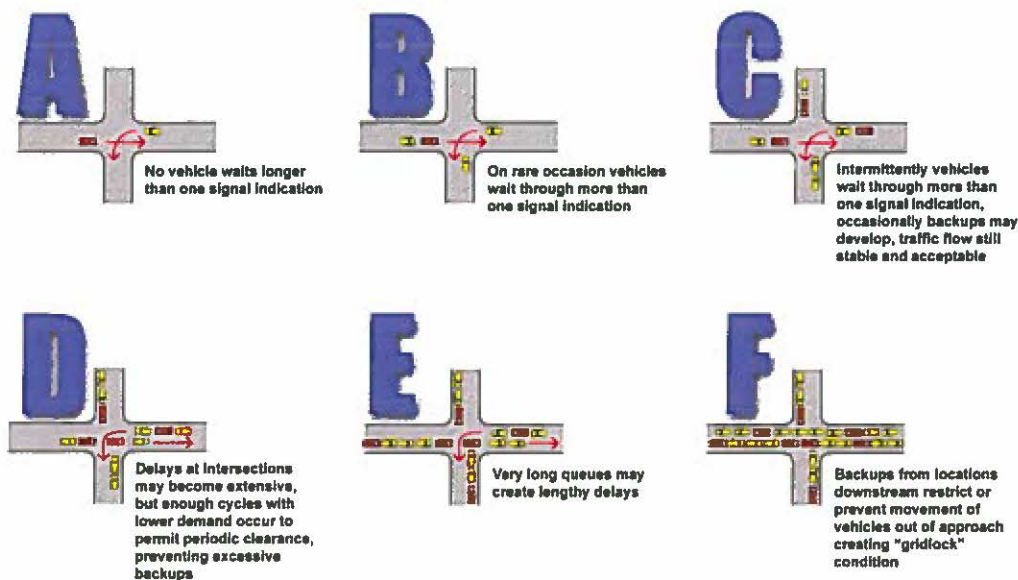
NOT CONGESTED – Includes Level of Service A (less than 10 seconds delay per traffic signal cycle), Level of Service B (10 to 20 seconds delay), and Level of Service C (20 to 35 seconds delay)

ALMOST CONGESTED – Level of Service D (35 to 55 seconds of delay per traffic signal cycle)

CONGESTED – Includes Level of Service E (55 to 80 seconds delay per traffic signal cycle) and Level of Service F (more than 80 seconds delay)

Traffic engineers use the amount of delay at intersections to categorize the level of service that motorists receive, using a grading system from Level of Service A (least congested) to Level of Service F (most congested). For simplicity, the six Levels of Service can be grouped into three categories as shown in the text box above. Exhibit 1-4 illustrates the various Levels of Service for a signalized intersection.

Exhibit 1-4. Traffic Levels of Service at a Signalized Intersection



Source: Woodmen Road Environmental Assessment (CDOT, 2005).

Exhibit 1-5 illustrates the baseline and future severity of congestion by intersection. Out of 15 existing signalized intersections, one (Airport Road – Stewart Avenue entrance to Peterson Air Force Base) was congested in the baseline year. Of the existing 15 signalized intersections, 12 will be congested by 2035. Thus, the percentage of these intersections that are congested will have increased from 7% to 80%, a difference of 73%. Additionally, three currently unsignalized intersections south of Milton E. Proby Parkway are likely to be signalized in the future but would not be congested.

Exhibit 1-5. Congestion Severity by Intersection

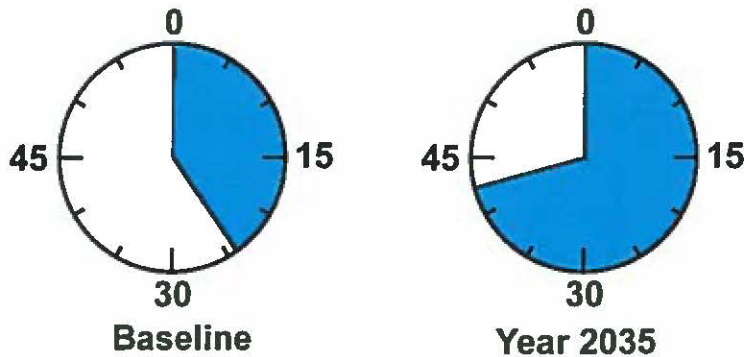


*As is explained in Appendix B, Traffic Analysis Report, congestion was initially projected for 2030. In subsequent review after adoption of the 2035 Regional Transportation Plan, these conditions were determined to be reasonably representative for 2035.

Increased Travel Time

Delays at intersections due to congestion increase travel times. With no delays, driving the 17-mile central Powers Boulevard corridor at 50 miles per hour would take just over 20 minutes. Instead, the trip takes about 24 minutes, because there are delays at traffic signals. By 2035, assuming no capacity improvements are made on Powers Boulevard, the same trip will take approximately 43 minutes, or about 19 minutes longer, an increase of 79%. Exhibit 1-6 depicts these travel times.

Exhibit 1-6. Travel Time Needed to Drive the Powers Boulevard Corridor during Peak Period, in Minutes



Additional traffic demand due to future regional growth will greatly increase the amount of travel delay routinely experienced on Powers Boulevard.

Accommodating Connections with the Region’s Planned Transportation Network

Exhibit 1-5, presented earlier, showed that there are 17 existing intersections, one grade-separated interchange and one planned new intersection (Cresterra Parkway) along Powers Boulevard in the 17 miles between the existing Woodmen Road interchange and SH 16. As the region’s second busiest north-south roadway after I-25, Powers Boulevard serves as the transportation backbone for eastern Colorado Springs. An important part of its function is to link to major arterial cross-streets to provide connectivity with the regional roadway network. This will require maintaining access for most, but not necessarily all, of the streets that currently have it. The type of access that is prudent for any existing or planned connecting street will depend upon the function of that street as well as the type of facility that is recommended for Powers Boulevard.

1.4 ADDRESSING THIS NEED

Today, portions of Powers Boulevard are nearing their traffic-carrying capacity during peak hours. In the future, if nothing is done to accommodate the near doubling of traffic, congestion will be worse and more widespread. Alleviating this congestion could be achieved by shifting about half of the total future traffic to another corridor or mode of transportation, or by providing additional capacity to carry the increased traffic on Powers Boulevard. In any case, a transportation solution would need to accommodate not only current traffic but also the 50,000 additional vehicles per day expected on Powers Boulevard by 2035.

In the chapters that follow, information is presented regarding potential transportation solutions to meet this purpose and need, a proposed solution, and its impacts on the environment.

- Chapter 2 describes the setting for Powers Boulevard, including its development history, surrounding land uses and existing conditions.
- Chapter 3 then examines potential solutions for existing and future congestion within this context.
- Chapter 4 describes the impacts of the Proposed Action and identifies mitigation actions associated with it.
- Chapter 5 documents the public and agency involvement that contributed to the identification of the Proposed Action, its associated mitigation, and the determination of the resulting environmental effects.
- Chapter 6 provides additional documentation regarding impacts to two public recreation resources and one historic site, pursuant to Section 4(f) of the U.S. Department of Transportation Act.

Detailed supporting information is provided in appendices that are contained on a compact disc provided at the back of the EA.

CHAPTER 2 – CORRIDOR CONTEXT

This chapter of the EA describes the Powers Boulevard corridor to provide the reader with a context for understanding the impacts of the alternatives that are described in Chapter 3.

2.1 INTRODUCTION

In the past 35 years, Powers Boulevard has evolved from a rural, two-lane county road into the region's busiest commercial corridor, a busy six-lane expressway that is planned to connect directly to I-25 both north and south of Colorado Springs.

As a result of this intense development, traffic volumes on Powers Boulevard have increased dramatically in recent years, and traffic demand is nearing the road's vehicle carrying capacity.

The relatively recent increases in urban development and traffic volumes along Powers Boulevard were not unexpected, but instead have been planned for years, as reflected in the land use and transportation plans at the local and regional level. The need for capacity improvements in this corridor has long been foreseen and has now arrived.

2.2 HISTORICAL DEVELOPMENT OF THE CORRIDOR

Not long after General William Palmer built a railroad to the region and founded Colorado Springs in 1871, the land six miles east of the town had been deeded to private ownership and was used for ranching. Horses and horse-drawn wagons were used to make the trip into town.

Early in the twentieth century, the advent of the automobile brought about the need for roads. Advocates of a transcontinental highway system pushed for a proposed Pikes Peak Ocean-to-Ocean Highway, part of which is today's US Highway 24 (US 24) through Colorado Springs. Today's Powers Boulevard began as a pair of unpaved north-south roads connecting to this highway.

Exhibit 2-1 depicts roads and property ownership in 1939, when the City's incorporated boundary was Union Boulevard, four miles west of today's Powers Boulevard. Out in the countryside, a road (shown in red) led northward from US 24 along the Babcock property then led northeasterly to the present Powers Boulevard alignment, where it continued northward along the eastern side of the 720-acre William Norton ranch (shown in purple) and ended at what is now Barnes Road. Another road (also shown in red) led southward from US 24 and went to the Colorado Springs Airport (shown in blue), which was established in 1927.

In 1944, the Norton Ranch was sold to Guy and Nora Powers, who established a dairy there. That same year, Guy Powers was killed by a lightning strike, so the task of running the dairy was left to his widow and his 15 year-old son, Ray Powers.

Why Consider Context?

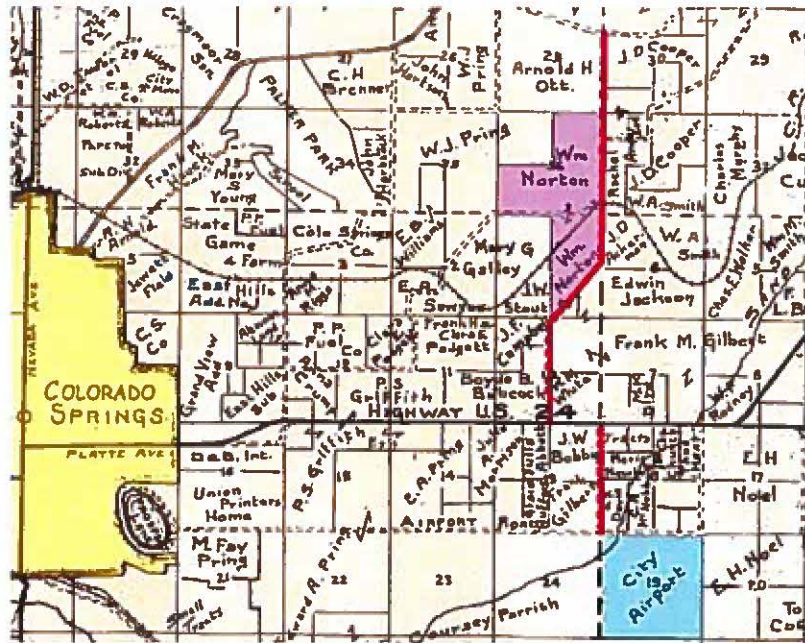
"...To develop a transportation facility that fits its physical setting and preserves scenic, aesthetic, historic and environmental resources, while maintaining safety and mobility."

- Federal Highway Administration
(FHWA, 2009)

The Powers Dairy operated in this location for 23 years before being sold for residential development in 1967. Reportedly, when the developer wanted to borrow a piece of equipment from the dairyman and offered to name a street after him, Ray Powers replied, "I don't want any street named after me – I want a boulevard named after me" (Gazette, 2008). As a result, the road became known as Powers Boulevard.

Ray Powers was elected to the Colorado General Assembly in 1978 and served for 22 years before stepping down as Senate President in 2000. He died eight years later.

Exhibit 2-1. Map of Ranch Ownership and Roads East of Colorado Springs, 1939.



Source: Pikes Peak Library District, Map Collection

By 1964, with the opening of I-25, the United States Air Force Academy and other military installations, Colorado Springs had begun a period of rapid growth, pushing suburban development eastward to Academy Boulevard, two miles west of Powers Boulevard. That year, Powers Boulevard was included as a major route on El Paso County's Major Thoroughfares Map. Planners envisioned Powers Boulevard as an eastern bypass route that would someday connect to I-25 both north and south of Colorado Springs.

When developers sought to build along two-lane Powers Boulevard in the 1980s, the City of Colorado Springs required that they improve the road. In 1986, the developers formed METEX, a metropolitan (tax) district, for the purpose of expanding Powers Boulevard between Woodmen Road and Platte Avenue. METEX sold \$13 million in bonds to construct the road, and recouped the cost through property taxes levied on property owners up to one mile west of Powers Boulevard and eastward for two miles to Marksheffel Road. The pace of development along the corridor went slowly for nearly a decade, finally taking off in the late 1990s. Ultimately METEX was able to pay off its bond obligations, on time, and petitioned the State for dissolution in 2009 (Gazette, 2009).

Another major boost to the importance of Powers Boulevard was its inclusion as part of the US 24 Bypass constructed in the early 1990s. The portion of Powers Boulevard between Fountain Boulevard and Platte Avenue is part of US 24.

When Colorado Springs expanded its municipal airport in 1994, the old terminal on Fountain Boulevard was replaced with a larger terminal accessed from Drennan Road (renamed as Milton E. Proby Parkway in 2006). The City extended Powers Boulevard southward to serve the

newterminal. Soon afterwards, Powers Boulevard was extended southward from Drennan Road to Fontaine Boulevard.

Exhibit 2-2 summarizes the major steps in the historical development of the central portion of Powers Boulevard.

Planning efforts in the late 1990s were very important to the future of Powers Boulevard:

- The City of Colorado Springs completed an EA for a northern extension of Powers Boulevard to I-25 near the Air Force Academy (City of Colorado Springs, 1997).
- PPACG prepared a feasibility study to identify a southern route for extension of Powers Boulevard to I-25 (PPACG, 2000).
- The Colorado General Assembly in 1998 identified Powers Boulevard as one of 28 State Strategic Corridors that have high priority to receive State transportation funds.

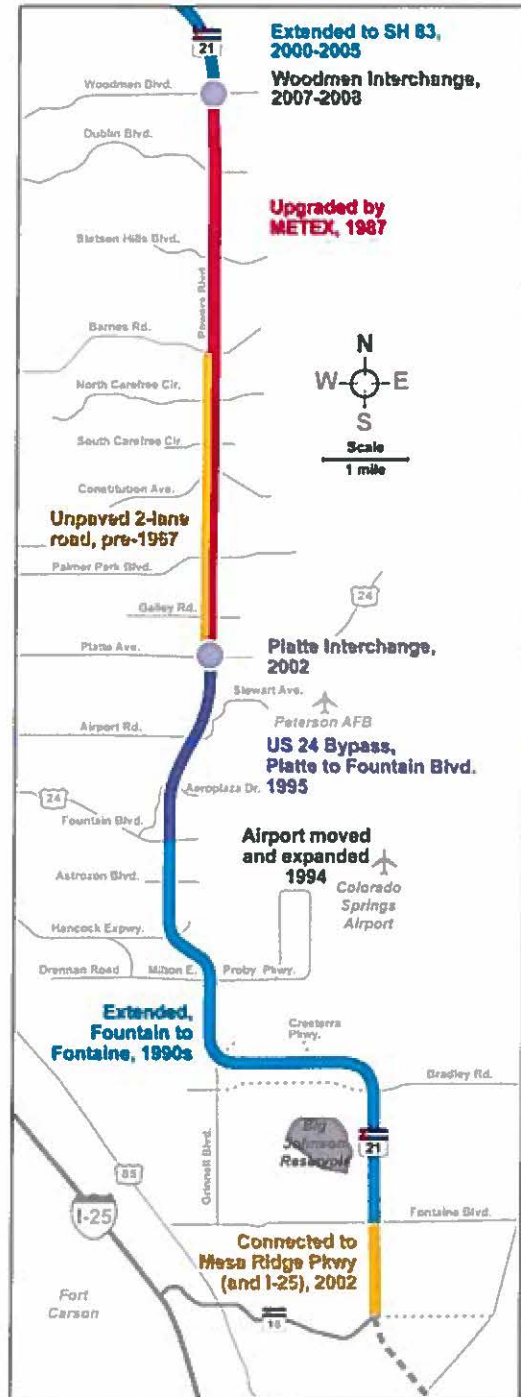
Since 2000, grade-separated interchanges on Powers Boulevard have been built at US 24 (Platte Avenue) and Woodmen Road. Also, the expressway has been extended northward to SH 83 and southward to SH 16. In 2007, Powers Boulevard was added to the State Highway System as SH 21.

2.3 CURRENT AND FUTURE DEVELOPMENT PATTERNS

Exhibit 2-3, on the following page, provides a highly generalized summary of land uses adjacent to Powers Boulevard. This information was compiled from the adopted City of Colorado Springs Comprehensive Plan and El Paso County Zoning Maps as of mid-2008.

The left half of the exhibit shows the seven northernmost miles of the study area, north of Platte Avenue, and the right half shows the ten southernmost miles.

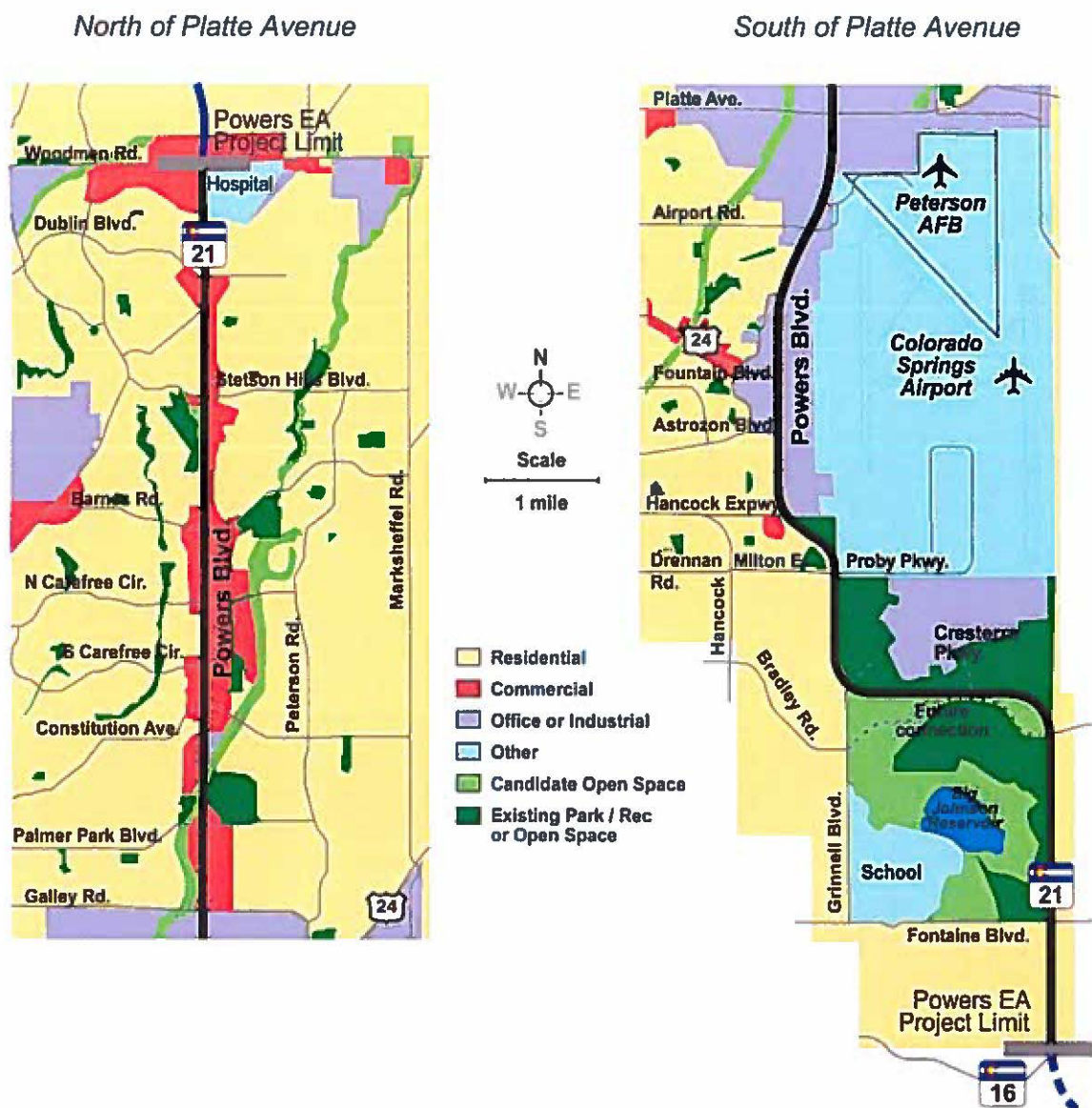
Exhibit 2-2. Historical Expansion and Improvement of Powers Boulevard



There is a distinct difference in the character of land uses north and south of Platte Avenue.

- North of Platte Avenue, land adjacent to Powers Boulevard is zoned and developed for commercial use, while the surrounding area is residential.
- South of Platte Avenue, in the vicinity of the Colorado Springs Airport, land in the corridor is zoned primarily for light industrial, and residential uses, with some open space.

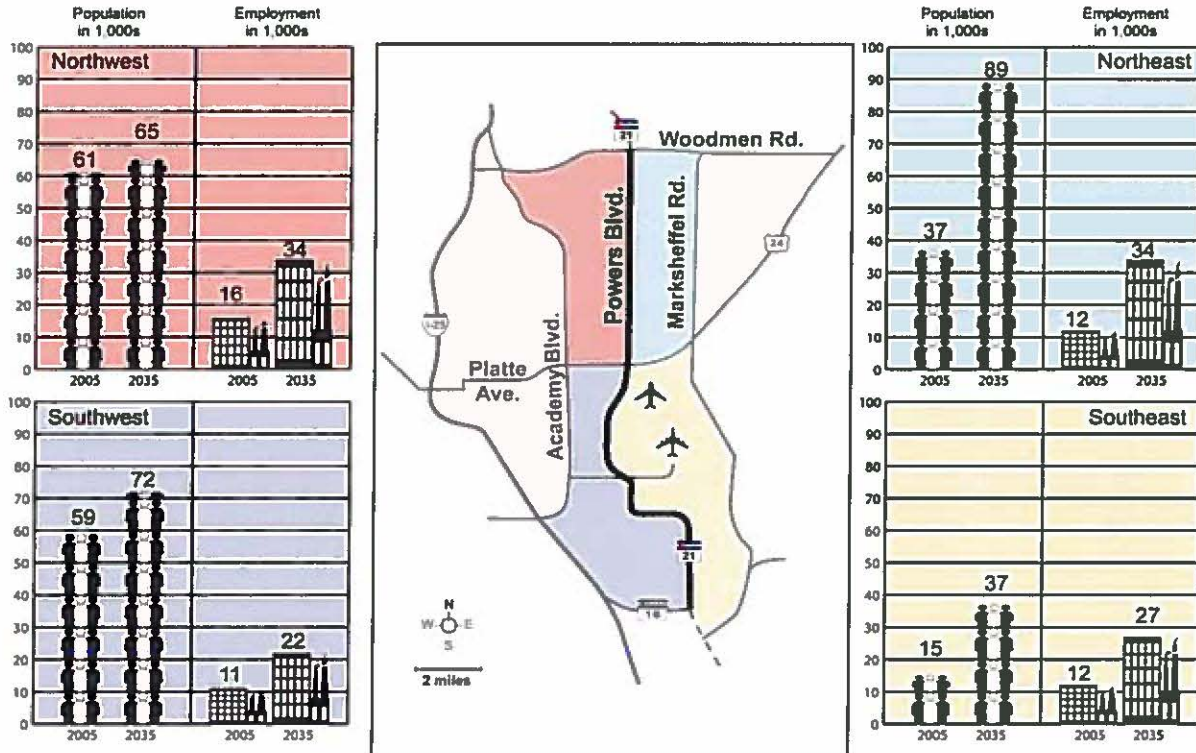
Exhibit 2-3. Summary of Land Uses along the Powers Boulevard Corridor



Sources: City of Colorado Springs, 2008a; El Paso County, 2008.

Population and employment projections adopted by PPACG, and used in the 2035 regional transportation plan, indicate that population in the Powers Boulevard corridor will increase from 172,000 in 2005 to 263,000 in 2035. This is an increase of 90,000 residents, or 53%. The majority of this population growth will occur in the northeast subarea – i.e., east of Powers Boulevard, between Woodmen Road and Platte Avenue. This growth is depicted in Exhibit 2-4.

Exhibit 2-4. Baseline and Projected Population and Employment by Corridor Subarea



Source: PPACG, 2008b.

The imbalance between where people will live and where they will work will result in additional commuting on and across Powers Boulevard. For example, new residents in the northeastern subarea may use Powers Boulevard to access jobs in the other subareas.

2.4 CURRENT ROLE OF POWERS BOULEVARD

Powers Boulevard is the transportation backbone for fast-growing, eastern Colorado Springs. It is a six-lane expressway between Woodmen Road and Airport Road, and a four-lane expressway from Airport Road to SH 16. The City of Colorado Springs Major Thoroughfare Plan designates Powers Boulevard as a future freeway (City of Colorado Springs, 2006). Today, Powers Boulevard is:

- a State Highway (SH 21)
- a route on the National Highway System
- a State Strategic Corridor
- a truck route

A number of key facilities important to the regional economy rely heavily on Powers Boulevard as a main transportation route. These facilities include the Colorado Springs Airport, military bases, hospitals, and a significant commercial corridor, as discussed below.

Colorado Springs Airport

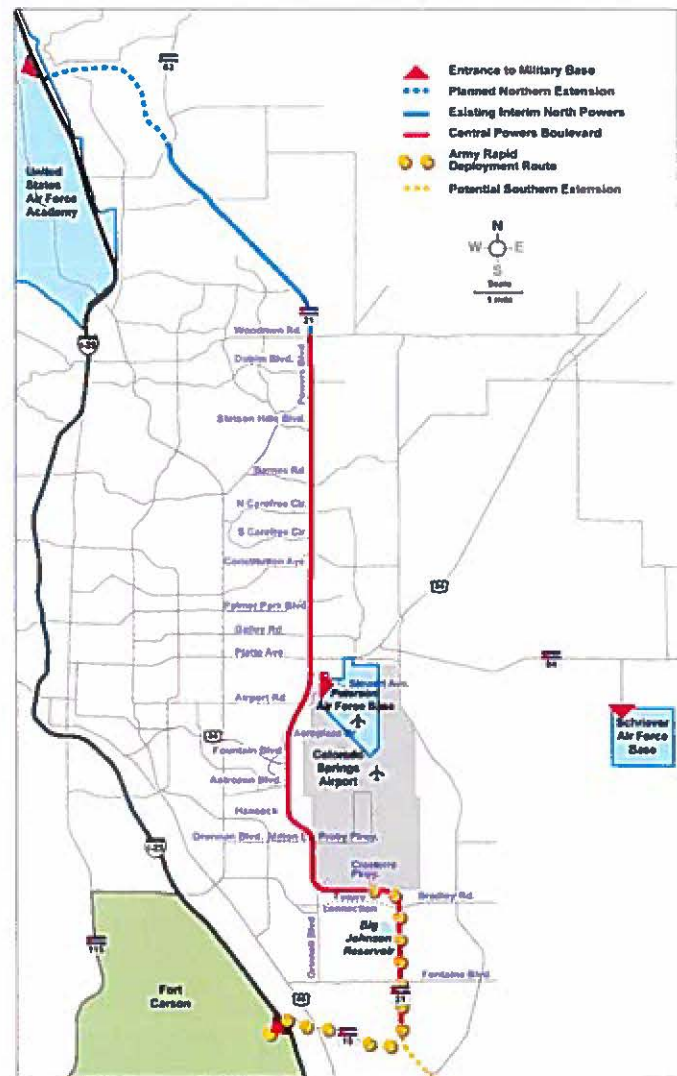
Powers Boulevard is the predominant route carrying traffic to Milton E. Proby Parkway, which is the entrance to the Colorado Springs Airport. The airport has more than one million boardings annually, averaging about 3,000 passengers per day (City of Colorado Springs, 2008b). The attractiveness of Powers Boulevard as a route between the airport and the northern portion of the metro area will increase when the planned northern connection between SH 83 and I-25 is built.

Military Bases

Powers Boulevard links military bases that are major employers and traffic destinations in the Colorado Springs metro area. As shown in Exhibit 2-5, these are:

- Fort Carson, the region's largest employer (12,600 troops, increasing to 28,900 by 2013), is located at the western terminus of SH 16, which connects to Powers Boulevard.
- Peterson Air Force Base (6,100 military personnel) has its main entrance at the western gate on Stewart Road, which connects with Airport Road at Powers Boulevard.
- Schriever Air Force Base, home of the 50th Space Wing, is located on SH 94, ten miles east of Powers Boulevard. Powers Boulevard is a primary north-south route used to reach SH 94 for access to this base.
- The United States Air Force Academy (USAFA) is located at the northern end of the Powers Boulevard corridor. Current local plans indicate that Powers Boulevard will be extended northward to connect to I-25 near the existing North Gate interchange, which is USAFA's main entrance.

Exhibit 2-5. Military Base Access from Powers Boulevard



In addition to serving routine daily use by military personnel and their dependents, Powers Boulevard will soon become Fort Carson's designated route for transporting its Rapid Deployment Force. Periodically, troops and heavy equipment will be convoyed on Powers Boulevard between Fort Carson and their deployment facility located at the Colorado Springs Airport (CDOT, 2007).

Hospitals

To serve the fast-growing population in northeastern Colorado Springs, the region's competing health-care systems recently opened two new hospitals (see Exhibit 2-6) along the Powers Boulevard corridor:

- The 98-bed Memorial Hospital North (top) is just west of Powers Boulevard on Briargate Boulevard (one mile north of the project limit for this EA). It opened in 2007.
- The 156-bed St. Francis Hospital (bottom) is just east of the Powers Boulevard/Woodmen Road interchange (northern project limit for this EA). It opened in 2008.

These new hospitals, together with nearby physicians' offices and other medical support services, will increase future traffic demand on Powers Boulevard.

Powers Boulevard Commercial Corridor

The Powers Boulevard commercial corridor shown earlier in Exhibit 2-3 (orange-shaded area) is very important to the economy of Colorado Springs. In 2002, an estimated total of 669 stores, restaurants, hotels and other businesses were located within the zip code areas that contain Powers Boulevard (Census, 2002). This represented 20 percent of all businesses in the metro area. Since then, additional shopping areas with "big box" stores have opened along Powers Boulevard. Exhibit 2-7 depicts the intense development at just one corner of the corridor's many intersections that have retail centers.

Most of the traffic generated by this extensive commercial corridor uses Powers Boulevard, since the nearest parallel major arterial streets (Academy Boulevard to the west and Marksheffel Road to the east) are two miles away.

Exhibit 2-6. Two New Hospitals along Powers Boulevard

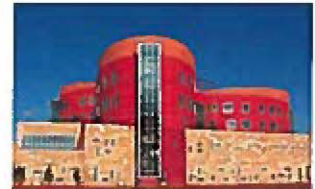


Photo courtesy of Memorial Health System



Photo courtesy of Penrose-St. Francis Health Services

Exhibit 2-7. Intense Retail Development Adjacent to a Powers Boulevard Intersection



“[Powers Boulevard’s] retail sector is filling so rapidly it is hard to keep track of the storefronts. Powers Boulevard is certainly the hot address.” - Colorado Springs Gazette, June 5, 2006

The airport, military bases, hospitals and commercial areas described above are important regional activity centers that depend on Powers Boulevard as the major transportation link to the populations they serve. Efficient travel on Powers Boulevard is critical to the operation of these important regional facilities.

2.5 FUTURE ROLE OF POWERS BOULEVARD

The nature of trips carried by Powers Boulevard has changed over time, and this will continue in the future. The change in the roadway’s function over time is summarized as follows:

- The road initially carried predominantly local trips because its length was short and there were few trips generated by adjacent land uses.
- As the road was extended both to the north and the south, it began to carry an increasing number of longer, regional commuting trips. It became an alternate route for avoiding congestion on Academy Boulevard.
- After the past decade of rapid commercial development, the expressway now carries a large number of local shopping trips. Some motorists have begun to use parallel routes to avoid congestion on Powers Boulevard.
- In the future, with an improved northern connection to I-25, Powers Boulevard will likely see an increase in longer, regional trips.

In 1964, planners envisioned Powers Boulevard as an eastern bypass around the City. However, now that urban growth has engulfed the corridor, the potential for the road to serve as a “bypass” is gone. In recent years, therefore, a new bypass concept has emerged. A private sector consortium is actively pursuing the goal of creating a high-speed toll road called the Prairie Falcon Parkway Express, proposed to be located 8 to 12 miles east of Powers Boulevard. This route would be 100 miles long or more, from Pueblo in the south to the Fort Collins area in the north, as well as Colorado Springs, Castle Rock and Denver.

NOT A “BYPASS”

Powers Boulevard was once envisioned as a bypass around Colorado Springs. Today, because the city grew eastward, Powers Boulevard does not bypass the city but instead runs through it.

The current regional and local transportation plans applicable to the Powers Boulevard corridor all depict this roadway as a planned freeway, as follows:

- The PPACG 2035 Regional Transportation Plan, adopted in 2008, depicts Powers Boulevard as a freeway between Woodmen Road and SH 16.
- The City of Colorado Springs Major Thoroughfare Plan depicts Powers Boulevard as a freeway between Woodmen Road and SH 16 (City of Colorado Springs, 2006). The City’s Comprehensive Land Use Map is consistent with this assumption of transportation infrastructure.

- El Paso County's Major Transportation Corridors Plan depicts Powers Boulevard as a freeway between Woodmen Road and Milton E. Proby Parkway, and as an expressway with interchanges between Milton E. Proby Parkway and SH 16, where it joins a proposed South Powers expressway continuing southward to I-25 (El Paso County, 2004).

The county's Major Transportation Corridors Plan includes Powers Boulevard interchanges at Grinnell Boulevard, Bradley Road, Fontaine Boulevard, and SH 16. This plan was adopted prior to the development of the Environmental Assessment for the Colorado Springs Airport Business Park. The business park's EA, approved in 2005, calls for an additional interchange to serve a planned new roadway that will be called Cresterra Parkway.

All of the above plans call for Powers Boulevard to be upgraded to a freeway between Woodmen Road and Milton E. Proby Parkway, with interchanges planned at major intersecting roadways between Milton E. Proby Parkway and SH 16. All of these plans were developed with public and agency consultation, through ongoing regional and local planning processes. In particular, the PPACG 2035 Regional Transportation is the formal outcome of the continuing, cooperative and comprehensive planning process that is required under Federal regulations.

2.6 PLANNING AND ENVIRONMENTAL LINKAGE

The PPACG 2035 Regional Transportation Plan was prepared in accordance with Federal regulations, including Section 3005 of current transportation law called the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU). Section 3005 requires that the transportation planning process provides for actions and strategies that protect and enhance the environment, promote energy conservation, improve the quality of life, and promote consistency between transportation improvements and state and local planned growth and economic development patterns.

To promote environmental stewardship and avoid duplication of efforts in the regional transportation planning process and project-level NEPA analysis, FHWA supports a planning approach called Planning and Environmental Linkages (PEL). Consistent with the PEL approach, the PPACG 2035 Regional Transportation Plan contains an 86-page discussion (Chapter 11: Regional Setting) of the built and natural environment of the Pikes Peak Region. The chapter addresses: natural setting; landscape and vegetation; biological resources; surface water and groundwater issues; cultural resources; community resources; and air quality. It was with the understanding of this regional setting that PPACG developed its planned roadway and transit systems for the future, including its plans for improvements within the Powers Boulevard corridor.

PPACG's regional setting analysis is a valuable resource for understanding the environmental context of the built and natural environment at a regional level. The following section of this EA provides a brief look at the environmental context for the Powers Boulevard corridor.

2.7 ENVIRONMENTAL CONTEXT

Understanding the interaction of the road with its surrounding natural, cultural and community setting provides direction for developing potential solutions that would meet transportation

needs within the corridor. This section briefly summarizes key issues and resources with the potential to affect the transportation decision to be made for Powers Boulevard.

Natural Resources

The environmental character of Powers Boulevard has changed dramatically since urban growth transformed the former rangelands beginning in the late 1960s. Today, the corridor is a built, urban environment, with some small, isolated remnants of grassland.

Throughout most of the corridor, previous wetlands, wildlife habitat and historical resources have been lost to development. Any changes to the roadway today would be more likely to affect urban resources such as businesses, neighborhoods, and possibly recreation areas. These resources could be affected by right-of-way acquisition, access changes, highway noise and visual impacts.

A notable exception is a dedicated open space south of the airport, between Milton E. Proby Parkway and Fontaine Boulevard. South of the airport and both south and west of Powers Boulevard is the privately-owned Big Johnson Reservoir, partially surrounded by the publicly-owned Bluestem Prairie Open Space. The newly developing Airport Business Park, between Milton E. Proby Parkway and Powers Boulevard, is existing grassland that will be used for office space, dedicated open space, and a golf course. These undeveloped grassland areas still attract wildlife such as pronghorn because they have long been on the edge of urban development, accessible from the prairie rangelands to the east.

With urban development, plants and animals of the former prairie ecosystem have been displaced. Grass lawns and non-native trees have been planted. Wildlife that need wide open spaces has largely been replaced by opportunistic species (e.g., squirrels, foxes, coyotes) that are better able to survive in an urban environment.

The few stream channels that cross Powers Boulevard – notably Sand Creek and its tributaries – do not support aquatic life. Sand Creek is normally dry, as shown in **Exhibit 2-8** (left side). After a rain (right side), the channel carries a flow of stormwater runoff from the thousands of acres of recently developed urban development and its impervious surfaces such as rooftops, parking lots and roads. Additionally, the natural flow of these drainages in the area has been modified and channelized to facilitate adjacent development.

Exhibit 2-8. Sand Creek, Dry and Running, Downstream from Powers Boulevard

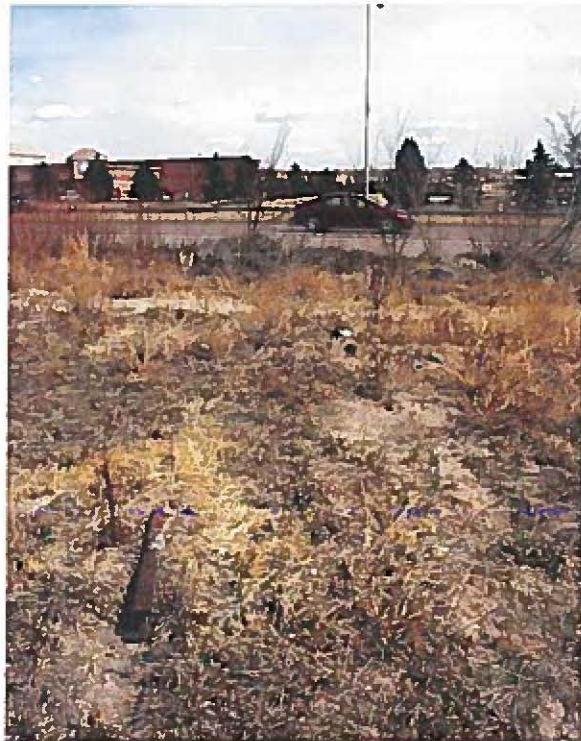


Erosion and sediment transport are problems in these creeks. Powers Boulevard and many nearby properties were developed prior to the establishment of the stormwater runoff management requirements that apply today. Therefore, stormwater runoff from the roadway is not detained and mitigated with “Best Management Practices.” Instead, sediments and vehicle-related contaminants typically flow untreated from the roadway to eventually reach receiving waters. Stormwater runoff from some adjacent properties actually flows towards the expressway, due to local development decisions made prior to Powers Boulevard becoming a State Highway.

Cultural Resources

The Powers Boulevard corridor has almost no remaining historic or archeological resources. Traces of a century of ranching have also been obliterated, and a century-old railroad has been rapidly disappearing. Powers Boulevard crosses the former Rock Island Railroad grade just south of Constitution Avenue. The railroad was built in 1888 and ceased operations in 1978. Since then, the railroad tracks and grade have been sold to various owners and largely obliterated by urban development (see Exhibit 2-9). The rail corridor is gradually being converted into the region’s primary east-west recreation trail.

Exhibit 2-9. View of Former Rock Island Railroad Location at Powers Boulevard, South of Constitution Avenue



Parks, Trails and Recreational Areas

A number of parks, trails and recreational areas exist along Powers Boulevard, and more are planned. From north to south, these existing resources include:

- High Chaparral Open Space (54 acres) located west of Powers Boulevard and south of Stetson Hills Boulevard
- Rock Island Trail, west of Powers Boulevard and south of Constitution Avenue
- Skyview Sports Complex (softball fields), east of Powers Boulevard and south of Hancock Expressway
- Bluestem Prairie Open Space (647 acres), south and west of Powers Boulevard, between Grinnell Boulevard and Fontaine Boulevard

In the future, a new open space and a golf course will be provided as part of the Colorado Springs Airport Business Park. Additionally, regional trail plans call for three trails to cross Powers Boulevard and one to parallel it for several miles.

All of these parks, trails and open spaces were established or are planned to be adjacent to an expressway, with the knowledge that it would carry more traffic in the future. The setting for these resources is a largely urban environment that includes traffic noise from Powers

Boulevard and other streets. Additionally, the Powers Boulevard corridor is in the flight path for aircraft using Peterson AFB and the Colorado Springs Airport.

Visual Character

Visually, Powers Boulevard is a very urban corridor except for a rural stretch between Milton E. Proby Parkway and Fontaine Boulevard. Landscaping along the corridor includes grass medians, grass roadsides, and some median island planting of shrubs and short trees. The most prominent landscaping is found at Milton E. Proby Parkway, where each corner of the intersection has a short row of trees planted as a gateway feature to the Colorado Springs Airport. Another visual feature is that in the vicinity of the First & Main shopping area (between South Carefree Circle and Barnes Road), colorful banners are hung from median streetlights to promote the nearby shopping, restaurants and Sky Sox AAA baseball team.

The expressway has no publicly provided noise barriers, and the privacy fences behind adjacent subdivisions are not consistent in design. The roadway is at grade except where it crosses over Woodmen Road at the northern project limit. Apart from the design of the Platte Avenue bridge that crosses over Powers Boulevard, the roadway itself does not have any aesthetic design elements or theme.

The cover photo for this EA, repeated here as **Exhibit 2-10**, is a view northward from the Platte Avenue overpass toward Galley Road.

Exhibit 2-10. View Northward to Powers Boulevard from the Platte Avenue Overpass

North of Galley Road, ridgelines east and west of Powers Boulevard restrict longer views to the mountains or the prairies. Foreground views of urban development dominate this visual landscape. These views are often cluttered with numerous temporary signs advertising nearby housing developments, home businesses and political campaigns (seasonally). The Sand Creek channel is visible from Powers Boulevard but is not scenic. North of Barnes Road, southbound motorists drive downhill with a long view of urban development, the Colorado Springs Airport and mountains in the distance to the south.



In the southern portion of the corridor, longer views are available to the west. South of the airport, this includes views to Pikes Peak and to the Big Johnson Reservoir over the Bluestem Prairie Open Space.

2.8 SHAPING TRANSPORTATION SOLUTIONS BASED ON THIS CONTEXT

The context information presented in this chapter was known and taken into account in the development of potential transportation solutions to meet the project’s purpose and need. The development of context-sensitive transportation solutions is described in Chapter 3, Alternatives.

CHAPTER 3 – ALTERNATIVES

3.1 INTRODUCTION

To meet the purpose and need described earlier in this EA, a range of potential transportation actions was developed and evaluated, leading to the selection of a single Proposed Action to evaluate in comparison to a No-Action Alternative. This chapter summarizes what transportation actions were considered, which were eliminated, which were carried forward for detailed environmental study, and why. Additional detail supporting this summary, including concepts for different roadway configurations, is provided in appendices on the compact disc (CD) attached to this EA. Included are reports on traffic analysis (Appendix B), mode feasibility analysis (Appendix C), alternatives screening (Appendix D) and Context Sensitive Solutions (Appendix E).

The Proposed Action would change the existing Powers Boulevard from an expressway to a freeway.

3.2 HOW THE PROPOSED ACTION WAS DEVELOPED

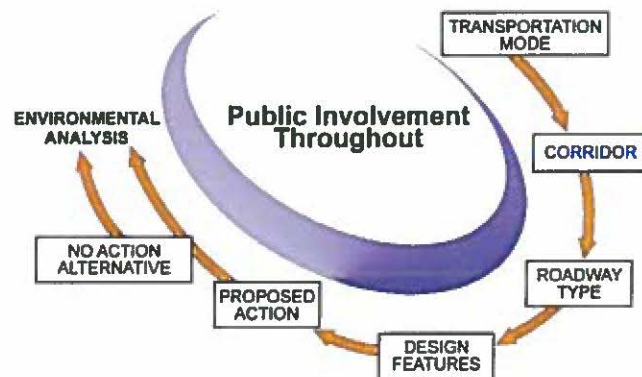
The Proposed Action was developed by CDOT and FHWA through a process that identified, evaluated, refined, and eliminated potential transportation actions, with continuous input from Powers Boulevard users as well as local, regional, state and federal agencies. This process is illustrated in Exhibit 3-1. The first four steps in this process led to the development of the Proposed Action. The Proposed Action and the No-Action Alternative were then carried forward for environmental examination as documented in Chapter 4.

Three distinct screening stages were developed for the Powers Boulevard EA alternatives analysis, including qualitative and quantitative technical assessment. Upon completion of each screening level, public meetings were held to present the screening recommendations and to solicit input from the public on the alternatives. As noted above, the alternatives screening process is detailed in Appendix D.

In the development of the Proposed Action, consideration was given to how the use of Powers Boulevard and the travel demand placed upon it would potentially affect the surrounding built and natural environment, regional transportation network, planned land use, and community character. This approach, called Context Sensitive Solutions (CSS), involved:

- a collaborative, interdisciplinary approach in which representatives from FHWA, CDOT, PPACG, the City of Colorado Springs, El Paso County, Colorado Springs Airport, and Peterson AFB were part of the planning and design team;

Exhibit 3-1. Key Steps in the Alternatives Development Process



- integration of residents and business owners along the corridor with the decision-making process that developed, evaluated, refined, and recommended a Proposed Action that met the purpose and need; and
- collection of public comment early and throughout the process through open house and small group meetings.

CSS is more than simply an approach that considers the context within which a transportation project will exist. It fully integrates environmental studies and community concerns with design solutions that are responsive to local needs. CSS allows each project to be customized to the study area rather than meeting a pre-determined set of standards, as long as basic safety requirements are met.

A CSS approach begins with a thorough understanding of the purpose and need of the transportation project. It then considers mobility together with social, economic, and environmental factors within the context of the community, including the values expressed by the public. To identify community values and concerns, extensive public outreach efforts were undertaken, including numerous public open house events, small group meetings, and one-on-one meetings with residents and commercial property owners.



Public involvement was an important aspect of the Context Sensitive Solutions approach used to develop alternatives.

The public asked a large number of questions and offered numerous suggestions throughout these meetings. Some of the most commonly asked questions are those shown in the box below. These questions were helpful in developing criteria used for the evaluation of alternatives.

As the number of transportation actions under consideration gradually decreased during the development of alternatives, the public asked more detailed questions, resulting in development of more refined concepts at some locations. For example, numerous solutions were evaluated to address questions such as how access might be provided to specific business properties along the corridor. This effort is documented in Appendix E, Context Sensitive Solutions Report, on the CD attached to the back of the EA.

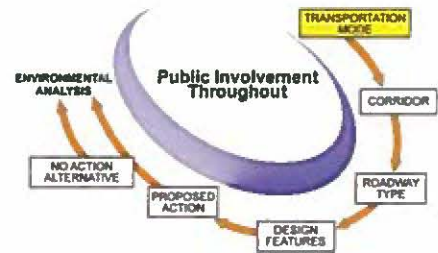
The alternatives development process that was illustrated in Exhibit 3-1 addressed the common questions that were raised by the public. Each step in the process and each of these questions is addressed below, beginning with consideration of the transportation mode.

Questions from the Public that Helped Evaluate Alternatives

- Why not consider other types of transportation, like the light rail system they have in Denver?
- Instead of modifying Powers, why not improve Marksheffel Road or some other less-developed corridor farther to the east?
- Can future travel demand be handled by widening Powers, instead of upgrading it to a freeway?
- What design features could be used to minimize impacts to businesses, neighborhoods and the environment?

What type of transportation mode(s) could accommodate the projected Powers Boulevard traffic demand?

One of the questions commonly heard from the public during the alternatives development process was, "Why not consider other types of transportation, like the light rail system they have in Denver?" As part of this EA, the potential effectiveness of light rail and a number of other transportation types or "modes" were considered.



Various modes were evaluated based on the characteristics of the Powers Corridor. The mode feasibility study began with a list of 20 types of transportation technologies, including rail, bus and bus rapid transit, and carpool lane alternatives, as well as highway actions. This evaluation is contained in a study called the *Powers Boulevard Mode Feasibility Study/Corridor Assessment* (Appendix C included on the CD attached to this EA).

Exhibit 3-2 depicts the vision for bus and rapid transit service in eastern Colorado Springs that is reflected in PPACG's *Moving Forward*. This vision includes local bus routes crossing Powers Boulevard and regional express bus service using Powers Boulevard. No bus service is anticipated on Powers Boulevard south of Airport Road by 2035 (Mountain Metro Transit, 2008).

Exhibit 3-2. Planned Future Transit Service in Eastern Colorado Springs

Rapid transit is planned along Austin Bluffs Parkway by 2035 and along other routes (including Academy Boulevard) beyond the year 2035. This plan indicates that future service such as bus rapid transit will be focused on the Academy Boulevard corridor, not Powers Boulevard.



Thirteen transit options were considered in the Powers Boulevard mode feasibility study. Any of these transit options would reduce future traffic on Powers Boulevard by only 2 to 5 percent. However, none of these would reduce congestion sufficiently to meet the project's purpose and need.





Congestion management strategies are also included in PPACG's 2035 plan, and Powers Boulevard was identified as a corridor where such strategies should be considered. These strategies, such as ramp metering, carpool programs, Park and Ride lots and bicycle and pedestrian facilities, are intended to maximize the efficiency of the existing transportation system at a lower cost than major roadway construction. The Powers Boulevard mode feasibility study examined various congestion management strategies and determined that they would reduce traffic on Powers Boulevard by 2 to 5 percent.

Traffic reductions due to individual transit and congestion management strategies cannot be added together mathematically if they capture the same trips. For example, a motorist who drives alone might decide to carpool, take the bus, or use light rail. However, no matter how many choices are offered, taking one of them would eliminate only one car from the road.

To eliminate future congestion on Powers Boulevard by reducing traffic, either additional capacity would be needed or else approximately a 50 percent traffic reduction in future traffic volume would be needed, as noted in Chapter 1 of this EA. In comparison, transit technologies and congestion management strategies offer reductions of only about 5 percent. Since transit technologies and congestion management strategies would not sufficiently alleviate future congested conditions on Powers Boulevard, they would not meet the project's purpose and need. Therefore, roadway capacity improvements were evaluated to determine if this strategy would effectively reduce future congestion.

As shown in Exhibit 3-3, the transportation mode analysis determined that only roadway improvements could provide sufficient capacity in the corridor. Even if all of the transit and congestion management strategies were implemented, future congestion on Powers Boulevard would still necessitate roadway improvements.

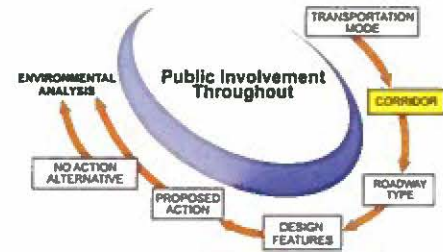
Exhibit 3-3. Results of Transportation Mode Analysis

Transportation Mode Considered	Result of Analysis
<u>Rail Transit Technologies</u> Light Rail Personal Rapid Transit Heavy Rail Monorail Commuter Rail Subway Diesel Multiple Units Magnetic Levitation Electric Trolley (Streetcar)	 ELIMINATED because: - it would reduce future traffic on Powers Boulevard by only 2 to 5 percent; this would not take enough traffic off of Powers Boulevard to alleviate future congestion. This would not meet the project's purpose and need.
<u>Rubber-Tire Transit Technologies</u> Bus Rapid Transit Express Bus on High-Occupancy Vehicle Lanes Express Bus Service Local Bus Service	 ELIMINATED because: - it would reduce future traffic on Powers Boulevard by only 2 to 5 percent; this would not take enough traffic off of Powers Boulevard to alleviate future congestion. This would not meet the project's purpose and need.
<u>Congestion Management Strategies</u> Ramp metering Carpool programs Park and Ride Lots Bicycle/Pedestrian Facilities/Programs	 ELIMINATED because: - it would reduce future traffic on Powers Boulevard by no more than 5 percent; this would not take enough traffic off of Powers Boulevard to alleviate future congestion. This would not meet the project's purpose and need.
<u>Roadway Improvements</u> Additional general purpose lanes Additional turn lanes Signal improvements Interchanges/overpasses	 CARRIED FORWARD FOR FURTHER ANALYSIS because: - it would add enough roadway capacity to accommodate projected corridor travel demand. This would meet the project's purpose and need.

The next step in the alternatives development process was to determine where such roadway improvements should be made.

Would roadway improvements on another corridor reduce Powers Boulevard congestion to acceptable levels?

From the outset of the EA, the most frequently asked question from the public was: "Instead of modifying Powers Boulevard, why not improve Marksheffel Road or some other, less-developed corridor farther to the east?" This issue was examined thoroughly in the *Powers Boulevard Mode Feasibility Study/Corridor Assessment*.



Because 90 percent of Powers Boulevard trips have origins or destinations within the corridor, improvements to other corridors would reduce projected future traffic on Powers Boulevard by only 5 to 15 percent. Using other corridors would require motorists to divert two miles or more out of their way and would increase traffic on connecting east-west arterials.

In addition to Powers Boulevard, three eastern corridors considered in this EA were Marksheffel Road, Banning-Lewis Parkway, and the proposed Prairie Falcon Parkway Express toll road. Their locations are illustrated in **Exhibit 3-4**.

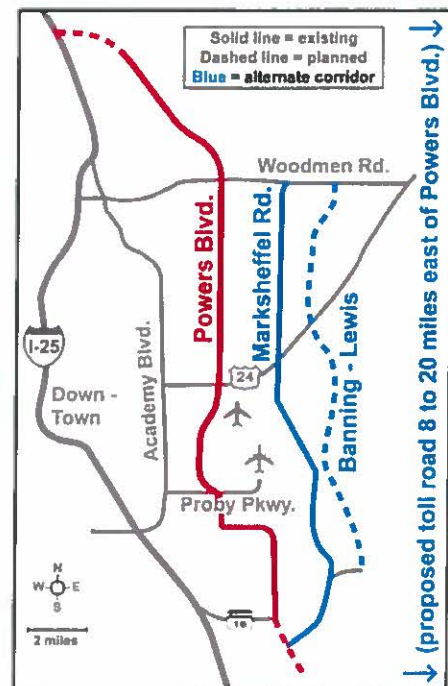
Marksheffel Road is an existing north-south arterial located generally two miles east of Powers Boulevard.

The next major north-south corridor to the east is the planned Banning-Lewis Parkway that will be constructed to serve trips in the 20,000-acre Banning-Lewis Ranch development. At least 13 miles in length, this parkway will be located typically 3 to 4 miles east of Powers Boulevard.

The addition of roadway capacity to both of these corridors is included in PPACG's 2035 *Moving Forward*. Additional capacity is needed in all of these corridors to serve development on the east side of the city. Even with the widening of Marksheffel Road and construction of the Banning-Lewis Parkway, the regional traffic model indicates that Powers Boulevard intersections would be congested in the future.

East of Colorado Springs, a private consortium hopes to build a 210-mile north-south toll road called the Prairie Falcon Parkway Express about 8 to 20 miles east of Powers Boulevard. This high-speed bypass would serve long-distance truckers and other motorists who wish to avoid traffic congestion on I-25 through Colorado's Front Range metropolitan areas including Pueblo, Colorado Springs and Denver (Gazette, 2006b).





Exhibit 3-4. Major North-South Roads Existing or Planned in Eastern Colorado Springs



Because it would serve only long-distance trips, which are completely different from the regional and local trips served by Powers Boulevard, the proposed Prairie Falcon Parkway Express toll road would divert virtually no traffic off of Powers Boulevard. Since Powers Boulevard would still be congested, the Prairie Falcon Parkway Express does not represent a meaningful corridor location for this EA and was dismissed from further analysis.

Exhibit 3-5 presents the results of the transportation corridor analysis, indicating what was considered and what was eliminated, and why. None of the alternative corridors would attract more than 15 percent of this traffic, either singly or in combination. In summary, the *Powers Boulevard Mode Feasibility Study/Corridor Assessment* determined that increasing roadway capacity on Powers Boulevard would be the only way to provide meaningful relief for future congestion.

Exhibit 3-5. Results of Corridor Analysis

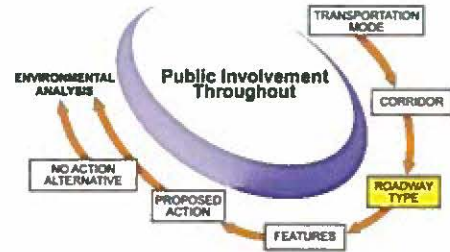
Corridor Considered	Result of Analysis
<u>Marksheffel Road</u> Upgrade existing arterial to a freeway, two miles east of Powers Boulevard	 ELIMINATED because: - it would reduce projected traffic on Powers Boulevard by only 5 to 15 percent; this would not take enough traffic off of Powers Boulevard to alleviate congestion. This would not meet the project's purpose and need.
<u>Banning-Lewis Parkway</u> Build planned new roadway as a freeway, three to four miles east of Powers Boulevard	 ELIMINATED because: - it would reduce projected traffic on Powers Boulevard by only 5 to 15 percent; this would not take enough traffic off of Powers Boulevard to alleviate future congestion. This would not meet the project's purpose and need.
<u>Prairie Falcon Parkway Express Toll Road</u> Build new high-speed 200-mile toll road roughly from Pueblo to Fort Collins, about 8 to 20 miles east of Powers Boulevard	 ELIMINATED because: - it would reduce projected traffic on Powers Boulevard by less than 5 percent; this would not take enough traffic off of Powers Boulevard to alleviate future congestion. This would not meet the project's purpose and need.
<u>Powers Boulevard</u> Increase roadway capacity	 CARRIED FORWARD FOR FURTHER ANALYSIS because: - it would accommodate future travel demand while improving peak-period travel speeds and travel times. This would meet the project's purpose and need.

The next step in the alternatives development process was to determine what type of roadway would best provide this capacity.

What type of roadway (freeway or expressway) would best relieve congestion?

During the development of this EA, the public frequently asked, "Can future travel demand be handled by widening Powers, instead of upgrading it to a freeway?"

Different types of roadways are provided in an urban setting depending upon how much traffic they need to carry and how much access they need to provide. Basic urban types for higher volumes are explained in the text box below.



For Powers Boulevard, the issue of an expressway versus a freeway was examined extensively.

Powers Boulevard is largely a limited-access expressway, with the following physical characteristics:

- 4 to 6 through lanes (2 to 3 each direction)
- Turn lanes include double left turns and one right turn before the cross-street, and one acceleration lane to receive right turns after the cross-street
- Interchanges at only Woodmen Road and Platte Avenue
- 14 signalized intersections exist today, between Woodmen Road and Milton E. Proby Parkway (some have less than one-mile spacing)
- Several unsignalized access points, including some temporary access points
- Posted speed limit of 55 miles per hour (mph)

The capacity of the existing Powers Boulevard expressway could be enhanced by adding travel lanes and grade-separated interchanges to replace some at-grade intersections. This **enhanced expressway** concept would have the following characteristics:

- 4 to 8 through lanes (2 to 4 each direction)
- Turn lanes include triple left turn lanes and one or two right turn lanes before the cross-street, plus an acceleration lane to receive right turns after the cross-street
- Interchanges would be added at 8 of the cross-streets with highest traffic volumes between Dublin Boulevard and Airport Road
- 6 signalized intersections would remain on the Powers Boulevard mainline
- Posted speed limit of 55 mph

ROADWAY TYPES

Arterial (example: Academy Boulevard) – Allows direct access to connecting streets and adjacent properties, typically spaced a half-mile apart or less. Posted speed limits are 35 to 40 mph.

Expressway (example: Powers Boulevard) – Access is typically spaced one mile apart, for signalized, at-grade intersections. Posted speed limits are 40 to 55 mph.

Freeway (example: I-25) - Access is provided only at grade-separated interchanges, typically spaced at least one mile apart. Posted speed limits are 55 to 75 mph.

Powers Boulevard is already ten lanes wide at some intersections, counting six through lanes, dual left turn lanes, a right turn lane and an acceleration lane. These ten lanes marginally meet current traffic demand and cannot accommodate future needs. To meet future traffic demand at these locations, additional lanes were explored and it was found that 13 lanes were needed: eight through lanes, triple left turn lanes, one right turn lane and an acceleration lane. However,

traffic modeling indicates that even with this number of lanes, traffic queues at these intersections would be long, resulting in excessive delays both on Powers Boulevard and the east-west cross-streets. This in turn would cause the intersections to be congested. The discussion of traffic operations found in Chapter 4 more fully explains these levels of service.

Furthermore, there is intensive development at each of these busy intersections. Traffic queues on cross-streets at Powers Boulevard intersections would block access into adjacent businesses, making it difficult for people to enter and exit at these locations. The provision of more turning lanes on Powers Boulevard would require widening of the cross-streets to receive these turns. This would also affect access to adjacent businesses and in some cases would require their acquisition.

After a thorough consideration of traffic operations and other associated effects, it was determined that the enhanced expressway would not meet the project's purpose and need.

The **freeway** concept would replace at-grade intersections with grade-separated interchanges, meaning that Powers Boulevard would cross over or under all major cross-streets. Characteristics of the Powers Boulevard freeway would include:

- 6 through lanes (3 each direction) plus acceleration lanes
- Turns are made at ramp/cross-street intersections, not hampering mainline through traffic
- Interchanges with access at all major cross-streets; overpasses with no direct access elsewhere
- No signalized intersections would remain on the Powers Boulevard freeway mainline between Woodmen Road and Milton E. Proby Parkway
- Posted speeds would range from 55 to 65 mph

Interchanges have a higher capacity than intersections, and are needed to efficiently handle large volumes of turn movements. For safety reasons, freeway interchanges cannot be located too close to each other. Minimum spacing of one mile between interchanges is typical, and tends to mesh well with urban road systems where arterial streets are in a grid pattern. In cases where existing cross-streets or side-streets are spaced less than one mile apart, a freeway would necessitate closure of access to minor streets. All existing "right-in, right-out" access points would be closed, for example. At a few existing cross-streets, there would be no connection to Powers Boulevard but access would be available from nearby major roadways.



Because interchanges remove traffic signals from the mainline, vehicle-carrying capacity of a freeway lane is about 50 percent higher than that of an expressway lane. Therefore, fewer through lanes are required on a freeway to carry the same amount of traffic as an expressway.

This freeway concept was evaluated using traffic simulation and regional traffic models to determine its effectiveness for Powers Boulevard. The results indicated that good traffic operations and minimal delays would be expected for the year 2035. The intersections would be less congested because the through traffic on Powers Boulevard would pass over the cross-streets.

The reduced traffic queues on cross-streets would allow better access to adjacent properties than the expressway concept. In some locations, however, adjacent businesses would need to be acquired for the interchange, frontage roads and other freeway features.

With the freeway concept, the roadway system would operate better than it does today, while accommodating much higher traffic volumes. This would meet the project's purpose and need. Therefore, this roadway type was carried forward for further analysis, as indicated in Exhibit 3-6.

Exhibit 3-6. Results of Roadway Type Analysis

Roadway Type Considered	Result of Analysis
<p><u>Enhanced Expressway</u></p> <p>Provide:</p> <ul style="list-style-type: none"> - more through lanes; - grade-separated interchanges at high-priority locations; - additional turn lanes at remaining signalized intersections. 	<p> ELIMINATED because:</p> <ul style="list-style-type: none"> - it would leave remaining at-grade intersections extremely congested, due to heavy left turn movements. - traffic queues at cross-streets would impair access to adjacent businesses. - the total width needed for through lanes, left turn lanes, and right turn lanes at intersections would result in more right-of-way impacts to adjacent properties in the vicinity of intersections. <p>This would not meet the project's purpose and need.</p>
<p><u>Freeway</u></p> <p>Convert the existing expressway to a freeway, allowing access only at grade-separated interchanges.</p>	<p> CARRIED FORWARD FOR FURTHER ANALYSIS because:</p> <ul style="list-style-type: none"> - it could accommodate future Powers Boulevard year 2035 travel demand while improving peak-period travel speeds and travel times in comparison with current conditions. <p>This would meet the project's purpose and need.</p>

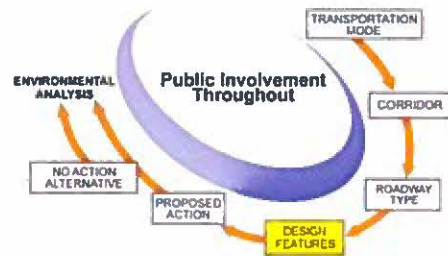
Conversion of Powers Boulevard from the existing expressway to a freeway would be a gradual process. Due to budget constraints, it is unlikely that grade-separated interchanges could be provided throughout the corridor all at one time; instead, these improvements would need to be prioritized. Based on current population and traffic forecasts, the area of lowest priority appears to be the southernmost six-mile portion of the corridor, between Milton E. Proby Parkway and SH 16. In this stretch, at-grade intersections could provide acceptable Levels of Service through 2035, but future build-out in the area will eventually result in the need for grade-separation. Potential conflicts with future development could be avoided by preserving right-of-way in areas where freeway improvements are deferred beyond 2035.

The next step in the alternatives development process was to determine how best to fit a freeway into the Powers Boulevard corridor. Using the CSS approach, various roadway features were explored to meet the unique local needs found at different locations along the corridor.

What design features would best fit the improvements into the corridor?

After it was determined that Powers Boulevard should become a freeway, the public wanted to know, “What design features could be used to minimize impacts to businesses, neighborhoods and the environment?”

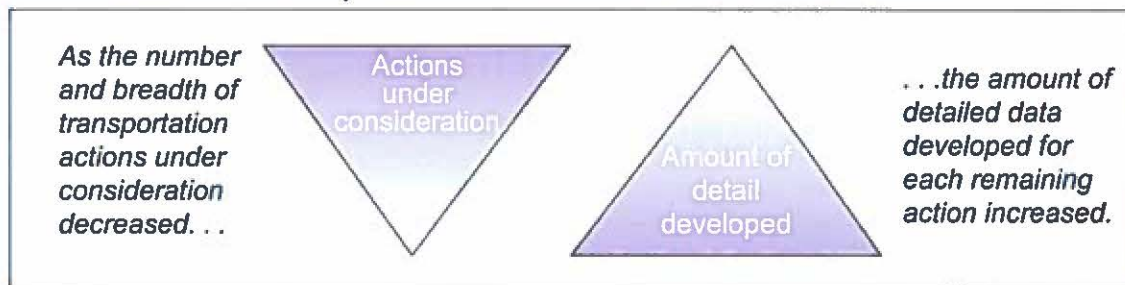
Converting Powers Boulevard to a freeway would result in modifications to existing accesses. This would affect traffic patterns for businesses and neighborhoods. To identify facility design features that would best fit the corridor, the following questions were examined:



- Where would direct access to Powers Boulevard be provided, and what modifications would be made (e.g., frontage roads) to provide or replace access disrupted by the freeway?
- What type of interchange would best fit at each location?
- What could be done to minimize the amount of additional right-of-way needed from adjacent properties?

These questions were addressed in a site-specific and context-sensitive manner, with input from the community. Numerous conceptual design ideas were developed for each potential interchange and for each roadway section between interchanges for the entire length of the study area. As concepts were carried through the screening process, they were refined with more detail, as indicated in **Exhibit 3-7**.

Exhibit 3-7. Relationship of Number of Actions to Amount of Detail



Access Modifications

Where it could be accommodated safely, direct access would be provided at all major cross-streets. Various ramp designs were considered at each location to determine whether or not direct access could safely be provided. Direct access cannot be accommodated when cross-streets are spaced too closely together to allow safe weaving distances on Powers Boulevard. Where direct access could not be provided, frontage roads and other local street modifications were considered. It was determined that there are seven locations with existing direct access that would not be compatible with a freeway. Each would be provided with access via frontage roads or other local street connections as needed to reach the nearest freeway interchange.

Property access along cross-streets was another important consideration. To avoid disrupting access to adjacent properties from cross-streets, the Powers Boulevard freeway would be elevated over the majority of the intersecting arterials. In a few cases, however, cross-streets would go over the freeway due to topography or other local constraints.

Interchange Types

Various interchange types were considered at each location where a signalized intersection would be replaced with a grade-separated interchange. For each location, important considerations included providing good traffic flow, minimizing right-of-way needs, and providing reasonable access to adjacent properties. Due to the high degree of development along the corridor, diamond interchange concepts fit best in most locations. Diamond interchanges are the most common type found along I-25 in the Colorado Springs metro area.

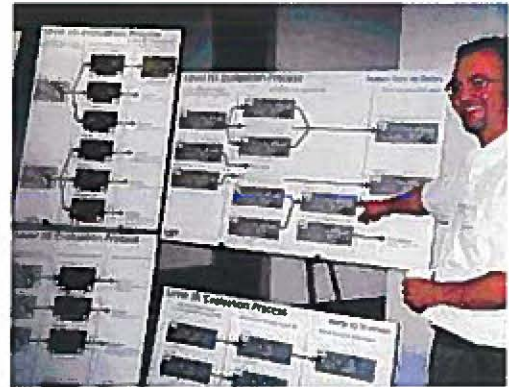
Minimizing Needed Right-of-Way

Facility design options also were examined to minimize the additional right-of-way width that would be needed for a freeway, including its ramps and frontage roads. A center median barrier was used to reduce overall roadway width, and retaining walls were evaluated to minimize the need for roadway side slopes. Where additional right-of-way was needed, consideration was given to shifting the roadway slightly to the east or west to avoid having to expand the right-of-way on both sides. Ways to minimize right-of-way impacts when relocating utility lines in the Powers Boulevard corridor and providing areas for capturing stormwater runoff from the roadway were also considered.

Numerous design concepts were developed to fit a freeway within the corridor and minimize right-of-way impacts. The design concepts and evaluation results from this process were presented at open house meetings to allow for public review and comments.

The selection of facility features concluded the alternatives development process and resulted in the Proposed Action that is described below in Section 3.3.

The alternatives development process identified conceptual solutions that would meet the current needs of the corridor, but continuing development along the corridor may alter those needs. For example, after a workable local access concept was identified for the eastern side of the Galley Road interchange, a new commercial building was constructed that necessitated revisions to that concept. Additionally, there is an ongoing dialogue between CDOT and a major developer regarding access on the eastern side of Powers Boulevard between Barnes Road and Constitution Avenue. The developer is interested in further exploring the feasibility of a northbound off-ramp to South Carefree Circle. Some decisions regarding specific access accommodations would need to be made in final design, possibly a number of years in the future. Thus the CSS approach does not end with the Proposed Action but continues through project design and construction.



Many design concepts were developed and discussed with the public.

For a detailed description of the alternatives development process and the screening results, please refer to the Alternatives Screening Report that is included as Appendix D on the CD attached to the back of this EA.

3.3 DESCRIPTION OF THE PROPOSED ACTION

The Proposed Action would modify Powers Boulevard as follows:

- Reconstruct the existing expressway as a 6-lane freeway for 11 miles between Woodmen Road and Milton E. Proby Parkway (entrance to Colorado Springs Airport), as shown in **Exhibit 3-8**.
- Build 11 new grade-separated interchanges between Woodmen Road and Milton E. Proby Parkway.
- Obtain right-of-way to accommodate future interchanges for a freeway on the existing 5.8-mile stretch of Powers Boulevard between Milton E. Proby Parkway and SH 16 (see **Exhibit 3-9**). Future environmental studies would be needed as a prerequisite for any construction projects south of the Powers Boulevard interchange at Milton E. Proby Parkway.

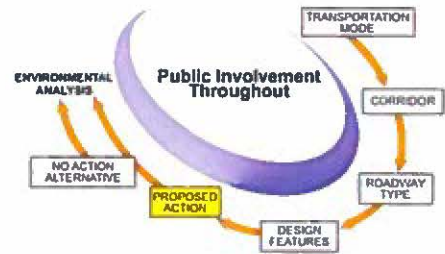


Exhibit 3-8. Lane Configuration for 6-Lane Freeway North of Milton E. Proby Parkway

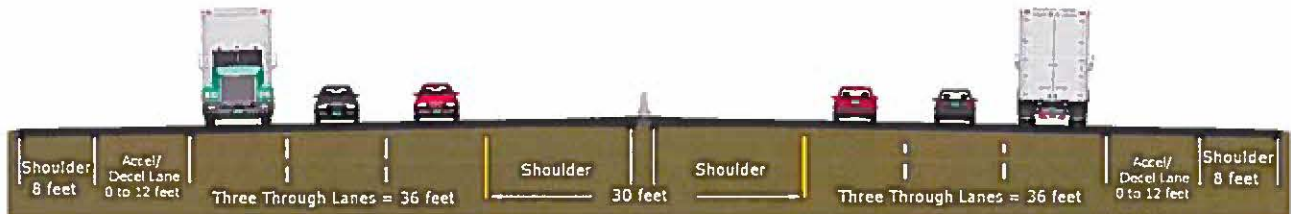


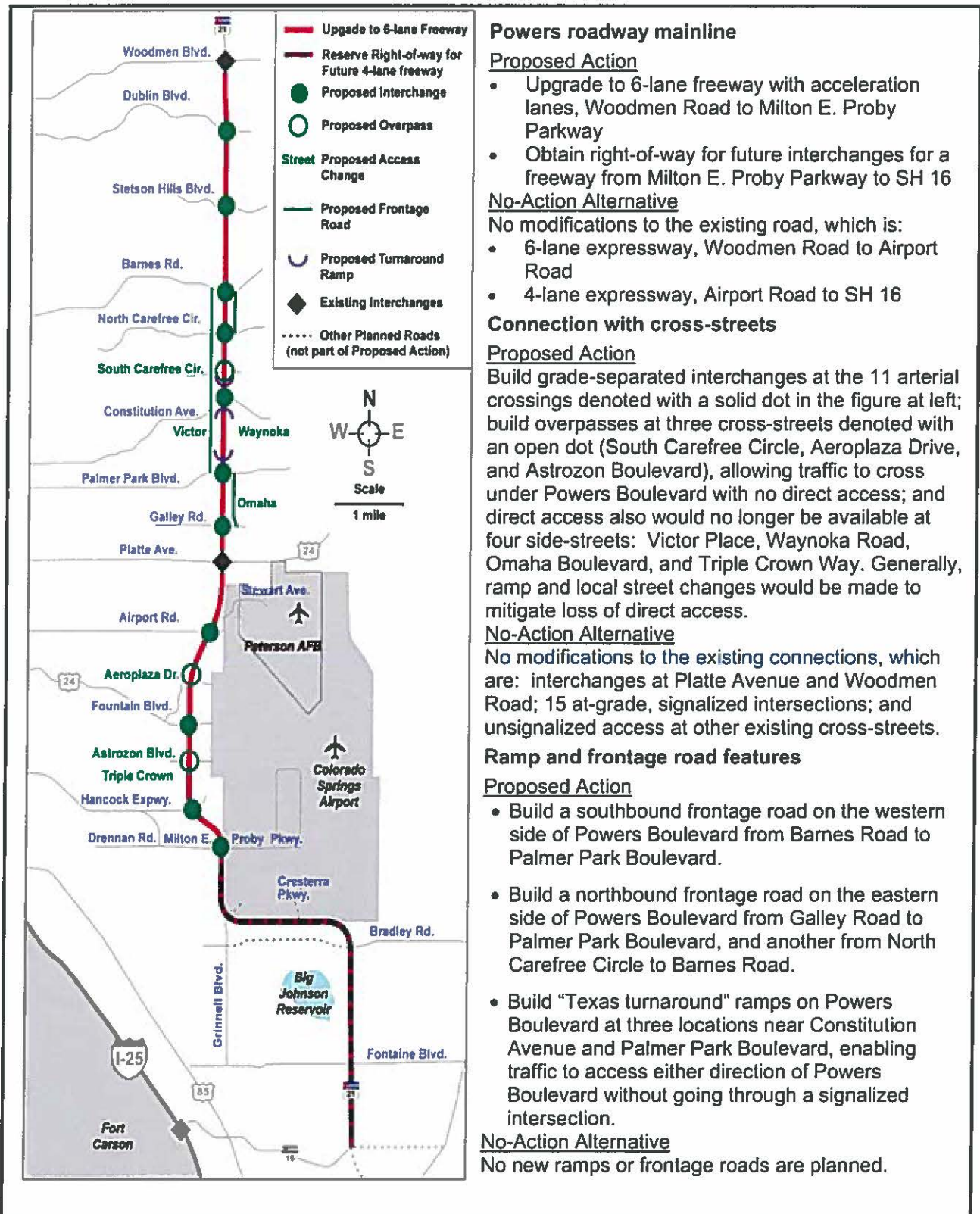
Exhibit 3-9. Lane Configuration for a Freeway South of Milton E. Proby Parkway



The Proposed Action has been described above in general terms. More details are provided below in **Exhibit 3-10** and the text that follows it. Proposed interchange configurations and number of lanes are depicted in **Exhibit 3-11**.

Exhibit 3-11 indicates that a relatively simple diamond interchange is proposed at Milton E. Proby Parkway (entrance to the Colorado Springs Airport). In consultation with airport officials, this configuration was designed to be compatible with a future loop configuration if needed to accommodate growth at the airport and its adjacent business park. The Proposed Action would not preclude the potential future upgrade at this location.

Exhibit 3-10. Summary of the Proposed Action and the No-Action Alternative



Powers roadway mainline

Proposed Action

- Upgrade to 6-lane freeway with acceleration lanes, Woodmen Road to Milton E. Proby Parkway
- Obtain right-of-way for future interchanges for a freeway from Milton E. Proby Parkway to SH 16

No-Action Alternative

No modifications to the existing road, which is:

- 6-lane expressway, Woodmen Road to Airport Road
- 4-lane expressway, Airport Road to SH 16

Connection with cross-streets

Proposed Action

Build grade-separated interchanges at the 11 arterial crossings denoted with a solid dot in the figure at left; build overpasses at three cross-streets denoted with an open dot (South Carefree Circle, Aeroplaza Drive, and Astrozon Boulevard), allowing traffic to cross under Powers Boulevard with no direct access; and direct access also would no longer be available at four side-streets: Victor Place, Waynoka Road, Omaha Boulevard, and Triple Crown Way. Generally, ramp and local street changes would be made to mitigate loss of direct access.

No-Action Alternative

No modifications to the existing connections, which are: interchanges at Platte Avenue and Woodmen Road; 15 at-grade, signalized intersections; and unsignalized access at other existing cross-streets.

Ramp and frontage road features

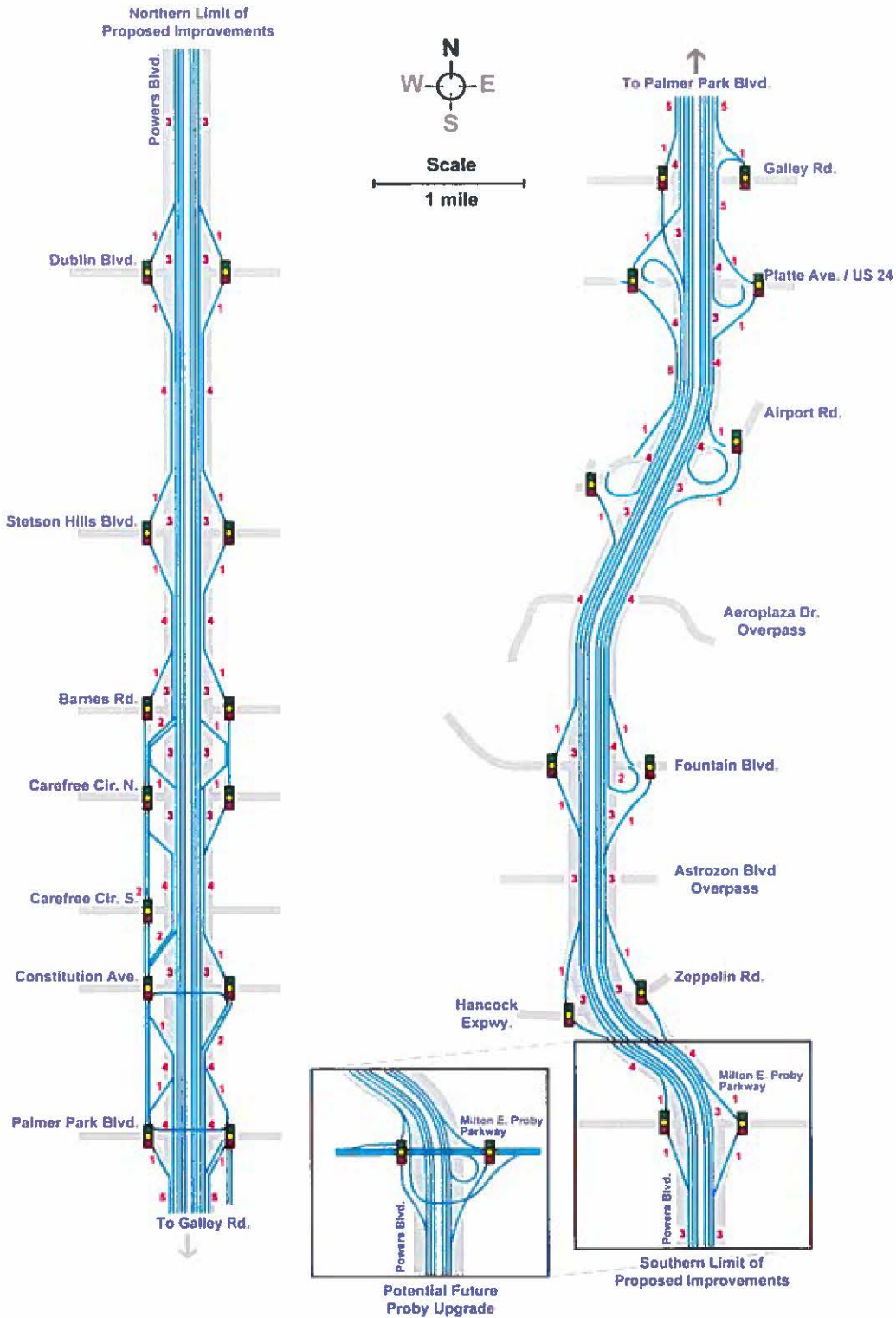
Proposed Action

- Build a southbound frontage road on the western side of Powers Boulevard from Barnes Road to Palmer Park Boulevard.
- Build a northbound frontage road on the eastern side of Powers Boulevard from Galley Road to Palmer Park Boulevard, and another from North Carefree Circle to Barnes Road.
- Build "Texas turnaround" ramps on Powers Boulevard at three locations near Constitution Avenue and Palmer Park Boulevard, enabling traffic to access either direction of Powers Boulevard without going through a signalized intersection.

No-Action Alternative

No new ramps or frontage roads are planned.

Exhibit 3-11. Number of Lanes and Interchange Configurations for Proposed Action



As part of the Proposed Action, all arterial streets that cross Powers Boulevard would be reconstructed as needed to accommodate on and off ramps and frontage roads, where provided.

Several cross-streets that currently have direct access from Powers Boulevard would no longer have direct access under the Proposed Action. These locations can be found in **Exhibit 3-10**, presented earlier. They include, from north to south:

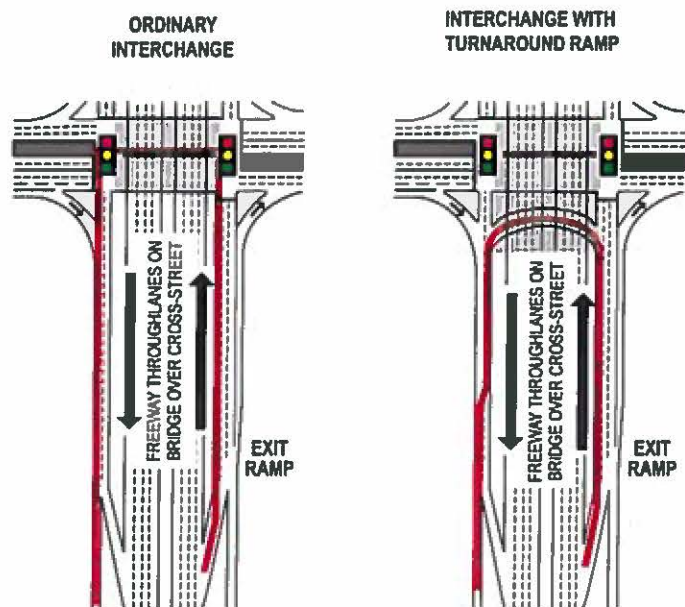
- South Carefree Circle (between North Carefree Circle and Constitution Avenue)
- Waynoka Road (south of Constitution Avenue, on the east side of Powers Boulevard)
- Victor Place (south of Constitution Avenue, on the west side of Powers Boulevard)
- Omaha Boulevard (south of Palmer Park Boulevard, on the east side of Powers Boulevard)
- Aeroplaza Drive (between Airport Road and Fountain Boulevard)
- Astrozon Boulevard (between Fountain Boulevard and Hancock Expressway)
- Triple Crown Way (north of Hancock Expressway, on the west side of Powers Boulevard)

As is indicated in **Exhibit 3-10**, it would still be possible to cross Powers Boulevard at South Carefree Circle, Aeroplaza Drive, and Astrozon Boulevard. For the other affected accesses, motorists would need to use frontage roads or other local streets to get to or from the nearest major cross-street with a Powers Boulevard interchange. Local access to frontage roads is proposed at various locations (e.g., Safeway shopping center north of Constitution Avenue; Victor Place businesses), and may be considered at other locations in final design if CDOT determines that it is feasible and prudent to do so.

At three locations along the corridor, special free-flow “Texas turnaround” ramps would be provided. This type of ramp allows freeway motorists traveling in one direction to access a destination on the other side without having to make two left turns at the cross-street intersections, thus improving traffic flow at the interchange (see **Exhibits 3-12** and **3-13**). The turnaround ramps (in red) would be at-grade. The freeway lanes (in gray) would cross over them.

Turnaround ramps would be provided in the few locations where there is sufficient demand for this movement. All three proposed turnaround ramps along Powers Boulevard would be between South Carefree Circle and Palmer Park Boulevard, in an area of dense retail and light industrial land use.

Exhibit 3-12. Ordinary Interchange and Interchange with Texas Turnaround Ramp



RED SHADED = NORTHBOUND DRIVER'S ROUTE TO DESTINATION WEST OF THE FREEWAY

Exhibit 3-13. Example of a Texas Turnaround Ramp



Right-of-Way Preservation

The cross section shown in **Exhibit 3-9** is for a future freeway on the 5.8 miles of south of Milton E. Proby Parkway. Based on current growth projections, the capacity of the existing four-lane expressway is adequate to meet traffic needs there through the year 2035. Therefore, the Proposed Action does not include roadway improvements south of the proposed interchange at Milton E. Proby Parkway. However, it is prudent to reserve the right-of-way that would be needed to accommodate the type of facility and the anticipated transportation network connections that are reflected in the region’s adopted long-range transportation plan.

A small amount of right-of-way would be acquired along each side of the existing expressway to accommodate the proposed freeway cross-section. Most of the 78 acres of right-of-way acquisition would be localized around Grinnell Boulevard, Cresterra Parkway, Bradley Road and Fontaine Boulevard to accommodate future interchanges at those locations.

3.4 DESCRIPTION OF THE NO-ACTION ALTERNATIVE

In the No-Action Alternative, no capacity improvements would be made to address the purpose and need of this EA. Routine maintenance would occur to keep the existing lanes in operable condition. **Exhibit 3-14** on the following page shows the lane configuration and right-of-way that exists today and that would remain under the No-Action Alternative for a six-lane section of the expressway. The No-Action Alternative provides a benchmark for comparison with the Proposed Action.

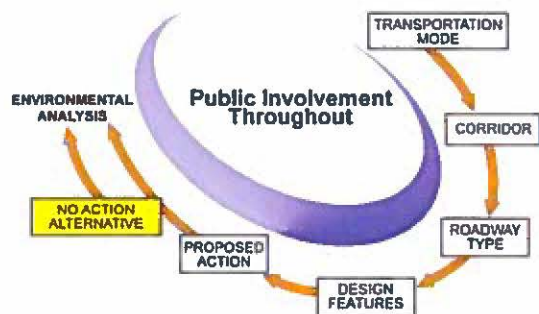


Exhibit 3-14. Typical Cross Section of Powers Boulevard Existing 6-Lane Expressway



3.5 OTHER PLANNED PROJECTS IN THE AREA

The PPACG 2035 Regional Transportation Plan indicates that many of the roads that cross Powers Boulevard will be widened in the future. These include (from north to south):

- Dublin Boulevard – east of Powers Boulevard
- Stetson Hills Boulevard – east and west of Powers Boulevard
- Barnes Road - east and west of Powers Boulevard
- North Carefree Circle - east of Powers Boulevard
- Constitution Avenue – east of Powers Boulevard
- Platte Avenue (US 24) - east of Powers Boulevard

These widening projects may result in the need for some modifications at Powers Boulevard signalized intersections. These widening projects, with the exception of Constitution Avenue and US 24, are expected to be privately funded, and will occur when they are needed to serve the newly developing Banning-Lewis Ranch area. These modifications are not specifically considered to be part of the No-Action Alternative; instead, they are separate projects that will be undertaken whether or not Powers Boulevard capacity improvements are made.

3.6 BUILDING THE PROJECT

The estimated cost of the Proposed Action, including design, right-of-way acquisition and construction, is constantly subject to change in response to economic conditions and assumptions regarding when and how the project would be built. Because this cost will exceed one-half billion dollars, the Proposed Action is considered a “major project” that is subject to FHWA financial planning requirements. A Project Financial Plan was prepared in conjunction with this EA to demonstrate that the future revenues needed to fund this project can be reasonably assumed to be available.

The adopted, fiscally constrained PPACG 2035 Regional Transportation Plan fully funds the Proposed Action.

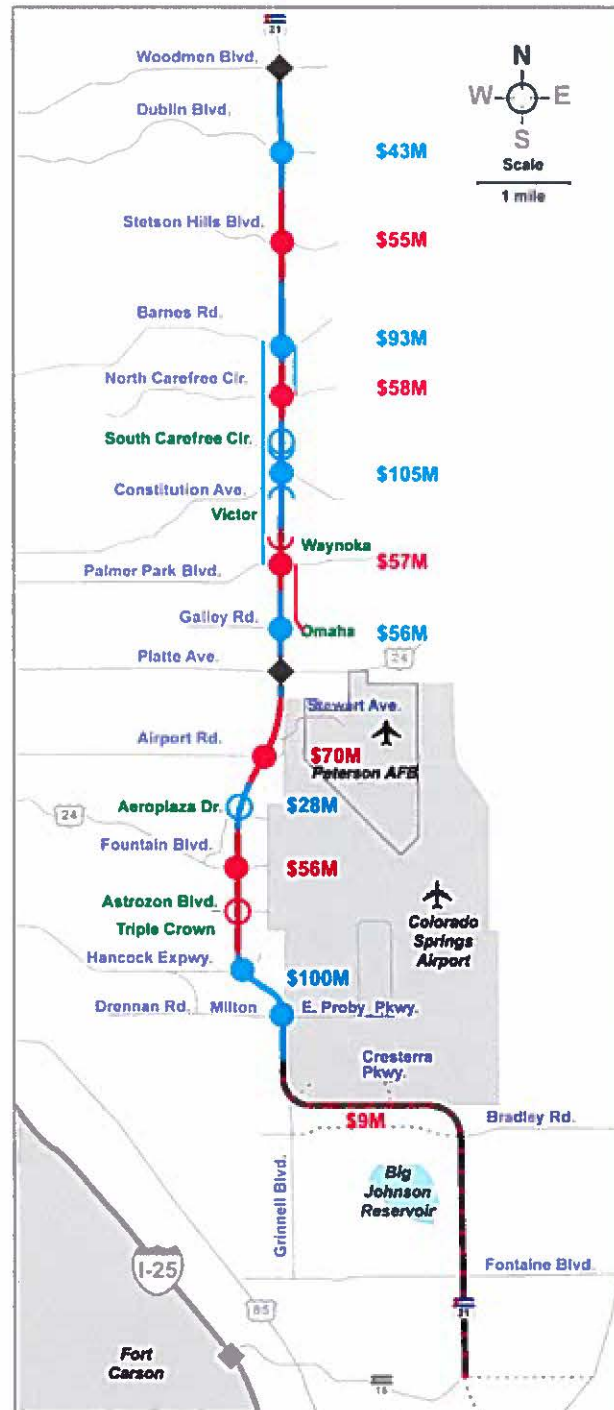
The adopted, fiscally constrained PPACG 2035 Regional Transportation Plan includes \$1.1 billion for the entire Powers Boulevard corridor from I-25 (North Powers Extension) to SH 16. This figure was the estimated cost for improvements to both North Powers and Central Powers Boulevard, in inflated, “year of expenditure” dollars. The adopted, fiscally constrained PPACG 2035 Regional Transportation Plan fully funds the Proposed Action.

The PPACG 2035 Regional Transportation Plan assumes that the Powers Boulevard will not be constructed all at once, over a brief period of time, but instead will be built in stages that are commensurate with federal and state funding that will become available gradually over time. Because the Proposed Action is complex with regard to construction issues such as access changes, frontage roads, and drainage, it was examined by project engineers to identify a number of separate construction packages that could be built independently and provide benefit to the public for an indefinite time until an adjacent package could be constructed.

Exhibit 3-15 identifies the construction packages that could be built individually or in groups to implement the Proposed Action between now and the year 2035. The costs are expressed in 2007 dollars, as estimated in a detailed Cost Estimate Review that was facilitated by FHWA in 2008. The total cost for the 11 construction packages plus the right-of-way preservation package (south of Milton E. Proby Parkway) is \$730 million.

Future funding availability will play a major role in determining when the overall project begins, as well as the priority and schedule under which the segments can be implemented. However, it is anticipated that a high-priority segment would be an interchange serving Airport Road. On the eastern side of this interchange, the road is called Stewart Avenue and is the newly improved, main entrance into Peterson Air Force Base, one of the region's largest employers. A Powers Boulevard interchange at Airport Road/Stewart Avenue would alleviate congested commuter traffic to and from this base.

Exhibit 3-15. Potential Construction Packages and Costs for the Proposed Action





It can be seen from **Exhibit 3-15** that the estimated cost of the "Airport/Stewart" interchange is approximately \$70 million (in 2007 dollars). CDOT has been working to secure funding for this interchange as early as 2010.

No portion of the Proposed Action has been designed in enough detail to allow immediate construction. The Airport/Stewart improvements could be built using an approach called Design/Build delivery.

Beyond this first construction package, there is too much uncertainty to predict a detailed construction sequence or schedule. The air quality analysis prepared for this EA assumes that the freeway will not be open for use by 2020, but would be open by 2025. This is consistent with PPACG's air quality analysis for the Regional Transportation Plan.



CHAPTER 4 – AFFECTED ENVIRONMENT, IMPACTS, AND MITIGATION

4.1 INTRODUCTION

The Proposed Action addresses projected future traffic congestion problems on Powers Boulevard as identified in Chapter 3. Chapter 4 describes the social, economic and environmental setting in which the Proposed Action would occur, and indicates how the Proposed Action would affect that setting. It also compares the effects of the Proposed Action with those of the No-Action Alternative. **Exhibit 4-1** lists the topics addressed in this chapter, summarizes project impacts, and indicates the page numbers where the topics are presented. A more detailed table listing project impacts and mitigation is provided at the end of this chapter, in Section 4.13, which begins on page 4-91.

Adverse effects to natural, community and cultural resources have been avoided and minimized through the Context Sensitive Solutions process described in Chapter 3 that was used to develop the Proposed Action. Measures that will be used to mitigate remaining adverse impacts have been identified and are discussed in this chapter.

Currently, the project design has been developed only to a conceptual level and provides enough detail to assess likely project impacts. In the final design of each piece of the overall Proposed Action, CDOT will look for ways to further minimize adverse impacts.

Exhibit 4-1. Topics Addressed and Summarized Impacts of the Proposed Action

Section and Topic	Page	Summarized Impacts of the Proposed Action
4.2 Traffic Congestion and Access - Traffic congestion - Direct access to/from Powers Boulevard - Access to/from corridor cross-streets	4-3	Traffic congestion would be greatly reduced. Grade-separated interchanges would be constructed at 11 major cross-streets. Direct access to Powers Boulevard from three cross-streets and four side-streets would be rerouted to other streets and, in some cases, frontage roads.
4.3 Social, Economic and Land Use - Neighborhoods - Businesses - Minority/low-income populations	4-10	Right-of-way impacts include displacement of 17 businesses and 47 residences, including one minority-owned business and five Hispanic households. No disproportional impacts to minority or low-income populations are foreseen. All acquisitions and relocations will comply fully with federal and state requirements, including the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended.
4.4 Community Quality of Life - Traffic noise - Air quality - Trails, parks, recreation, and open space - Visual character	4-17	Traffic noise would increase for adjacent residential areas. Seven noise walls are proposed. No air quality concerns are anticipated. There would be negligible impacts to trails, parks, recreation. The freeway would be more visible than today's expressway due to elevation over cross-streets.

Exhibit 4-1. Topics Addressed and Summarized Impacts of the Proposed Action (continued)

Section and Topic	Page	Summarized Impacts of the Proposed Action
4.5 Construction Impacts - Traffic delays - Construction noise - Construction dust and emissions - Sediment and other water pollutants - Consumption of resources - Temporary effects to trails	4-34	Congestion would increase in construction zones, resulting in traffic delays. Construction of each grade-separated interchange could last for two years. Traffic flow and access to businesses from cross-streets would be maintained during construction. Noise and dust likely would be noticeable at nearby homes and businesses. Materials and fuels would be consumed by construction and wastes would be generated. Temporary detours or closure of trails may be required.
4.6 Water Resources - Water quality - Floodplains	4-40	Stormwater runoff volume would increase, but mitigation measures would likely improve water quality. Floodplains would be minimally affected, not diminishing their beneficial values.
4.7 Ecological Resources - Wetlands and grasslands - Wildlife and vegetation - Threatened/endangered species	4-47	260 acres of grassland would be converted to highway use. Total wetland impacts would be 0.12 acre. No effects to threatened, endangered or sensitive species are anticipated. The freeway would be more difficult for wildlife to cross.
4.8 Cultural Resources - Historic resources - Archaeological resources	4-56	Only one historic resource (Chicago, Rock Island and Pacific Railroad) is present, and use of land from this site would result in no adverse effect to the resource. Archaeological resources would not be affected.
4.9 Native American Consultation	4-59	No known resources would be affected.
4.10 Other Resources and Issues - Hazardous materials - Geology and soils - Paleontological (fossil) resources - Energy - Utilities	4-60	Three gas stations with underground storage tanks would be eliminated. Public safety would be protected during removal and disposal of contaminated materials. Soils in the project area are suitable for roadway construction. Construction near known fossil sites (e.g., clams) would be monitored. Improved traffic flow would reduce energy use. Numerous utility relocations would be necessary, requiring acquisition of new easements in some locations.
4.11 Resources Not Present in Corridor	4-71	Not present: farmlands, resources created with Land and Water Conservation Fund grants; active railroads
4.12 Cumulative Effects - Landscape patterns - Water quality - Air quality - Transportation patterns - Noise - Visual character - Global climate change	4-71	The project would contribute to increased impervious surface in the watershed. It would contribute to ongoing loss of grassland habitat in the region. These effects would not diminish resource sustainability. The project would help to implement PPACG's adopted 2035 regional transportation plan. The project would have minimal effects to other aspects of regional sustainability, or to global climate change.

4.2 TRAFFIC CONGESTION AND ACCESS

Improved traffic flow along Powers Boulevard is the desired outcome of the Proposed Action and is the primary beneficial impact expected from project implementation. Powers Boulevard is not an isolated roadway, but instead functions as part of a larger roadway network. Therefore, modifying or reconstructing the existing expressway would also affect the use of connecting roadways.

The following discussion addresses not only traffic congestion but also changes to access. Additional detail on these matters is provided in Appendix B, the Traffic Analysis Report, which is included on the compact disc that accompanies this EA.

Existing Conditions

Existing traffic conditions were described earlier in Chapter 1, including average weekday traffic volumes on Powers Boulevard, congestion levels at intersections, and corridor peak-period travel time. **Exhibit 1-5** indicates that the Airport Road intersection is currently congested. Airport Road serves as an important western entrance to Peterson AFB. On the base Airport Road becomes Stewart Avenue, an important base thoroughfare.

Exhibit 1-5 also indicates that most intersections between Barnes Road and Galley Road were on the verge of becoming congested several years ago. This six-lane portion of Powers Boulevard carries the highest traffic volumes of the entire corridor, and has experienced rapid development since the time that the current conditions were analyzed. Thus, **Exhibit 1-5** may understate today's level of congestion for these intersections.

There is a lack of parallel north-south streets in the vicinity of Powers Boulevard. However, north of Constitution Avenue, Powers Boulevard is flanked by Rio Vista Drive to the west and by Tutt Boulevard to the east. Rio Vista Drive goes through residential neighborhoods, while Tutt Boulevard serves commercial areas to the east. Both streets receive spillover, "cut-through" traffic from Powers Boulevard when the expressway is congested. However, this is particularly a concern along Rio Vista Drive.

Access to Powers Boulevard is limited to intersecting streets only. There are no driveways on Powers Boulevard. All cross-streets have signalized intersections, but the following side-streets have unsignalized access:

- Waynoka Road intersects Powers Boulevard from the east only, providing "right-in, right-out" access to an industrial area south of Constitution Avenue.
- Victor Place intersects Powers Boulevard from the west only, providing "right-in, right-out" access to an industrial and commercial area south of Constitution Avenue; this area has no other outlets to the city street system.
- Omaha Boulevard intersects Powers Boulevard from the east only, providing access to an industrial and commercial area south of Palmer Park Boulevard; although left turns to and from southbound Powers Boulevard are permitted at Omaha Boulevard, the lack of a traffic signal at this location makes these maneuvers challenging.
- Triple Crown Way intersects Powers Boulevard from the west only, providing "right-in, right out" access to the Canterbury Park community.

- South of the Colorado Springs Airport, unsignalized intersections at Grinnell Boulevard, Cresterra Parkway, and Bradley Road are expected to have traffic signals in the future, when warranted, and are envisioned to become grade-separated interchanges in the long term.
- South of Fontaine Boulevard, Roanfield Lane intersects Powers Boulevard from the east only, providing access to a small neighborhood.
- Mesa Ridge Parkway intersects Powers Boulevard from the east only; currently unsignalized, this location will have a traffic signal in the future and may become a grade-separated connection to a future extension of Powers Boulevard south of SH 16.

Congestion and Access Impacts with the No-Action Alternative

With the No-Action Alternative, Powers Boulevard would receive routine maintenance but no increased capacity. Chapter 1 indicated that as a corridor-wide average, traffic volumes are projected to increase 88% by 2035. This would result in peak-period congestion at all Powers Boulevard signalized intersections from Dublin Boulevard to Fountain Boulevard, inclusive, and at Milton E. Proby Parkway. South of Milton E. Proby Parkway, traffic volumes would not increase enough to result in congested conditions. Overall corridor travel time would nearly double, increasing from 24 minutes to 43 minutes for the 17-mile trip.

Increased traffic congestion on Powers Boulevard in the area between North Carefree Circle and Constitution Avenue would likely worsen cut-through traffic on Rio Vista Drive. This would adversely affect mobility and safety for residents of that street and its adjacent neighborhoods. Increased traffic volumes on Powers Boulevard also would make it more difficult to get onto Powers Boulevard from intersecting streets, and especially from those that do not have signalized intersections.

Congestion and Access Impacts with the Proposed Action

As explained in Chapter 3, Alternatives, the Proposed Action meets the project’s purpose and need. It would accommodate year 2035 travel volumes while improving peak-period travel times and travel speeds in comparison with current conditions. The Proposed Action would reduce congestion compared with future No-Action conditions, and also in comparison with current conditions.

Exhibit 4-2 compares current and projected 2035 traffic volumes for each segment of the corridor, in thousands of vehicles per day. The highest, darkest bars in the graph represent volumes for the Proposed Action, which average 20% more than for the No-Action Alternative. The highest average weekday traffic, 124,000 vehicles per day, would occur south of North Carefree Circle near the First and Main commercial center. This is just over double the current amount of traffic for the same location. Traffic volumes would be lowest where they are lowest today, at the southern end of the corridor near SH 16.

Although the Proposed Action would result in more traffic on Powers Boulevard than the No-Action Alternative, upgrading the existing expressway to a

MORE TRAFFIC BUT BETTER TRAFFIC FLOW

With the Proposed Action, the Powers Boulevard freeway would carry more traffic than the No-Action expressway alternative, but would do so with much better traffic flow and minimal congestion delay.

freeway would reduce congestion at the cross-streets along the corridor. At the various grade-separated interchanges, east-west traffic would no longer have to wait for the large volume of north-south traffic to get through signalized intersections.

Exhibit 4-2. Baseline and Projected Traffic Volumes on Powers Boulevard

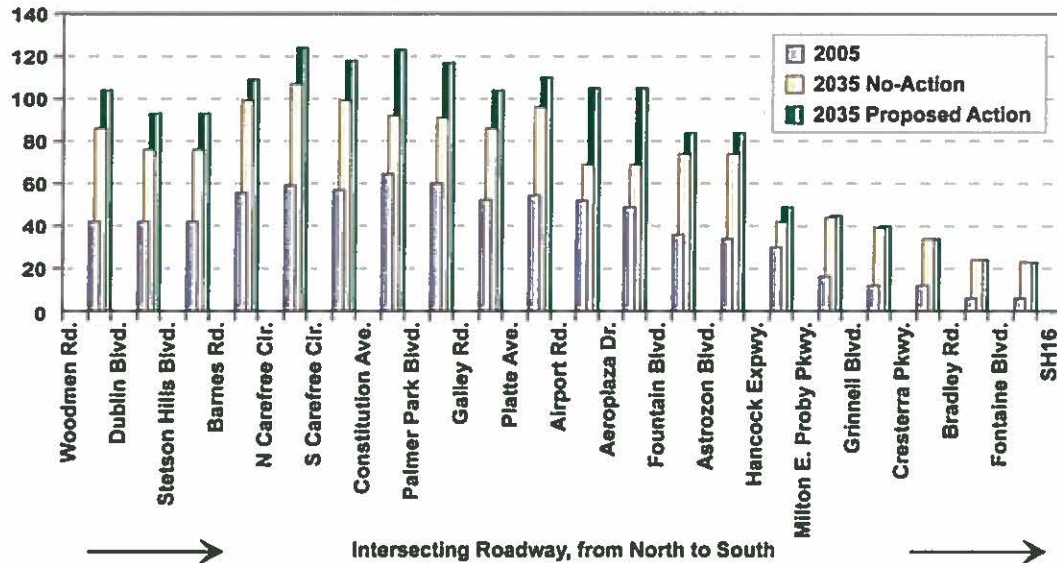


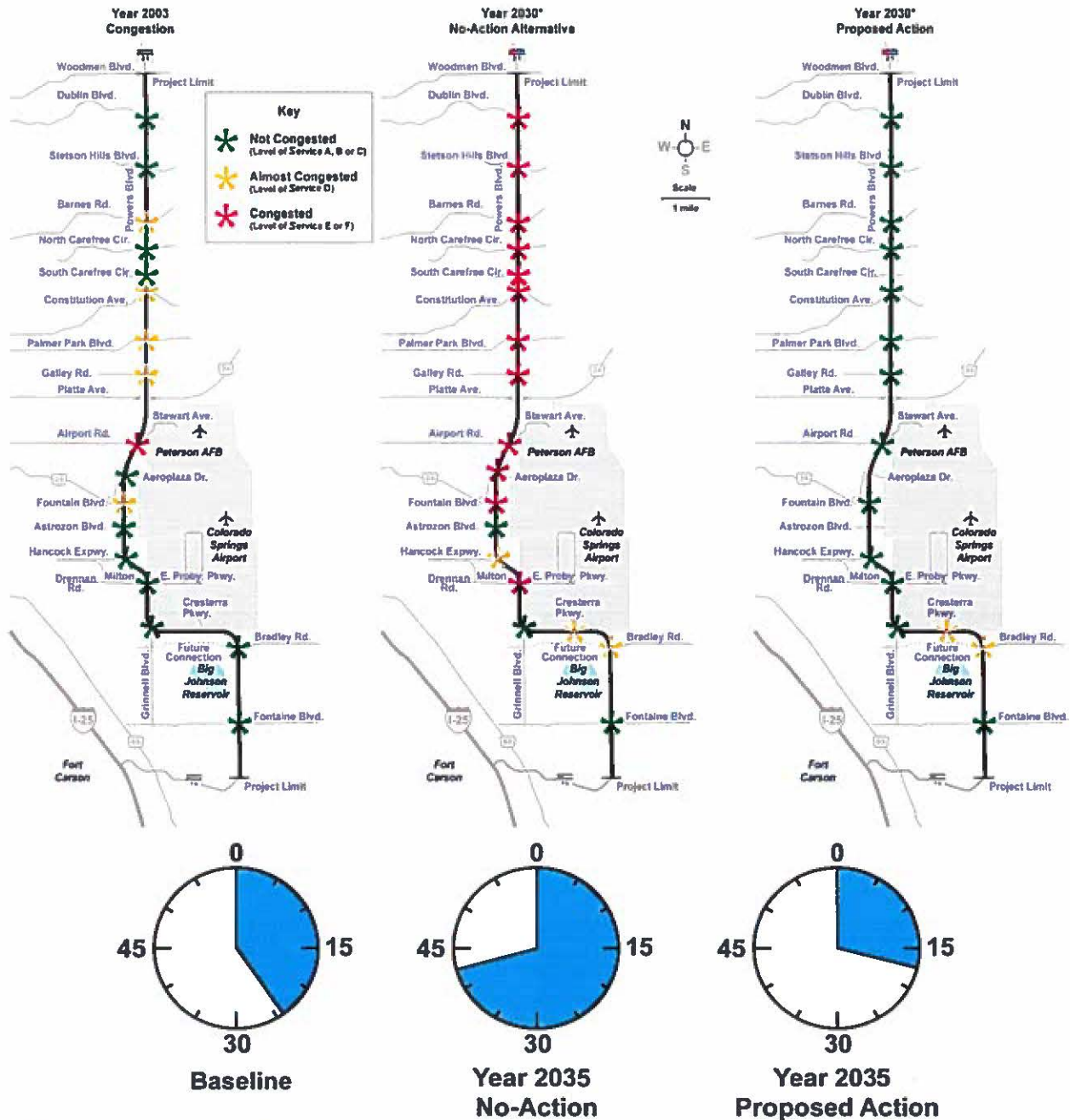
Exhibit 4-3, on the following page, compares congestion levels for the current conditions, No-Action Alternative and Proposed Action. The congestion levels illustrated in the exhibit were explained earlier, on page 1-5 of this EA. All 12 intersections that would be congested under the No-Action Alternative would become uncongested under the Proposed Action.

The Proposed Action would improve traffic flow for Powers Boulevard users, not only in comparison to the No-Action Alternative, but also compared with current conditions. Exhibit 4-3 shows that the travel time needed to traverse the 17-mile corridor from Woodmen Road to SH 16 would be 17 minutes with the Proposed Action, which equates to an average travel speed of 60 miles per hour.

The Proposed Action would decrease congestion at the intersections that presently generate cut-through traffic on Rio Vista Drive. This would reduce the incentive to make cut-through trips on Rio Vista Drive. Additionally, the planned southbound frontage road along Powers Boulevard would provide a new, more appropriate route for some of this traffic.

The Proposed Action would result in access modifications affecting four roads that currently have unsignalized access to Powers Boulevard and three cross-streets that have signalized access. It would also modify access from various cross-streets to nearby commercial properties.

Exhibit 4-3. Baseline and Future Congestion Severity by Intersection, and Corridor Travel Time in Minutes



*As is explained in Appendix B, Traffic Analysis Report, congestion was initially projected for 2030. In subsequent review after adoption of the 2035 Regional Transportation Plan, these conditions were determined to be reasonably representative for 2035.

Exhibit 4-4 on the following page lists the seven streets that currently have direct access to Powers Boulevard but would no longer have direct access under the Proposed Action.

Exhibit 4-4. Proposed Changes Affecting Direct Access to Powers Boulevard

Location	West of Powers Boulevard	East of Powers Boulevard
South Carefree Circle (cross-street)	There would no longer be direct access from South Carefree Circle to Powers Boulevard. A southbound frontage road would be constructed to carry traffic between the Powers Boulevard interchanges at North Carefree Circle and Constitution Avenue.	There would no longer be direct access from South Carefree Circle to Powers Boulevard. Existing circulation roads in the First and Main shopping area and Tutt Boulevard would carry traffic to North Carefree Circle and to Constitution Avenue, where interchanges would provide access to the freeway. However, the potential for a northbound off-ramp may be further explored in final design.
Victor Place and Waynoka Road (side-streets)	Victor Place would no longer connect directly to Powers Boulevard, but instead to a southbound frontage road with access to the freeway at Palmer Park Boulevard. A southbound Texas turnaround ramp at Palmer Park Boulevard would enable traffic from Victor Place to cross the freeway without having to go through the Palmer Park Boulevard interchange.	Waynoka Road would no longer connect directly to Powers Boulevard, but instead to a northbound frontage road. A northbound Texas turnaround ramp at Constitution Avenue would enable traffic from Waynoka Road to cross the freeway without having to go through the Constitution Avenue interchange.
Omaha Boulevard (side-street)	No direct access to Powers Boulevard is available today and none would be provided between the freeway interchanges at Palmer Park Boulevard and Galley Road.	Omaha Boulevard would no longer connect directly to Powers Boulevard, but instead to a northbound frontage road providing access via the Palmer Park Boulevard interchange.
Aeroplaza Drive (cross-street)	There would no longer be direct access at Aeroplaza Drive. Instead, access to Powers Boulevard would be available at the proposed Fountain Boulevard interchange.	There would no longer be direct access at Aeroplaza Drive. Instead, Powers Boulevard would be reached by an Aviation Way extension to the Airport Road interchange, or by using the Fountain Boulevard interchange.
Astrozon Boulevard (cross-street)	There would no longer be direct access at Aeroplaza Drive. Instead, access to Powers Boulevard would be available at the proposed Fountain Boulevard interchange or the proposed Hancock Expressway interchange.	There would no longer be direct access at Aeroplaza Drive. Instead, access to Powers Boulevard would be available at the proposed Fountain Boulevard interchange or the proposed Hancock Expressway interchange.
Triple Crown Way (side-street)	The existing, temporary access at Triple Crown Way would be eliminated. All traffic into or out of the Canterbury Park community would be via the main entrance, Silver Hawk Avenue. Access to Powers Boulevard would be available at the Hancock Expressway interchange.	No direct access to Powers Boulevard exists today and none would be provided between the freeway interchanges at Hancock Expressway/Zeppelin Road and Fountain Boulevard.

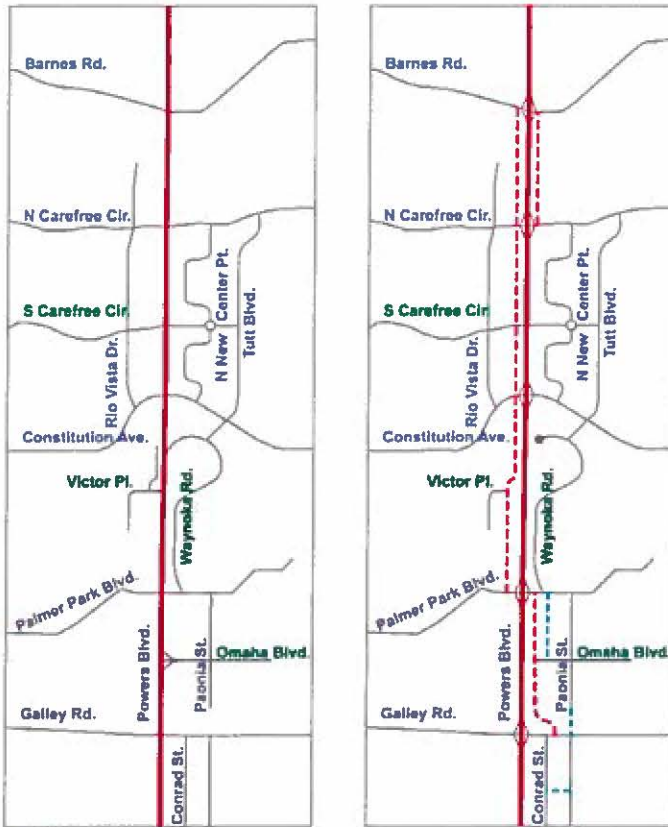
Exhibit 4-5 lists side-street access modifications that do not involve existing direct access to Powers Boulevard. Most of these changes are proposed in order to provide a safe separation distance between interchange ramps and the first north-south cross-street.

Exhibit 4-5. Proposed Access Modifications Affecting Nearby Streets

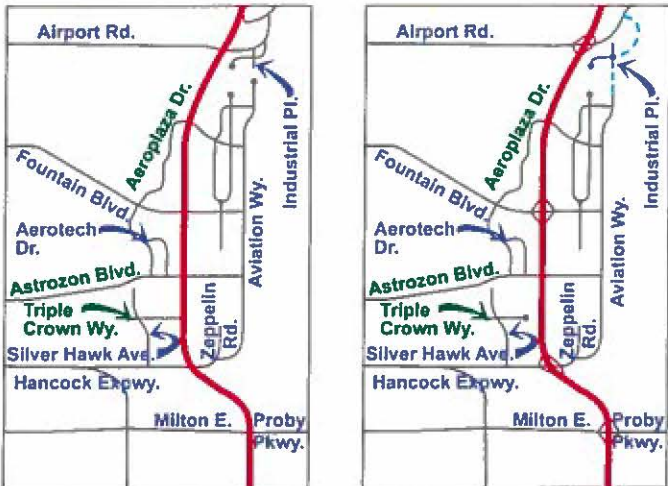
Location	West of Powers Boulevard	East of Powers Boulevard
North of Palmer Park Boulevard	No changes west of the freeway	Waynoka Road adjacent to the golf course would be relocated slightly to the west to match up with a new Waynoka Road extension across Palmer Park Boulevard to the south (discussed immediately below).
South of Palmer Park Boulevard	No changes west of the freeway	Access to the K-Mart and associated shopping center would be re-routed to the eastern side of the property, behind the stores, onto a new southern extension of Waynoka Drive that would connect Palmer Park Boulevard and Omaha Boulevard.
North of Galley Road	No changes west of the freeway	Paonia Street would be extended northward from the Post Office for about 0.25 mile to connect with Paonia Street that currently dead-ends south of Omaha Boulevard.
South of Galley Road	No changes west of the freeway	Conrad Street, which provides access to Powers Frontage Road businesses, would be converted to right-in, right-out only. A new east-west road is proposed from Paonia Street, just south of the Post Office, to replace access for these businesses. A new north-south road from Galley Road to the new east-west road was originally proposed as well, but the Fed-Ex facility built on Conrad Street in 2006 now sits where that new road would have been built.
South of Airport Road	No changes west of the freeway	Access to Aviation Way would be relocated to Industrial Drive, slightly to the east. The existing intersection at Aviation Way/Industrial Drive would become a small roundabout and a new extension of Aviation Way southward across the East Fork of Sand Creek would create a continuous roadway connection to Aeroplaza Drive and beyond.

The result of these access changes is that, for some properties along the corridor, a different route would be needed to get onto Powers Boulevard. For other properties, a slightly modified route would be used in order to reach the nearest east-west arterial street that intersects with Powers Boulevard. Although some access would become more circuitous than it is today, no property would be deprived of reasonable access to the transportation network.

Exhibit 4-6. Proposed Access Changes



Street Proposed Access Change Proposed Frontage Road Proposed Local Street



Street Proposed Access Change Proposed Local Street

Since each interchange with access to Powers Boulevard generally would be located about one mile apart from the next, a property halfway between interchanges (i.e., worst case) would be no more than a half mile north or south of the nearest access to the freeway. For example, motorists traveling to hotels on Aerotech Drive (northeast quadrant of the Powers Boulevard intersection at Astrozon Boulevard) would need to exit the freeway at the Hancock Expressway or Fountain Boulevard interchanges.

The access changes that were described in Exhibits 4-4 and 4-5 are depicted with diagrams in Exhibit 4-6.

Mitigation of Congestion and Access Impacts

Frontage roads and Texas turnaround ramps that are described above as part of the Proposed Action would provide indirect access to Powers Boulevard as mitigation for loss of direct access to a cross-street or side-street in some locations. In consultation with affected property owners, this mitigation was determined to be feasible and appropriate for the busiest portions of the corridor, generally between Palmer Park Boulevard and North Carefree Circle.

Additionally, CDOT would construct new local street connections as noted above to address the issue of existing access from cross-streets that would be located too close to interchange off ramps.

4.3 SOCIAL, ECONOMIC AND LAND USE CONSIDERATIONS

The Powers Boulevard corridor is highly developed for the 11 miles between Woodmen Road and Milton E. Proby Parkway, where the Proposed Action calls for changes to the existing expressway. The corridor is largely undeveloped for the six southernmost miles of the corridor from Milton E. Proby Parkway to SH 16, where right-of-way preservation is proposed. Thus the Proposed Action would generally have greater effects on the built environment, rather than on the natural environment. This section focuses on social, economic and land use effects on the built environment, including acquisition of private property.

Existing Conditions

Exhibits presented in Chapter 2 illustrate the types of land uses along the Powers Boulevard corridor. These exhibits indicate existing and projected amounts of population and employment found between Powers Boulevard and the next major north-south thoroughfares, Academy Boulevard to the west and Marksheffel Road to the east. PPACG projects that the population along this corridor will grow from 172,000 in 2005 to 263,000 in 2035, an increase of approximately 90,000 residents. About two-thirds of this growth will occur in the northeastern subarea, i.e., north of US Highway 24 and east of Powers Boulevard.

North of US 24, much of the land adjacent to the Powers Boulevard expressway is developed or zoned commercial. However, there are a few limited areas where the adjacent land is residential. No adjacent land has direct access to Powers Boulevard, but instead all access to these properties is provided by the local street system.

As is allowed under Federal law, some purchases of adjacent land needed for highway right-of-way have already occurred. CDOT has cooperated with the City of Colorado Springs and the Pikes Peak Rural Transportation Authority to acquire about 36 acres of land on a total of 13 parcels.

The following existing conditions were identified that could require special consideration:

- Two cellular phone towers are located on private land west of Powers Boulevard, between Dublin Boulevard and Stetson Hills Boulevard.
- A Federal Aviation Administration (FAA) wind shear tower is located just north of Powers Boulevard near the new road (expected to be named Cresterra Parkway) that is part of the planned Colorado Springs Airport Business Park.
- Two parcels of land adjacent to Powers Boulevard are owned by the Colorado State Land Board, which introduces the need for interagency consultation if this property is needed for the highway project.

URBAN CORRIDOR, URBAN IMPACTS

Since the Powers Boulevard corridor is already highly developed, the Proposed Action will affect primarily the built environment, rather than the natural environment. Land acquisition, access changes, traffic delays during construction, traffic noise, and water quality are key considerations.

- Some property boundary issues remain unresolved from past property transactions between CDOT and the City of Colorado Springs, especially in the area south of Platte Avenue near the Colorado Springs Airport.

Social and Economic Impacts with the No-Action Alternative

The City of Colorado Springs Comprehensive Plan, consistent with the PPACG 2035 regional transportation plan, designates Powers Boulevard as a freeway. In the development of these regional plans, other transportation and land use scenarios were considered. Taking a wide variety of community values and infrastructure tradeoffs into account, elected officials approved the transportation network and associated land use patterns that were judged to be in the best interest of the community as a whole. The No-Action Alternative would be inconsistent with these approved plans.

With the No-Action Alternative, regional accessibility to and from this corridor would be constrained by the expressway's existing capacity. As discussed in Chapter 1, increased congestion would make this corridor less accessible than it is today, giving motorists a travel time incentive to live, work, or shop elsewhere. This would have the effect of shrinking the existing geographic area from which potential customers would be able to travel conveniently to the commercial areas along Powers Boulevard.

Increased traffic congestion would also make Powers Boulevard a less convenient route than it is today and less reliable for travelers accessing the Colorado Springs Airport, its associated business park, and other employment centers such as Peterson AFB. Since most air travelers and morning commuters usually try to minimize their risk of missing a flight or being late to work, some might choose another route to avoid heavy congestion and uncertain delays, even if their alternative route is longer or more circuitous. These drivers would likely divert to neighborhood streets or other routes spreading congestion to those areas and increasing vehicle miles of travel within the corridor.

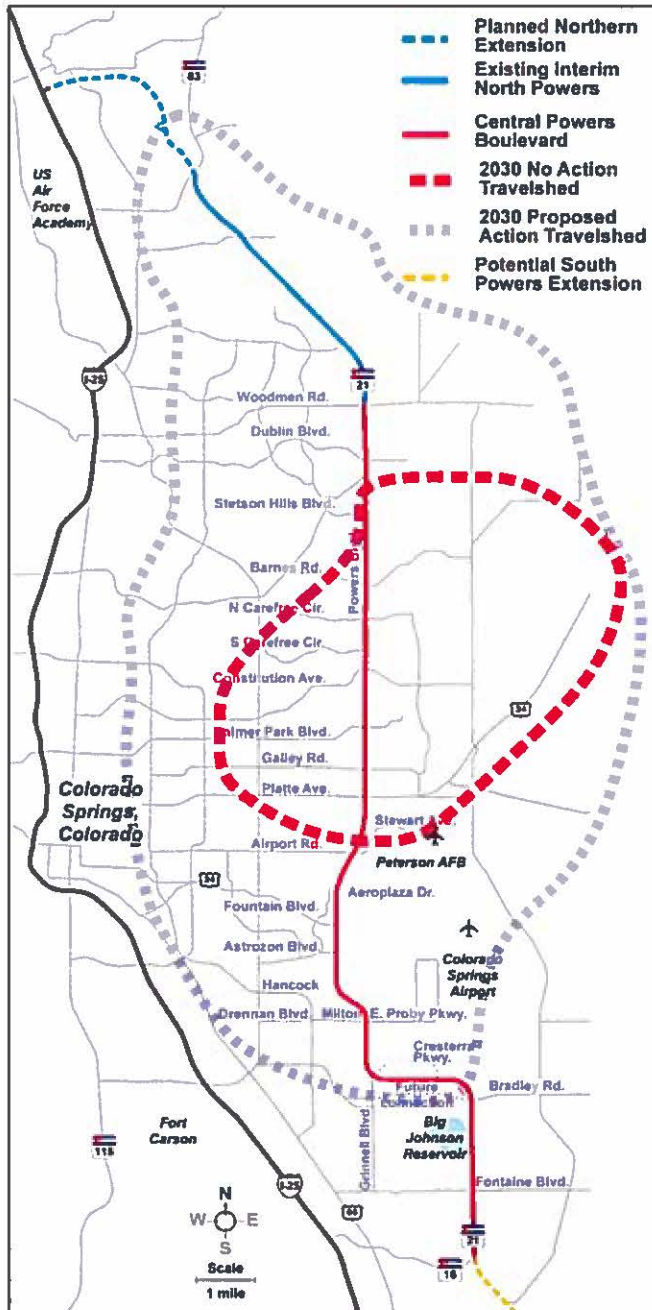
In contrast with the Proposed Action discussed below, the No-Action Alternative would not require acquisition of any adjacent land for highway right-of-way, and would also not require relocation of any homes or businesses. It also would not alter access to any connecting roadways and would not alter visibility to adjacent land uses from the expressway.

Social and Economic Impacts with the Proposed Action

In contrast with the No-Action Alternative, the Proposed Action would be consistent with adopted regional transportation and land use plans. Therefore the Proposed Action would not alter planned land use. Mobility on Powers Boulevard would improve, as the freeway would carry more trips along the corridor than the No-Action Alternative and would do so while improving travel time compared with current conditions. This would expand the geographic area or "travelshed", that would be within a 15-minute drive to or from the Powers Boulevard commercial areas for employment, shopping and entertainment. This effect is illustrated in **Exhibit 4-7**, on the following page.

Similarly, improved mobility would enhance the attractiveness of Powers Boulevard as a key route serving the airport and its business park. However, during construction of the Proposed Action congested conditions may discourage motorists from patronizing businesses in the immediate vicinity of the construction.

Exhibit 4-7. 2035 Market Area within 15 Minutes' Drive from Powers/South Carefree Commercial Area



Source: CDOT, 2009b. Note: The 2030 conditions shown here are reasonably representative for 2035.

Reconstructing Powers Boulevard as a freeway would require acquisition of land adjacent to the existing expressway, particularly in the vicinity of proposed interchanges where freeway ramps or frontage roads are needed. This land is in addition to the existing right-of-way for Powers Boulevard and the streets that cross it.

During the planning of the Proposed Action, extensive efforts to minimize property acquisition were taken in developing the conceptual design both to minimize disruption to residents and businesses in the community and to reduce project costs. For example, the construction of retaining walls is proposed in various locations to reduce the amount of land that would otherwise be needed for roadway slopes.

Even with avoidance and minimization of right-of-way impacts, approximately 381 acres of land would need to be acquired for right-of-way, affecting an estimated 336 parcels of land. Of these, about 78 acres and 12 parcels are unimproved land south of Milton E. Proby Parkway, needed to preserve right-of-way for future improvements.

The vast majority of the right-of-way needed would come from the edge of properties adjacent to Powers Boulevard. In most cases, a narrow sliver would be needed, not affecting the overall use of the property. In some cases, however, acquiring the needed right-of-way would affect the parcel so much that the property would become unusable, and the entire property would have to be

acquired. In such cases, Federal and State laws allow for not only the purchase of the property but also payment of reasonable household or business relocation expenses.

In total, the Proposed Action would require the relocation of 47 households and the displacement of 17 businesses. The location and types of these affected land uses are summarized in **Exhibit 4-8**. The affected properties are listed in order from north to south. The total number of relocations needed is fairly small, considering that the Proposed Action is approximately 17 miles long, with potential impacts on each side, and also considering the need for modifications of intersecting east-west streets.

Exhibit 4-8. Residential and Business Relocations Needed for Right-of-Way Acquisition

Location	Type of Resource Affected
North of Barnes Road and west of Powers Boulevard	One car wash
North of Barnes Road and east of Powers Boulevard	One mattress store One telephone service store One packing/shipping/copying store One barbecue restaurant
North of North Carefree Circle and west of Powers Boulevard	One gasoline station/convenience store
South of North Carefree Circle, and west of Powers Boulevard	23 residential duplex structures (46 households)
North of Palmer Park Boulevard, and east of Powers Boulevard	One buffet-style restaurant One fast-food hamburger restaurant
South of Palmer Park Boulevard and east of Powers Boulevard	One pizza restaurant One Mexican food restaurant Two gasoline station/convenience stores One muffler/brake repair shop One auto parts shop One tire store One used automobile dealership One auto/recreational vehicle dealership
North of Hancock Expressway and west of Powers Boulevard	One mobile home in the Canterbury Mobile Home Community

Based on personal interviews conducted with 11 of these businesses, it is estimated that the 17 affected businesses employ a total of approximately 375 workers. The businesses, one minority owned, serve a broad-based clientele and are not geared toward any specific minority customer base. Nearby residents and businesses do not appear to depend on these businesses as key suppliers. For example, gasoline stations and restaurants would be displaced, but there are other gasoline stations and restaurants in the area that offer similar goods and services.

The businesses listed in **Exhibit 4-8** do not provide unusual products or services that would make it difficult from them to relocate. Many would likely get reestablished somewhere in the Powers Boulevard corridor. Given that there is existing demand that these businesses serve, and the fact that an additional 90,000 residents are expected to move to the area by 2035, the reestablishment of these businesses in other nearby locations would likely result in minimal effects to the local economy. After relocation, sales tax and property tax revenues associated with these businesses likely would continue to be collected by either the City of Colorado Springs or El Paso County, possibly with some shifting in revenue between the two.

MINIMAL DIRECT OR INDIRECT SOCIAL EFFECTS ANTICIPATED

The relocation of 47 residences and displacement of 17 businesses is a relatively small direct impact for a project of this size (11 miles of freeway with 11 new grade-separated interchanges). These displacements would result in minimal indirect effects on neighborhood cohesion, school enrollment, local tax districts, and housing availability, and would not disproportionately affect minority or low-income populations.

Twelve of the affected businesses on the east side of Powers Boulevard are located within the Cimarron Hills Fire District. Collectively, their assessed value in 2009 is nearly \$2.5 million, representing 1.9 percent of the district's total assessed value of \$132 million (DOLA, 2010). Loss of some or all of these businesses from the District would require shifting of some property tax burden to other properties within the District. These businesses, as well as the other five located on the west of Powers Boulevard, are also within other, much larger tax districts, such as Falcon School District 49. The majority of these businesses are likely to remain within these districts. For those that do not, the loss of tax revenue to these districts likely would be very small in comparison to the total tax revenues they receive.

The Proposed Action would also need to acquire 23 duplexes (46 households) in the 5800 to 6200 blocks of Gunshot Pass Drive. These duplexes are all within Colorado Springs School District 11, a large district that includes much of the central portion of Colorado Springs. The property taxes contributed to this district by these duplexes are very small when compared to the total property tax base of District 11. No homes would be acquired from Falcon School District 49, which encompasses the area east of Powers Boulevard.

Regarding the potential loss of students to any one school in District 11, the Proposed Action would have a minimal effect. The duplexes on Gunshot Pass Drive are small units that are not designed to accommodate large families. Based on personal interviews conducted with owners and tenants on Gunshot Pass Drive, not many (e.g., 20 or fewer) school-age children live in these 11 one-bedroom and 35 two-bedroom units.

The schools serving this subdivision are Anna M. Rudy Elementary School, Sabin Middle School, and Mitchell High School, which have utilization rates of 93%, 77% and 54%, respectively. Although attendance at these public schools could decline slightly as a result of these residential relocations, the loss of a total of about 20 students, divided up among these three schools, is not likely to affect their overall utilization rates, including Mitchell High School which had 1,084 students enrolled in 2008 (Colorado Springs School District 11, 2009).

Although the duplex units on Gunshot Pass Drive are relatively small (see Exhibit 4-9), the area is not considered low-income. There is currently no government-subsidized Section 8 housing in the neighborhood.

Also, the affected Census block group that includes Gunshot Pass Drive does not have a minority population that differs from surrounding Census blocks. Five of the affected households, or about 11%, are known to be minority-owned. In personal interviews conducted with residents on this street, no resident indicated being dependent on any specific nearby community services. Based on

review of Census data and interviews with households and businesses that would be displaced, there would be no disproportionate impact to minority or low-income populations. Additional information regarding minority and low-income populations in the corridor is provided in Appendix F, Environmental Justice Technical Report.

As of mid-2009 a sufficient amount of comparably sized and priced housing is available to accommodate any households displaced by the Proposed Action. However, implementation of the Proposed Action may be a number of years away. Since market conditions change over time, current conditions may not reflect future housing availability.

Implementing the Proposed Action would generate jobs for highway construction workers. The direct and indirect effects of this would be the equivalent of 600 additional jobs in the region for ten years, based on the expected influx of State and Federal highway funds for the project.

In addition to vacant land acquisition, relocation of households and displacement of businesses, the Proposed Action would have the following right-of-way impacts that require special consideration:

- Two cellular telephone towers would need to be relocated; they are on the west side of Powers Boulevard between Dublin Boulevard and Stetson Hills Boulevard.
- A Federal Aviation Administration (FAA) wind shear tower south of the Colorado Springs Airport would need to be replaced on a new site.
- Land owned by the Colorado State Land Board would be needed for right-of-way in two locations: south of Constitution Avenue, and along the eastern side of Powers Boulevard between Bradley Road and Fontaine Boulevard.
- Property boundary issues from previous land transactions need to be resolved between CDOT and the City of Colorado Springs.

Exhibit 4-9. Example of Duplex Residence on Gunshot Pass Drive



Further detail regarding land acquisition needed for the Proposed Action is provided in Appendix G, Right-of-Way Technical Report.

Mitigation of Social and Economic Impacts

All acquisitions and relocations will comply fully with federal and state requirements, including the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended. See the text boxes shown below and at right.

If any affected owner or tenant is not proficient in English, a qualified translator will be brought in to ensure the details are understood. This is likely to be necessary in very few instances.

PROPERTY ACQUISITION

For any person(s) whose real property interests may be impacted by this project, the acquisition of those property interests will comply fully with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended (Uniform Act). The Uniform Act is a federally mandated program that applies to all acquisitions of real property or displacements of persons resulting from federal or federally assisted programs or projects. It was created to provide for and ensure the fair and equitable treatment of all such persons.

To further ensure that the provisions contained within this act are applied "uniformly," CDOT requires Uniform Act compliance on any project for which it has oversight responsibility regardless of the funding source. Additionally, the Fifth Amendment of the US Constitution provides that private property may not be taken for a public use without payment of "just compensation." All impacted owners will be provided notification of the acquiring agency's intent to acquire an interest in their property including a written offer letter of just compensation specifically describing those property interests. A right-of-way specialist will be assigned to each property owner to assist them with this process (CDOT, 2008a).

RELOCATION INFORMATION

In certain situations, it may be necessary to acquire improvements that are located within a proposed acquisition parcel. In those instances where the improvements are occupied, it becomes necessary to "relocate" those individuals from the subject property (residential or business) to a replacement site.

The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended (the "Uniform Act"), provides for numerous benefits to these individuals to assist them both financially and with advisory services related to relocating their residence or business operation. Although the benefits available under the Uniform Act are far too numerous and complex to discuss in detail in this document, they are available to both owner occupants and tenants of either residential or business properties.

In some situations, only personal property must be moved from the real property and this is also covered under the relocation program. As soon as feasible, any person scheduled to be displaced shall be furnished with a general written description of the displacing agency's relocation program that provides, at a minimum, detailed information related to eligibility requirements, advisory services and assistance, payments, and the appeal process. It shall also provide notification that the displaced person(s) will not be required to move without at least 90 days advance written notice. For residential relocatees, this notice cannot be provided until a written offer to acquire the subject property has been presented, and at least one comparable replacement dwelling has been made available.

Relocation benefits will be provided to all eligible persons regardless of race, color, religion, sex, or national origin. Benefits under the [Uniform] Act, to which each eligible owner or tenant may be entitled, will be determined on an individual basis and explained to them in detail by an assigned right-of-way specialist (CDOT, 2008a).

To minimize effects to local businesses, CDOT will maintain traffic on the existing number of through lanes in the project area, and will also keep access to local businesses open during construction.

CDOT will also undertake the following measures to address right-of-way impacts that require special consideration:

- Conduct early investigation of property rights issue regarding the needed relocation of two cell phone towers located between Dublin Boulevard and Stetson Hills Boulevard, since it will take time to find alternative sites.
- Conduct early investigation of engineering and real estate issues pertaining to the FAA wind shear tower that will need to be replaced on a new site.
- Maintain communication with the Colorado State Land Board to ensure the future availability of easements that will be needed south of Constitution Avenue, and between Bradley Road and Fontaine Boulevard.
- Resolve property boundary issues remaining from previous land transactions between CDOT and the City of Colorado Springs with regard to Powers Boulevard right-of-way.

4.4 COMMUNITY QUALITY OF LIFE

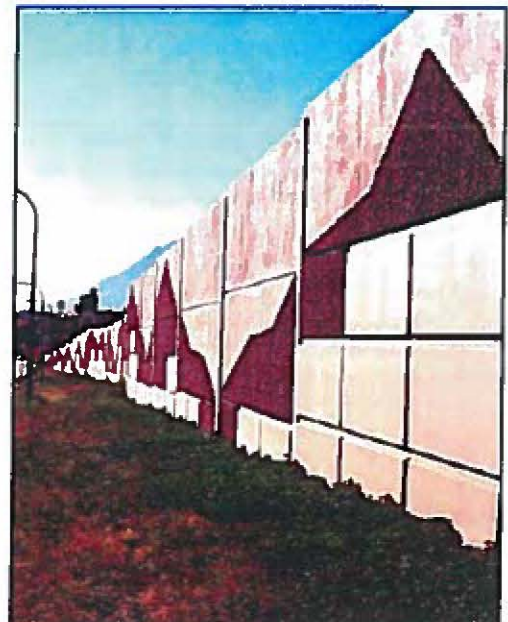
This section discusses the following factors that affect the quality of life in an urban setting: traffic noise; air quality; parks, trails, recreation and open space; and visual character.

TRAFFIC NOISE

Traffic noise is typically a concern for residents living adjacent to a high-speed, heavily traveled roadway. It is a concern today along the more heavily traveled portions of Powers Boulevard, where typical weekday traffic volumes are about 60,000 vehicles per day. In the future, as Powers Boulevard traffic volumes increase, traffic noise will increase as well. Traffic noise along the corridor is an issue today and will worsen in the future.

FHWA and CDOT procedures determine under what circumstances traffic noise may warrant mitigation such as a noise wall (see example, **Exhibit 4-10**) or a berm. Appendix H, Noise Technical Report, provides a detailed explanation of the procedures and analysis used for this Powers Boulevard EA.

Exhibit 4-10. Example of CDOT Noise Wall in Colorado Springs



As part of the analysis, noise measurements were taken at 17 locations along the corridor by acoustic engineers. Based on these measurements, the FHWA Traffic Noise Model was used to predict existing and future noise levels along the entire corridor for both the No-Action Alternative and the Proposed Action.

State noise guidelines measure these noise levels in units referred to as decibels and have set limits for determining what noise levels are considered excessive. According to the guidelines, a level of 66 decibels or more interferes with activity at outdoor areas such as parks, schools and residences. Protecting outdoor use of property is the focus of the State noise guidelines. As a general rule, two people six feet apart should be able to hold an outdoor conversation in a normal voice, not having to shout to be heard.

Based on modeling of future conditions, if future noise levels are predicted to exceed 66 decibels, or if future noise levels would increase by 10 or more decibels compared with current noise levels, the change is substantial enough for CDOT to explore mitigation such as noise walls or berms.

Traffic noise tends to be loudest when there is a large amount of traffic flowing at a high speed. This is normally not during the heaviest, rush-hour traffic, when congestion reduces travel speed. It is also not at the hour of highest speed, which is typically in the middle of the night when traffic volumes are lowest. Loudest traffic noise can generally be expected just before and after rush hour, when volumes are still heavy but speed is not diminished.

Noise levels adjacent to Powers Boulevard are affected not only by traffic on the expressway, but also from other noise sources in this heavily developed urban setting. For example, other sources include traffic on neighborhood streets, lawnmowers and leaf blowers, barking dogs, and aircraft operations at Peterson Air Force Base and the Colorado Springs Airport. Because background sources are intermittent and highly variable, they cannot be predicted.

Existing Noise Levels

Based on field measurements, existing traffic noise levels were modeled at 100 potentially noise-sensitive locations adjacent to the expressway. No traffic noise concerns were identified affecting commercial areas or parks and recreation areas. However, existing noise levels of 66 decibels or more were identified for the homes closest to Powers Boulevard in the following residential areas, listed in geographical order from north to south: Jennifer Lane; Gunshot Pass Drive; Lantana Drive; and The Meadows Community and Canterbury Park Community. **Exhibit 4-12**, which appears later in this section, depicts locations where noise mitigation was considered. At a few other locations along the corridor, traffic noise levels were approaching, but had not yet reached, noise levels that would interfere with outdoor use of property.

Noise Impacts with the No-Action Alternative

With the No-Action Alternative, traffic volumes on Powers Boulevard would nearly double by 2035. This would extend the duration of weekday rush hours, causing the noisiest traffic hours (before and after the peak) to become earlier, later, and possibly longer than they are today. At nine residential locations, plus one privately-owned football field and one planned recreation area, traffic noise would reach the level that would hinder outdoor use. These locations are listed in **Exhibit 4-11**.

Exhibit 4-11. Locations that Would Experience Noise Impacts with the No-Action Alternative

Name	Location	Type of Resource Affected
Sundown Villas and Summerfield area on Templeton Gap Road	West of Powers Boulevard and south of Dublin Boulevard	Numerous townhomes and single-family residences
Appaloosa Drive	West of Powers Boulevard and north of Stetson Hills	Two single-family residences
Jennifer Lane residences*	West of Powers Boulevard and north of Barnes Road	Numerous single-family residences
Gunshot Pass Drive*	West of Powers Boulevard and south of North Carefree Drive	Numerous duplex residences
Lantana Drive*	West of Powers Boulevard and south of Constitution Avenue	Five single-family residences
Troy Hill Road	West of Powers Boulevard and north of Airport Road	One single-family residence
WCM Industries	East of Powers Boulevard and north of Palmer Park Boulevard	Privately-owned football field
The Meadows Community*	West of Powers Boulevard and south of Astrozon Boulevard	Numerous mobile homes
Canterbury Park Community*	West of Powers Boulevard and north of Hancock Expressway	Numerous mobile homes
Southeast Community Park (edge, not interior)	West of Powers Boulevard and north of Milton E. Proby Parkway	Land designated for future park (not yet designed or constructed)
Glen at Widefield, on Coral Ridge Drive	East of Powers Boulevard and north of Mesa Ridge Parkway	Numerous single-family residences

*Denotes a location that is already impacted by traffic noise today.

All of these locations would also be affected under the Proposed Action, so their locations are depicted in **Exhibit 4-12** as well.

Noise Impacts with the Proposed Action

Converting Powers Boulevard to a freeway would increase traffic noise all along the corridor, for a combination of the following reasons:

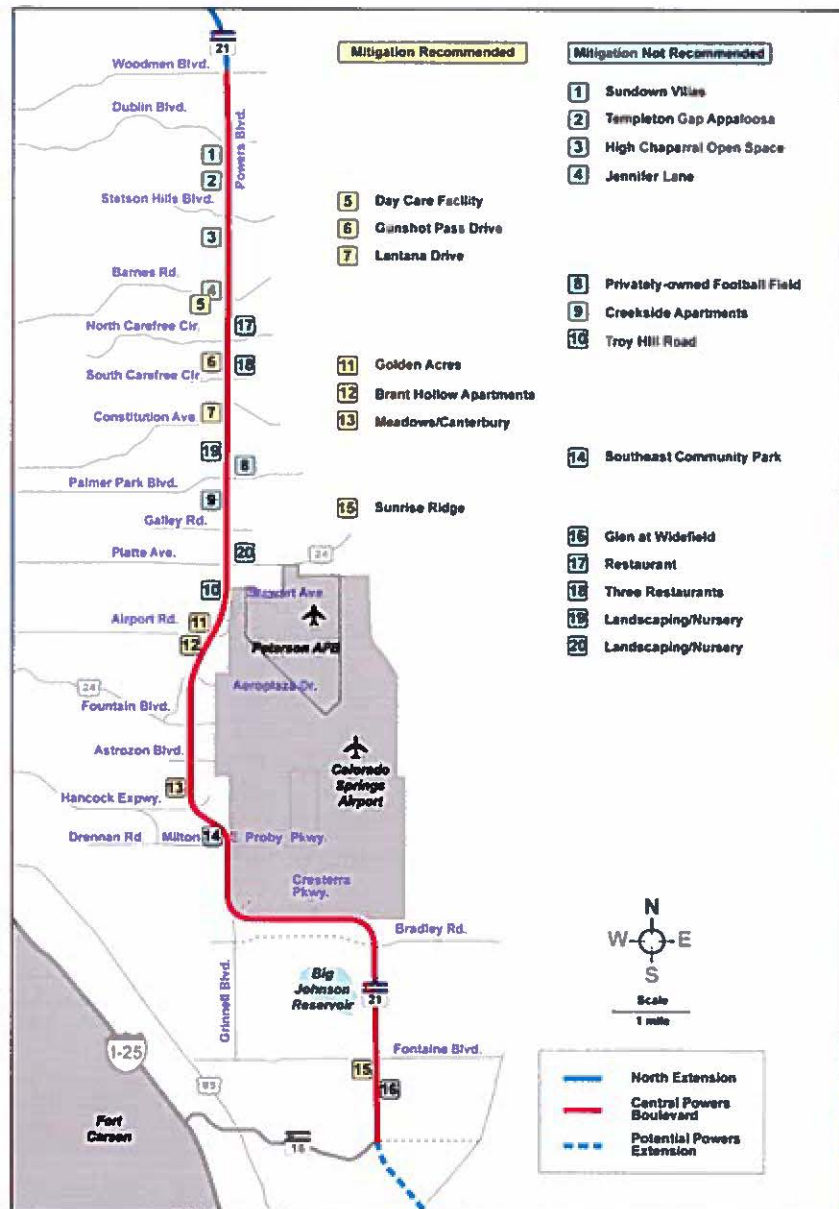
- Traffic volumes would be higher with the Proposed Action than with the No-Action Alternative because the increased capacity would enable the road to carry more traffic.
- Reducing congestion would increase travel speeds.
- The freeway is likely to have a higher posted speed limit of 55 miles per hour in areas where it is 50 mph today.

- Ramps and frontage roads would put traffic closer to adjacent land uses.
- Elevating Powers Boulevard over cross-streets would put the noise source higher above the ground, where the noise can travel farther and is more difficult to block.
- Powers Boulevard, already a designated truck route, may become more attractive for truck trips. Trucks typically generate more noise than automobiles.

All of the above factors were taken into account in the modeling of future noise levels for the Proposed Action. Noise impacts were identified for three types of land use: commercial; residential and schools; and parks. State noise abatement guidelines allow for higher noise levels in commercial areas. Business owners often prefer visibility with noisy conditions to quieter conditions with less visibility to nearby roads. Residences and parks are grouped within the same "activity category" for noise purposes, and in each case, potential mitigation is considered only for areas of active outdoor use.

Prediction of future highway noise levels for the Proposed Action was conducted using FHWA-approved computer model. The model identified 22 locations where adjacent land uses would experience noise impacts. These locations are indicated in **Exhibit 4-12**. Subsequent analysis of the feasibility and reasonableness of potential mitigation indicated that seven of these locations are suitable candidates for mitigation and 15 others are not.

Exhibit 4-12. Locations where Noise Mitigation was Considered



For seven locations where mitigation is recommended, the analysis determined that it would be feasible to provide a barrier that would reduce noise to a meaningful degree and that the cost of doing so (when averaged over the number of resources receiving this benefit) would meet current state guidelines for cost effectiveness.

At the other 15 locations indicated in the exhibit, the Proposed Action would result in noise impacts, but mitigation is not recommended because the feasibility and reasonableness criteria would not be met. Six of these sites are restaurants or landscaping businesses. The site labeled as #18 on the exhibit represents three restaurants that are located close to one another, but each of these businesses received individual consideration. One site not recommended for noise mitigation is a residential area along Jennifer Lane, adjacent to Barnes Road. Current and future noise issues at that location are attributable to traffic on Barnes Road, not to the Proposed Action.

The Noise Technical Report (Appendix H) for this EA describes traffic and construction noise impacts from the Proposed Action and recommends appropriate mitigation. For each location affected, it specifies the reasons why each location was recommended or not recommended for mitigation under the 2002 *CDOT Noise Analysis and Abatement Guidelines* (CDOT, 2002).

Noise impacts caused by construction activity, rather than traffic, are discussed in Section 4.5, Construction Impacts.

Mitigation of Noise Impacts

Since the No-Action Alternative would only maintain the existing expressway, noise mitigation would not be provided anywhere along the corridor, including the residential areas that currently experience traffic noise impacts. However, with the Proposed Action, the construction of noise barriers is proposed at seven locations as specified in Exhibit 4-13.

Exhibit 4-13. Recommended Noise Wall Locations and Approximate Dimensions

Location	Location on Exhibit 4-11	Type of use Protected	Wall Length (feet)	Height (feet)
La Petite Academy Day Care	Site #5	1 playground	267	10
Gunshot Pass Drive	Site #6	54 residences	2,074	15
Lantana Drive	Site #7	6 residences	781	12
Golden Acres	Site #11	20 residences	1,636	8
Brant Hollow Townhomes	Site #12	36 residences	1,675	15
The Meadows Community and Canterbury Park Community	Site #13	70 residences	3,307	12
Sunrise Ridge	Site #16	60 residences	5,429	12

All sites of recommended mitigation are on the western side of Powers Boulevard. Together, they amount to more than 14,000 linear feet (almost three miles) of noise walls intended to protect 246 residences and one day care playground. They include some locations that are already affected by noise today, some that will be impacted in the future due to increased traffic whether or not Powers Boulevard is improved, and other locations that would only be impacted if the existing expressway is converted to a freeway.

THREE MILES OF NOISE WALLS

Nearly three miles of noise walls are proposed as mitigation with the Proposed Action. By 2035, the Powers Boulevard freeway would carry traffic volumes that are comparable to today's traffic on I-25 through Colorado Springs.

Along Gunshot Pass Drive, the row of duplexes immediately adjacent to Powers Boulevard would be acquired for right-of-way. The recommended noise wall for this location would benefit other residences that are currently shielded from noise by the homes that would be removed.

To achieve meaningful noise reduction, walls in these locations would range from 8 to 15 feet in height and must be continuous without gaps. The height of the wall depends on the distance between the road and the affected resource, as well as local topography.

Aesthetic designs for the walls have not been determined, but would be developed with input from the community. A consistent, artistic theme for wall appearance would be developed for corridor-wide use. Although graffiti-resistant designs and materials will be used, noise walls often do get "tagged" and require graffiti removal from time to time. This is a maintenance issue applicable to many aspects of highway infrastructure, not just noise walls.

A noise wall would not be provided if there were any situation where the affected property owners opposed it. Where a wall is recommended, CDOT will contact all owners of property considered to be affected by traffic noise to determine whether or not a majority of them are in favor of the mitigation.

AIR QUALITY

Motor vehicle use is a major contributor to air pollution in many metropolitan areas. It is a major emissions source in the Colorado Springs area as well, since there are relatively few other pollution sources, such as heavy industry. Major improvements in motor vehicle technology have been able to reduce emissions in the region over the past several decades, even as the amount of vehicle use has increased. This is reflected in the fact that violations of national air quality standards in the Colorado Springs area were common in the 1980s, but there have been no violations for the past twenty years.

NO VIOLATIONS FOR DECADES

The most recent violations of national air quality standards in Colorado Springs were for carbon monoxide in 1989 and ozone in 1982, according to PPACG.

No violations of existing standards are anticipated over the next 25 years. However, there is a possibility that tighter new federal standards could be established in the future.

With older cars and trucks gradually dropping out of use over time, the trend toward cleaner vehicular exhausts will continue for years to come. PPACG, which is the region's designated transportation and air quality planning agency, forecasts that although the total number of average weekday vehicle miles traveled (VMT) in the region will nearly double from 2005 to 2035, the amount of carbon monoxide emitted by motor vehicles will not increase but will decrease by more than 17% during this 30-year timeframe (PPACG, 2008a).

The scope of air quality analysis for this EA was determined through interagency consultation involving staff from CDOT, PPACG, and the Air Pollution Control Division of the Colorado Department of Public Health and Environment (CDPHE). A brief summary of air quality concerns and how they are addressed in this EA is provided in **Exhibit 4-14**.

Exhibit 4-14. Air Quality Issues Addressed in this EA

Issue	Status	How Addressed in This EA
Carbon monoxide (CO)	An EPA-approved 1999 CO Plan (revised in 2004) remains in effect, although no violation has been recorded since 1989. A revised CO plan is under development in 2009.	As required by federal regulations, a carbon monoxide modeling analysis was conducted.
Ozone (O ₃)	No plan is in effect. The region is narrowly in compliance with the current standard, established in 2008. In 2010, EPA proposed a new, tighter standard.	Qualitative discussion.
Fine Particulate Matter, smaller than 2.5 microns (PM _{2.5}); and Coarse Particulate Matter, smaller than 10 microns (PM ₁₀)	No plan is in effect. Monitored readings in the region are about 50% of allowable levels with no upward trend.	Qualitative discussion.
Lead (Pb); Sulfur Dioxide (SO ₂); Nitrogen Dioxide (NO ₂)	No plans are in effect. Monitored readings have been very low and stable for years. Monitoring of SO ₂ and NO ₂ was discontinued in 2008.	No further discussion, except in the Air Quality Technical Memorandum.*
Mobile Source Air Toxics	Future traffic volumes with the Proposed Action will remain well below the threshold that warrants quantitative analysis.	See separate discussion in the Air Quality Technical Memorandum.*
Regional haze and visibility	Not a problem in this region. No protected wilderness areas are nearby.	No further discussion, except in the Air Quality Technical Memorandum.*
Greenhouse gases and climate change	These are global issues difficult to quantify at the project level.	See Cumulative Effects section of this EA.

*Included as Appendix I on the compact disc attached to the back of this EA.

Existing Conditions

The Air Quality Technical Memorandum in Appendix I includes a discussion of climatic factors that affect air quality concentrations in the region. In brief, the metropolitan area is nestled up against the Front Range of the Rocky Mountains, creating a slight "bowl" effect. During cold winter months, the use of wood burning increases for residential heat or ambiance, contributing to a variety of pollutants including carbon monoxide. Carbon monoxide is a colorless, odorless, poisonous gas resulting from incomplete combustion of carbon-based fuels, such as gasoline. Carbon monoxide and other emissions can be trapped in this airshed, especially during winter months, by a weather phenomenon called a thermal inversion.

In the summer, warm temperatures combine with the region's abundant sunshine to create conditions ripe for the formation of ozone in the atmosphere. Often called smog, ozone is formed by photochemical reactions involving volatile organic compounds and oxides of nitrogen, both of which come from motor vehicle exhausts as well as other sources.

Although the region is relatively windy, airborne dust and particulate matter is rarely a concern, in part due to the stability of local soils.

PPACG estimates that average weekday driving in the region totaled 11.8 million VMT in 2005, a number that is expected to steadily increase to reach 22.1 million VMT by 2035. Other pollution sources in the region include aircraft operations and municipal power plants. Additionally, common household and industrial chemicals are sources that contribute to ozone formation.

A network of four air quality monitoring stations in the region is operated by the El Paso County Department of Health and Environment and CDPHE. None of these monitors is in or near the Powers Boulevard corridor. The monitoring station closest to Powers Boulevard is located in downtown Colorado Springs, about six miles west of the expressway. That site is close to Interstate 25, so it is influenced by a high-speed, high-volume roadway that is even busier than Powers Boulevard.

Technical Approach for Carbon Monoxide Modeling

In accordance with established procedures approved by CDOT and CDPHE, intersection-level carbon monoxide concentrations are predicted for future years for the Proposed Action and the No-Action Alternative. This is done for one or more of the intersections that would be most heavily congested in the future even if the Proposed Action were implemented. Signalized intersections projected to operate at Level of Service D, E, or F are considered as candidates.

For the Powers Boulevard corridor, the ramp intersections at Constitution Avenue were determined to be the location with the greatest potential to approach or surpass the national CO health standard of 9.0 parts per million as an 8-hour average concentration. Traffic forecasts used for modeling CO concentrations were based on and consistent with the latest regional planning assumptions as reflected in the PPACG 2035 regional transportation plan. Future air quality concentrations were modeled for the years 2025 and 2035.

The Air Pollution Control Division of CDPHE reviewed and concurred with the results of the air quality analysis and conclusions regarding conformity of the Proposed Action which are

summarized below and detailed in Appendix I on the CD attached to this EA. The CDPHE letter is contained in Appendix A, Agency Correspondence.

Air Quality Impacts with the No-Action Alternative

It was noted in Chapter 1 that traffic on the existing expressway is expected to increase by an average of 88% corridor-wide by the year 2035 under the No-Action Alternative. Between Woodmen Road and SH16, this would amount to a total of 1.06 million VMT on an average weekday. The resulting congestion would increase corridor travel time by 79%.

With the No-Action Alternative, all but two of the existing signalized intersections on the expressway between Woodmen Road and Milton E. Proby Parkway would operate at Level of Service F, indicating extremely congested conditions. East-west traffic on twelve busy cross-streets would be delayed at these intersections as well. Heavy stop-and-go traffic of this type reflects inefficient travel that results in excessive idling emissions.

At the Powers Boulevard intersection with Constitution Avenue, modeled carbon monoxide concentrations for the No-Action Alternative would be 5.7 parts per million in 2025 and 5.8 ppm in 2035. These projected 8-hour average concentrations would not exceed the national health standard of 9 ppm.

Heavy stop-and-go traffic with slow speeds and excessive idling would also result in excess emissions of other vehicle-generated pollutants, including volatile organic compounds and oxides of nitrogen which are ozone precursors.

Furthermore, congestion on Powers Boulevard would cause some frustrated motorists to use other north-south routes, increasing emissions on neighborhood streets that are not designed to carry large volumes of traffic.

Air Quality Impacts with the Proposed Action

With implementation of the Proposed Action, Powers Boulevard would carry a total of 1.27 million VMT per day (i.e., about 20% more than the No-Action Alternative), but it would do so at higher travel speeds and with less delay than is experienced today. Traffic on cross-streets would improve as well, and there would be little incentive for motorists to leave Powers Boulevard to cut through neighborhoods to seek a faster route.

At the Powers Boulevard intersection with Constitution Avenue, the modeled carbon monoxide concentrations for the Proposed Action would be 5.6 parts per million in 2025 and 6.0 ppm in 2035. These projected 8-hour average concentrations would not exceed the national health standard of 9 parts per million.

This site was picked to represent the busiest, most congested intersection along the corridor. It is clear that concentrations at less-congested intersections, such as the high-priority Airport Road interchange, would have lower CO concentrations. On the basis of this analysis, it is

MODEL RESULTS INDICATE NO CARBON MONOXIDE PROBLEMS

Future carbon monoxide concentrations predicted for the Powers Boulevard corridor through 2035 would remain at least 33% under (i.e., better than) the level allowed by national air quality standards.



concluded that the Proposed Action would not cause or contribute to any future violation of the CO standard.

Compared with the No-Action Alternative, the Proposed Action would have lower emission rates per mile, and less idling emissions, but more total traffic volumes than the No-Action Alternative. The predicted CO concentrations for the two alternatives are comparable.

The Proposed Action is included in PPACG's 2035 regional transportation plan, for which regional CO emissions analysis was performed by PPACG. This is the currently adopted, fiscally constrained plan that meets federal air quality conformity requirements. The project is also listed with minimal partial funding in the current Statewide Transportation Improvement Plan. Compared to an EPA-approved regional CO "emissions budget" of 531 tons per day, future regional CO emissions with plan implementation are projected to be 281 tons in 2025 and 316.7 tons in 2035, both very far below the allowable amount. Again, CO emissions in 2035 are projected to be about 17% less than they are today, even as total regional VMT nearly doubles.

Both the intersection-scale and regional scale analysis using EPA-approved models and assumptions indicate that the Proposed Action would meet applicable requirements for CO.

It was noted earlier that there are no PPACG air quality plans for ozone, particulate matter and three other EPA-regulated pollutants, because the health standards for these pollutants have not been violated. Except for ozone, monitored concentrations of these pollutants have been well below the health standards for many years, even as regional VMT has increased. The major traffic flow improvement under the Proposed Action, together with ongoing emission rate reductions due to improved vehicle technology, promise to keep concentrations of these other pollutants within acceptable levels for the foreseeable future.

With regard to ozone, however, the new tighter 8-hour standard established in 2008 is just slightly higher than the ozone levels recorded in the Pikes Peak Region for the past several years. Recorded ozone concentrations were trending upwards since 1998 but stabilized in 2003 and have not exceeded the new standard of 0.075 parts per million. Preliminary data indicate that the region's ozone concentrations were below 0.070 ppm in the summer of 2009. If verified, the 2009 data would help to reduce the likelihood of a violation in the region over the next several years because the standard is a three-year average.

**OZONE IS THE REGION'S
TOP AIR QUALITY CONCERN**

When a tighter national ozone standard was established in 2008, the Pikes Peak Region was barely in attainment. Lower concentrations measured in 2009 may be the start of an expected trend of improvement. In early 2010, the EPA proposed to tighten the ozone standard even more.

The new 8-hour ozone standard in 2008 resulted in nonattainment status for the Denver region, about 60 miles north of Colorado Springs. The Denver metro area has a much larger population and greater daily VMT than Colorado Springs, and also has non-mobile source emissions from the natural gas and oil industries contributing to their ozone violations. The Denver Region is exploring and implementing a large number of ozone reduction strategies, many of which do or will provide spillover benefits for the Colorado Springs area. These strategies may assist Colorado Springs in continuing to meet the new ozone standard in the short run while continued vehicle technology improvements offer long-term relief.

In early 2010, the U.S. Environmental Protection Agency announced that a revised 8-hour ozone standard between the values of 0.70 ppm and 0.60 ppm will be forthcoming. New final primary and secondary air quality standards for 8-hour ozone are expected by August 2010.

The PPACG 2035 regional transportation plan indicates that minimal funding for the Powers Boulevard Proposed Action will be available before the year 2020. Until that time, traffic on the existing expressway will continue to worsen, resulting in excess idling emissions. In the years prior to project implementation, the Proposed Action would neither help nor hinder the region in meeting the new ozone standard.

Construction of the Proposed Action would result in temporary emission of particulate matter from construction sites, resulting from soil disturbance and handling, use of diesel equipment, and the production and use of paving materials. These effects would occur at various locations throughout the corridor over a construction period of ten years or more, depending on funding availability.

Mitigation of Air Quality Impacts

CDOT will mitigate construction impacts associated with the Proposed Action in compliance with any applicable permit requirements, at a minimum. Dust control practices will be required during construction in accordance with Colorado Air Quality Control Commission Regulation Number 1. CDOT will comply with ongoing State initiatives to use greener, sustainable methods of operation and to reduce greenhouse gases where possible. Additional construction-related mitigation measures are outlined in Section 4.5, Construction Impacts.

PARKS AND RECREATION FACILITIES

A number of existing and planned parks, trails, open spaces and recreation facilities are located within the Powers Boulevard corridor. These amenities represent an important investment of public resources to improve urban quality of life. Highway improvements have the potential to affect these resources directly through the acquisition of land or altering of access, or indirectly through noise or visual effects. However, in this recently developed corridor, most of the parks and recreation facilities have been planned or recently established with full knowledge that there would be no reasonable expectation to avoid seeing or hearing the busy, adjacent expressway.

Existing Conditions

Exhibit 4-15 indicates the location of existing and planned park and recreation facilities that are closest to Powers Boulevard. The existing facilities are:

- A park (#10)
- Softball fields (#14)
- Two open spaces (#4, 19) that both have internal trails
- A public golf course (#11)
- Five trails (#1, 2, 3, 5 and 6)
- A privately-owned football field (#9) – see explanation below.

The facility labeled as #9 in the exhibit consists of a football field and track that are located along Waynoka Road north of Palmer Park Boulevard. Owned by WCM Industries, this is the home field for six-man football games played by the nearby Hilltop Baptist Church School.

Noise impacts to this football field were discussed earlier in this section of the EA. This private property is not a public park or recreation facility.

The planned facilities are:

- A park (#15)
- An open space (#20) that will have internal trails
- A golf course (#17)
- Seven trails (#7, 8, 12, 13, 16, 18 and 21)

Exhibit 4-15. Existing and Planned Parks, Trails and Recreation Facilities

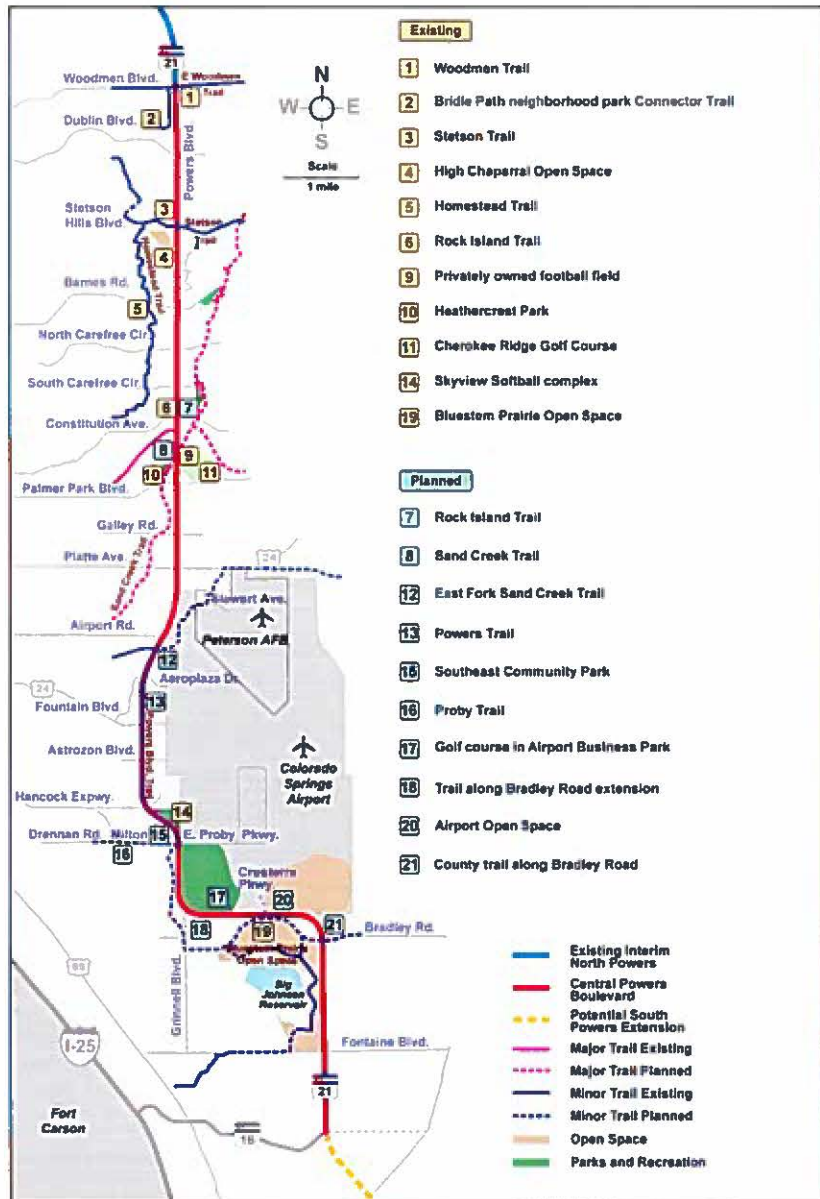
Parks and Recreation Impacts with the No-Action Alternative

The No-Action Alternative would not directly affect any of the existing or planned parks and recreation resources. All of them would be affected indirectly by increased congestion on Powers Boulevard, which could make the facilities more difficult to access.

Additionally, all parks and recreation resources along the corridor would experience increased traffic noise, including two facilities that would experience traffic noise of at least 66 decibels, a threshold above which outdoor use may be impaired. These are the High Chaparral Open Space (location #4 on Exhibit 4-14), and the planned Southeast Community Park (#15).

The High Chaparral Open Space, a 54-acre property south of Stetson Hills

Boulevard and west of Powers Boulevard, was established next to the expressway in 2001. To prevent ecological damage and erosion, active use is restricted to trail areas, highlighted by the north-south through trail along a ridge line at the western side of the property. In addition, there is an internal trail, called the Prairie Loop that starts at the ridge line and extends downhill



toward Powers Boulevard before climbing back up the hill. This unpaved trail, 18 inches wide, is used for mountain biking, jogging and walking dogs. Approximately the lowest 1,100 feet of this trail are within 200 feet of the expressway and experience traffic noise levels about 64 decibels today. A projected traffic increase of about 40,000 vehicles per day with the No-Action Alternative can be expected to increase this noise level to about 66 decibels, the threshold where outdoor use is considered impaired. There are no amenities or designated stopping places along this noisiest portion of the trail.

The planned Southeast Community Park will be built along the western side of Powers Boulevard and the northern side of Milton E. Proby Parkway, which the City of Colorado Springs will upgrade to a high-speed expressway beginning in 2010. No master plan has been developed to identify what amenities (e.g., playground equipment) may be provided or where it may be located on the 20-acre park property. Traffic noise levels near the eastern edge of the property are 64 decibels today. With the No-Action Alternative, traffic volume on Powers Boulevard would approximately double, increasing by more than 20,000 vehicles per day. As a result, the eastern side of the park land would likely experience a noise level of 66 decibels, the threshold where outdoor use is considered impaired.

Parks and Recreation Impacts with the Proposed Action

Two existing trails would be affected by the Proposed Action, as follows:

- The Stetson Hills Trail would experience temporary detours during construction of a grade-separated Powers Boulevard interchange at Stetson Hills Boulevard.
- The Homestead Trail crossing of Barnes Road, featuring a pedestrian-actuated traffic signal, may experience temporary detours during construction of Barnes Road improvements west of the proposed interchange.

Additionally, small pieces of land would need to be acquired from an existing golf course and an existing regional softball complex, as discussed further below, but this would result in no permanent or temporary impairment of recreational activity at either facility.

In developing a conceptual design for the Proposed Action, CDOT made extensive efforts to avoid and minimize the need to acquire land from any park, trail, open space, or other recreation facility. As design concepts were developed, potential effects to these resources were discussed with their owners, as well as with advocates and special interest groups that support particular recreation facilities or interests. This cooperative effort involved the City of Colorado Springs Department of Parks, Recreation and Cultural Services (responsible for the Skyview Sports Complex and most trails), the Cherokee Metropolitan District (owner of the Cherokee Ridge Golf Course), and the Trails and Open Space Coalition of the Pikes Peak Region (a non-profit organization that advocates for the preservation of open space and rural lands, as well as the creation of a system of trails, bikeways, and greenways).

IMPACTS TO PARKS AND TRAILS

The Proposed Action would result in temporary trail detours and increased traffic noise at parks and open spaces adjacent to the existing expressway. The Proposed Action includes construction of a new trail overpass and two new underpasses. Non-recreational land is needed from a golf course and a softball complex.

Despite the efforts to avoid impacts to recreation facilities, the Proposed Action would require approximately 0.02 acre of the 13.5-acre Cherokee Ridge nine-hole golf course and two pieces of land totaling about 1.2 acres from the 41-acre Skyview Sports Complex. None of the needed land is actively used for recreation. The owners of these facilities evaluated the potential impacts and concurred that the Proposed Action would not adversely affect the activities, features, and attributes of the recreation facilities. A detailed discussion of these two resources is included in Chapter 6, Section 4(f) *De Minimis* Impact Documentation.

With the Proposed Action, all parks and recreation facilities along the corridor would experience more traffic noise than current levels, and more traffic noise than with the No-Action Alternative. The High Chaparral Open Space and the planned Southeast Community Park, both affected by traffic noise of about 66 decibels with the No-Action Alternative, would experience higher levels of traffic noise. Traffic noise is predicted to be 74 decibels for the Prairie Loop Trail in the open space, and an additional 200 feet of trail going up the hill could fall within the 66 decibel contour. Traffic noise is also predicted to be 69 decibels near the eastern edge of the planned park. Despite the increased traffic noise, these facilities would remain usable for their intended recreational uses.

Noise mitigation was considered for these recreation resources, but was not found to be reasonable and feasible. Noise mitigation for the narrow trail in the open space would be very costly and provide minimal benefit.

The planned Southeast Community Park has no existing outdoor use areas and no existing development plan. In the future, when a park development plan is prepared, the City's staff will take into account the fact that both Powers Boulevard and Milton E. Proby Parkway are planned to carry greater traffic volumes at higher speeds. According to the PPACG regional transportation plan, it is expected that the City will upgrade Milton E. Proby Parkway to a four-lane, 55-mph expressway by the year 2015. Also, the City's Major Thoroughfares Plan designates Powers Boulevard as a future freeway. For these reasons, active use areas are likely to be located on the park's western side, close to adjacent neighborhoods and access to parking. Traffic noise impacts are addressed in the Traffic Noise section of this Chapter and in Appendix H on the CD attached to the back of this EA.

Mitigation of Parks and Recreation Impacts

CDOT will coordinate with the City of Colorado Springs Department of Parks, Recreation and Cultural Services as well as the Trails and Open Space Coalition of the Pikes Peak Region regarding all construction that would affect existing trails (e.g., Stetson Hills Trail and Homestead Trail). Timely advance notice will be provided to trail users prior to any activity that could result in a temporary detour. Additionally, CDOT will restore or reconstruct any existing trail crossing that is affected by roadway construction.

CDOT will construct grade-separated crossings of Powers Boulevard for three planned trails: a bicycle and pedestrian overpass for the Rock Island Trail; a Sand Creek Trail underpass that would accommodate equestrians; and a bicycle and pedestrian underpass at East Fork Sand Creek.

Additionally, CDOT will coordinate with the City of Colorado Springs Department of Parks, Recreation and Cultural Services to ensure that a new East Fork Sand Creek bridge on Aviation

Way and the Powers Boulevard interchange for Hancock Expressway and Zeppelin Road are designed to accommodate a proposed Powers Trail.

VISUAL CHARACTER

The visual character of a community is an important element in the quality of life of that community. The intrusion of a road into the viewscape, as well as views to and from the road, can affect the quality of the visual environment. Therefore, evaluation of the visual impacts of the Proposed Action and the aesthetic characteristics of the design of the road are important considerations. This section summarizes the visual character and context of the Powers Boulevard corridor and the likely effects on it. A detailed report on visual resources is provided in Appendix J on the CD attached to the back of this EA.

Existing Conditions

For much of Colorado Springs, the dominant visual feature is Pikes Peak (elevation 14,115 feet) to the west, together with other mountains of the Rocky Mountain Front Range. However, this view can be seen only from certain viewpoints in the southern half of the Powers Boulevard corridor, and it is entirely blocked by ridgelines for much of the corridor north of Palmer Park Boulevard.

Views to the east of Powers Boulevard formerly consisted of wide open grassland, but now are dominated by rooftops or urban development, as seen in **Exhibit 4-16**. Most of the existing expressway corridor north of Milton E. Proby Parkway is now highly developed and has a very urban character, not unlike many other urban areas.

Exhibit 4-16. Views to and from the High Chaparral Open Space, across Powers Boulevard



Exhibit 4-17, on the following page, shows the central portion of the corridor as seen from its northern highpoint at a hill near Barnes Road (first photo), and looking back up to that hill from atop the Platte Avenue overpass (second photo). These photos are representative of the viewscape throughout most of the northern half of the corridor.

In the first photo, the grassland seen at right, south of the Barnes Road intersection, has a “for sale” sign and is intended for development. The vacant land across the expressway to the left is undergoing development now (October 2009).

Visual features in the second photo include a variety of urban land uses, a grass median strip, median street lighting and a nearby billboard.

Exhibit 4-17. Views Southward from Barnes Road and Northward from Platte Avenue



Although the southern half of the corridor includes background views to grasslands at the Bluestem and Airport Business Park Open Spaces, a large part of this area (e.g., Platte Avenue to Milton E. Proby Parkway) is also characterized by foreground and mid-ground views of industrial and residential uses. Little commercial development exists at the present time, although some is proposed.

Powers Boulevard is a part of a landscape characterized by the largely urban environment that surrounds it. Views to natural features and scenic vistas, including the mountain backdrop to the west, are extremely limited in the Powers Boulevard corridor. This may be the reason that the public and businesses have expressed more interest in views to and from the road. Nearby residents expressed interest in how the road will look, while businesses were concerned about how the Proposed Action would affect motorists' ability to see their buildings and signs.

Visual Impacts with the No-Action Alternative

With the No-Action Alternative, the existing expressway would become increasingly congested and the resulting traffic would become more visually apparent. Also, continued rapid development will soon fill up remaining vacant grasslands along much of the corridor, except for three designated open spaces and airport land that must remain clear of crash hazards.

Visual Impacts with the Proposed Action

With the Proposed Action, the same development of vacant lands noted above would occur, but the most notable effect would be the elevation of Powers Boulevard to pass over existing cross-streets. As noted previously, elevating Powers Boulevard is proposed for the purpose of minimizing access impacts and acquisition of private property.

Elevating Powers Boulevard over cross-streets would provide motorists on the freeway with increased viewing distances to mid-ground and background views, but in some cases would reduce visibility to properties in the immediate vicinity of the interchanges. Thus some nearby businesses would have increased visibility and others would have reduced visibility. Appendix J, Visual Resources Technical Report, includes a map identifying these areas of increased and decreased visibility from the roadway.

Another impact of the Proposed Action would be the reduction of visibility across Powers Boulevard along cross-streets. Bridges carrying the freeway over the cross-streets would replace the open views at the existing at-grade intersections. Exhibit 4-18 provides an example of this effect, showing the existing view and simulated future view at the site of one of the proposed interchanges.

Photosimulations of various elements for the Proposed Action were prepared for this EA and are included in Appendix J. These include a photosimulation for a noise wall (e.g., north of Hancock Expressway) that is proposed to protect an adjacent neighborhood from increased traffic noise. Noise walls, bridges and other elements of freeway design offer opportunities to develop a consistent, corridor-wide aesthetic design.

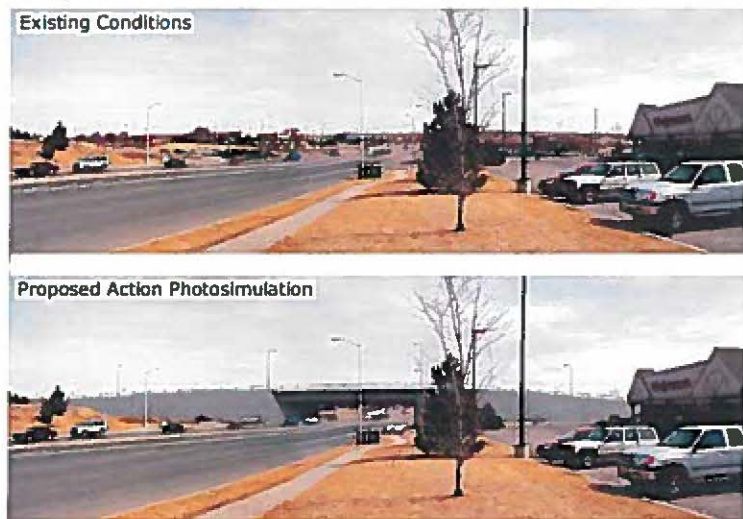
North of Milton E. Proby Parkway, the Proposed Action would replace the existing expressway median with a median barrier and paved inside shoulders. Due to the urban nature of the freeway corridor and its limited right-of-way, minimal landscaping is envisioned for the freeway. Sustainability principles discussed in Section 4.12 (Cumulative Effects) suggest that landscaping should be low-maintenance, requiring minimal ongoing watering, and should maximize use of native vegetation.

Mitigation of Impacts to Visual Resources

CDOT has developed a uniform set of design guidelines specifically for the Powers Boulevard corridor. CDOT will follow these guidelines to produce consistent aesthetic standards for interchanges, noise walls, streetlights, and other freeway features. Appropriate signage will be developed to ensure that motorists are aware of how to access upcoming developments that may be difficult to see in advance of an exit.

CDOT will prepare lighting plans that balance safety and aesthetics with the need for energy conservation, minimization of light pollution, and compatibility with aviation-related concerns on the adjacent Peterson AFB and Colorado Springs Airport.

Exhibit 4-18. View Eastward across Powers Boulevard at Constitution Avenue for Existing Conditions and the Proposed Action



4.5 CONSTRUCTION IMPACTS

As discussed in Section 3.6, Building the Project, the Proposed Action would likely be constructed as a sequence of projects for 11 miles from Woodmen Road to Milton E. Proby Parkway. The Proposed Action also includes right-of-way preservation for a 5.8-mile stretch south of Milton E. Proby Parkway. Depending on funding, one or more of the construction projects could be underway in any future year. If multiple projects were to be constructed at the same time, they might or might not be contiguous.

Exhibit 4-19 shows the general concept for the construction projects that would range from under a mile to nearly two miles in length. Each project would typically construct one interchange and modify Powers Boulevard north and south of that interchange, also adding on-ramps, off-ramps, and acceleration or deceleration lanes as appropriate. Associated with each interchange would be minor modifications to the affected cross-street, including potential access changes. Some projects would also provide frontage roads and Texas turnaround ramps.

The color scheme used in Exhibit 4-19, involving red and blue construction packages, is used only to indicate where each package begins and ends, and has no other implied meaning.

Project details such as traffic control, access management and construction phasing for each project will be developed during preparation of final plans and may be modified during construction. It is anticipated that the duration of construction for individual projects would be between 18 and 24 months.

Construction Impacts with the No-Action Alternative

The No-Action Alternative requires routine maintenance to keep the existing lanes of Powers Boulevard in operable condition, but no new construction is foreseen. Maintenance activities might include one-lane closures typically during off-peak hours for resurfacing, and traffic signal modifications or upgrades. These could last for several weeks at a given location, but typically not longer.

Exhibit 4-19. Potential Construction Packages



The No-Action Alternative would have minor effects due to traffic congestion, temporary detours and construction noise.

Construction Impacts with the Proposed Action

The Proposed Action would result in a variety of construction impacts, including the following:

- Traffic detours, interruptions, delays and access restrictions
- Construction noise
- Construction dust and emissions
- Sediment and other water pollutants
- Consumption of resources
- Temporary effects to recreational trails

Construction impacts to recreational trails were discussed in more detail in Section 4.4, Community Quality of Life. Additional information about construction-related water quality impacts is provided in Section 4.6, Water Resources.

Traffic and Access Issues

Construction on Powers Boulevard would result in traffic delays, traffic congestion, and changes in traffic circulation. The length and severity of these disruptions would vary by location, type of work, and duration of activity. Construction delays are generally anticipated to be short term and may cause motorists to use alternative routes.

Construction activities would occur primarily during daylight hours during the weekdays, but nighttime and weekend construction activities may be required. Nighttime and weekend activities could include utility relocation, paving and construction of bridges. Traffic congestion may increase "cut-through" traffic on nearby streets including Rio Vista Drive and Tutt Boulevard during construction. This would result in more traffic, as some motorists would divert their trips from the expressway to use these local streets.

The Proposed Action would modify some existing nearby business driveways along cross-streets. Access to businesses would be shifted or temporarily restricted during certain construction activities. Construction activities near local businesses may result in temporary loss of some customers due to traffic congestion and perceived access difficulties.

Emergency service providers could experience response time delays due to detours and access changes as a result of construction. Providers likely to be affected include:

- American Medical Response (AMR), the firm that provides ambulance service under contract to the City of Colorado Springs. The firm's dispatch facility is currently located on Victor Place immediately west of Powers Boulevard and south of Constitution Avenue.
- Colorado Springs Police Department, Stetson Hills Division, located on Tutt Boulevard east of Powers Boulevard between North Carefree Circle and Barnes Road.
- Cimarron Hills Fire Department, located on Tuskegee Place east of Powers Boulevard and north of Palmer Park Boulevard.

AMR leases space on Victor Place, but for planning purposes, CDOT assumes that the service provider will still be at this location. By contrast, the publicly-owned fire station and newly built police station are more likely to remain in their current locations.

As of January 2010, no public transit routes use Powers Boulevard and only one route (#24 Galley-Peterson AFB) crosses it. Additional routes using or crossing Powers Boulevard were recently eliminated due to budget shortfalls associated with the 2008-2010 recession. In the future, by the time construction of the Proposed Action begins, additional routes may again use or cross Powers Boulevard. Any bus stops along side-streets that would be affected by construction would be temporarily relocated as necessary for the safety of bus patrons.

Construction Noise

Construction would generate temporary noise impacts from various types of equipment. Noise sources include diesel-powered earth-moving equipment such as dump trucks and bulldozers, backup alarms on certain equipment, compressors, and pile drivers (near bridge abutments and retaining walls). Although most construction would occur during daytime hours, some nighttime construction would be necessary.

During construction of the Proposed Action, noise from heavy equipment would be noticeable for nearby residents and businesses. Construction at interchange locations could last 18 to 24 months. Different types of construction activity generating different types of noise would occur over that timeframe. Construction noise can be most annoying to nearby residents at night. Although most construction would occur during daytime hours, some nighttime construction would likely be necessary.



Construction noise levels are influenced primarily by the loudest pieces of equipment operating at the same time and location.

Construction Dust and Exhaust Emissions

The most noticeable effect of construction on air quality would be generation of dust due to demolition activities and the hauling, filling and grading work that involves earth movement. For example, it is estimated that 50 to 100 pounds of fine particulate matter (PM₁₀) per day may be generated for each mile of roadway that is under construction.

Additionally, construction vehicles and equipment burn gasoline or diesel fuel, resulting in emissions of carbon monoxide, hydrocarbons, oxides of nitrogen, fine particulate matter and other pollutants.

Traffic delays and congestion would increase vehicle emissions due to lower traffic speeds and increased idling.

All of these air quality impacts are considered to be short-term. For all pollutants, ambient air quality levels are expected to remain well below allowable limits.

Soil Erosion and Water Quality

Construction activities typically involve disturbance of soils and exposure of soils to wind and precipitation, resulting in the potential for sediment runoff and erosion. Fuel spills and other construction-related pollutants can occur as well. While Best Management Practices would be used to avoid, minimize and mitigate water contamination, nevertheless some sediment could potentially reach Sand Creek and the other drainages along the Powers Boulevard corridor.

WATER QUALITY PROTECTION IS A KEY FOCUS

Contractor compliance with requirements for water quality protection is an important issue for CDOT. Strict compliance will be a key focus for this Proposed Action.

Consumption of Resources

Constructing the Proposed Action would consume energy, materials, and other natural resources. Energy issues are discussed in a Section 4.10 of this EA. Rock, sand and gravel needed for construction generally are provided from nearby sources since the cost of these materials depends greatly on the cost of transporting them. Construction materials such as rock products, lumber, cement, fuels and asphalt result in impacts both at their place of production and in the process of being transported to this region.

Additionally, construction activities produce solid wastes, such as scrap lumber and other bulky building debris, broken concrete, and used asphalt. Many of these wastes must be trucked to landfills for disposal. Since there are few permitted landfills in the Pikes Peak Region, the depletion of landfill space could result in the need to construct and permit new landfills at greater distances from populated areas.

Temporary Effects to Recreational Trails

Crossing Powers Boulevard today is not easy for bicyclists and pedestrians because the expressway is wide and is busy with vehicles turning at intersections. During construction, temporary construction signs, traffic control and construction activity would complicate crossing the roadway. Most existing crossings for bicycles and pedestrians connect standard pedestrian sidewalks. The only existing trail crossing of Powers Boulevard that would be affected by the Proposed Action is the Stetson Hills Trail, which is an extra-wide sidewalk along the south side of Stetson Hills Boulevard. This trail has been constructed to the west of Powers Boulevard, but has only been partially constructed (with gaps) to the east of the expressway. This trail as well as all sidewalks crossing Powers Boulevard would be subject to temporary detours during construction. Construction in the vicinity of sidewalks and trails is expected to last for 18 to 24 months. The north-south Homestead Trail crossing of Barnes Road, west of Powers Boulevard, may also be temporarily affected by construction activity.

Mitigation of Construction Impacts

Construction of the Proposed Action will comply with all applicable Federal, State and local regulations pertaining to air, noise, water, and other resources. Best Management Practices and standard operating procedures that will be used to minimize construction impacts are detailed below.

Transportation Issues

A Traffic Management Plan would be developed for each Powers Boulevard construction project to maintain safe traffic flow and access throughout construction. The traffic management plan will include the following:

- Traffic flow will be maintained during peak travel times by minimizing lane closures where possible. The existing number of lanes will be kept open to traffic whenever possible.
- Traffic flow plans will take into consideration the access needs of property owners during construction and will be designed to minimize construction-related delays.
- Measures such as signage and media releases will be used to announce and advertise road closures, detours, and the construction schedule.
- Alternate travel routes and continued access to properties will be coordinated with emergency service providers to minimize delays and ensure efficient service.
- CDOT will request that the City of Colorado Springs Police Department and the Colorado State Patrol increase speed limit enforcement through construction zones and on nearby streets potentially affected by cut-through traffic during construction.
- Accommodations for pedestrian and bicyclists to cross Powers Boulevard will be made within the construction areas, along with vehicle traffic, as such crossings typically are at least a mile apart and there are no alternative crossings nearby.

MAINTAINING TRAFFIC LANES AND BUSINESS ACCESS

To the greatest degree practicable, CDOT will keep the existing number of lanes open to traffic, and will maintain access for affected businesses during construction.

A Public Notification Plan will be developed to inform residents, businesses and roadway users of construction activities that will affect traffic flow. Public information efforts will begin prior to construction and continue throughout the construction phase. The public will be notified of closure of traffic lanes and the complete closure of roadways, and will be provided appropriate detours.

Access to businesses will be maintained during business hours. This may require some circuitous travel or use of different access points, but businesses will be notified prior to major changes if access is to be rerouted or detoured. Access issues will be coordinated with affected businesses before and throughout the construction phase. Emergency service providers will be notified of closures, temporary detours and access changes to ensure that emergency services are maintained.

CDOT will coordinate with the transit staff of the City of Colorado Springs to coordinate any changes needed to bus stops located on cross-streets that will be affected by construction of the Proposed Action.

Construction Noise

CDOT's construction contractors will obey local noise ordinances. Waivers will be applied for if necessary. Mitigation efforts will adhere to City Code and applicable ordinances which address maximum allowable noise levels and noise level limits for night work in residential areas. Where

appropriate, sound walls planned as permanent mitigation will be constructed as part of the first phase of work, thus shielding receptors from temporary construction noise as well. Contractors will be required to use noise blankets, temporary noise barriers around stationary equipment, and muffling devices on heavy equipment as necessary to comply with City Code. Also, the public will be notified in advance of any high-impact construction activities, such as pile driving, or when night-time construction is planned.

Air Quality

A Fugitive Particulate Emissions Control Plan will be developed and implemented and a Dust Abatement Permit will be obtained at the time of construction in accordance with Colorado Air Quality Control Regulation Number 1. The Fugitive Particulate Emissions Control Plan will require the following:

- Contractors will be required to use dust suppression techniques (such as wetting or application of dust palliative compounds) to control fugitive emissions within permitted levels.
- Trucks carrying fill material will be either wetted down or covered with tarps to prevent the blowing of dirt and dust from the trucks.
- The disturbed area for any haul roads will be minimized, and haul roads will be wetted to suppress dust.
- Fills, cuts, slopes and other exposed areas will be re-vegetated and mulched within a reasonable time after disturbance.
- Off-site tracking of mud and debris will be minimized by using appropriate vehicle tracking pads.

Dust suppression practices will be used as mandated by Federal, State and local agencies. These practices are reasonably effective under normal weather conditions but cannot completely control dust on very windy days.

CDOT will require contractors to maintain their construction equipment in good operating condition in order to minimize exhaust emissions from diesel vehicles, compressors, and other heavy machinery.

Water Quality

Section 4.6 of this Chapter describes the temporary Best Management Practices (BMPs) that will be used to avoid, minimize and mitigate water quality impacts during construction. Permanent BMPs will be built as early as possible during project construction for use in mitigating temporary water quality impacts.

Consumption of Resources

Conservation of natural resources and recycling of locally available materials will be implemented to the degree that is practical. Recycling will not only reduce the amount of new material used in construction, but will also reduce the amount of waste materials hauled to a landfill. Waste materials that are generated on-site during construction may be appropriate for recycling, and their reuse will be encouraged. Soil excavated from one part of the project will be used as fill elsewhere on the project to minimize import or export of materials.

Temporary Detours or Closures of Trails

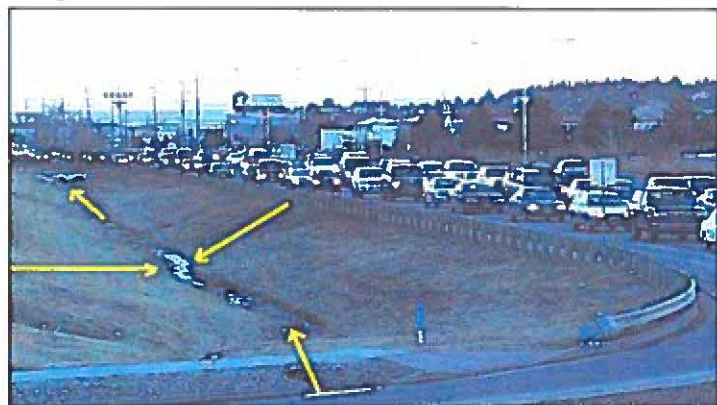
CDOT will coordinate with the City of Colorado Springs and the Trails and Open Space Coalition of the Pikes Peak Region to finalize the details of any temporary trail detours, and will provide advance notice to trail owners and users regarding temporary detours and closures.

4.6 WATER RESOURCES

Rain that falls onto any traveled roadway runs off the pavement into nearby drainages, carrying along with it pollutants related to oil, grease, gasoline, brake wear, tire wear and vehicle exhausts. Water pollutants also result from highway maintenance activities, including sand and chemicals used for roadway deicing. In addition, runoff may include herbicides that are sometimes used for control of noxious weeds.

The effects of Powers Boulevard and the adjacent land use are being discussed together because the highway's drainage system receives runoff from adjacent properties. For example, in the illustration shown in **Exhibit 4-20**, runoff from the expressway (right side of photo) combines with runoff from an east-west cross-street (foreground) as well as runoff from commercial development (from the left) in a roadside detention area. If enough volume accumulates, the water flows downstream through the culverts visible in the distance and eventually enters a stream such as Sand Creek.

Exhibit 4-20. Example of a Roadside Drainage Ditch along Powers Boulevard



(Arrows indicate direction of runoff flow)

In addition to transporting chemical pollutants, the hydraulic force of stormwater runoff can cause streambed erosion which may carry sediments downstream. Hard surfaces such as roads, parking lots, driveways, sidewalks and buildings do not allow water to soak into the ground to recharge underground water resources. Instead, these impervious surfaces increase the amount of surface flows. For the past two decades, rapid urban development in the Colorado Springs metropolitan area, and particularly in the Powers Boulevard corridor, has resulted in a large increase in the amount of impervious surface area, contributing to increased runoff and erosion.

All runoff from Powers Boulevard eventually flows to the west, southwest, or south through various creeks to reach Fountain Creek, which then flows southward about 45 miles to join the Arkansas River in the City of Pueblo. The Fountain Creek Watershed drains an area of 927 square miles, including almost all of the Colorado Springs Metropolitan area. Because Fountain Creek has been severely degraded over the past few decades, it is the focus of major ongoing studies and intergovernmental efforts to improve its water quality.

PPACG, the region's designated water quality planning agency, reports that stormwater pollutants of concern in the Fountain Creek Watershed are:

- Nutrients (total phosphorous, nitrite, nitrate, ammonia)
- Solids (total suspended solids, total dissolved solids and settleable solids)
- Metals (copper, iron, lead, zinc, selenium, iron and magnesium)
- Sediment
- Bacteria (*E. coli* and fecal coliform)

Although five subwatersheds carry drainage from Powers Boulevard to Fountain Creek, most of the road's drainage is carried through just one of these. Sand Creek drains ten of the eleven miles where the Proposed Action calls for roadway improvements. As shown in **Exhibit 4-21**, Sand Creek and two of its tributaries cross Powers Boulevard. The main branch crosses just south of Constitution Avenue. The Center Tributary crosses north of Airport Road. The East Fork crosses south of Airport Road. A small number of minor drainages cross Powers Boulevard and are not depicted. Windmill Gulch flows into a storm sewer system at Bradley Road, ultimately draining into Fountain Creek by way of Crews Gulch.

Powers Boulevard encounters floodplains at each of the three creek crossings shown in **Exhibit 4-21**. There is also a floodplain associated with Peterson AFB drainage (not a creek) that flows under Powers Boulevard from east to west, just north of the Hancock Expressway.

South of Milton E. Proby Parkway, where future Powers Boulevard improvements are envisioned but are not included in the Proposed Action, Powers Boulevard produces runoff that flows either into the privately-owned Big Johnson Reservoir or eastward into Jimmy Camp Creek. The Big Johnson Reservoir stores irrigation water used for farming and ranching in the Fountain Valley area south of Colorado Springs. Jimmy Camp Creek, a major tributary to Fountain Creek, flows from north to

Exhibit 4-21. Drainages in the Powers Boulevard Corridor



south and is located just east of Marksheffel Road. It is about two miles east of Powers Boulevard and just outside of the area mapped in **Exhibit 4-21**.

Existing Water Quality

In accordance with Section 303(d) of the federal Clean Water Act, the Colorado Water Quality Control Commission periodically assesses the water quality of the State's water bodies and indicates what pollutants, if any, are impairing the use of the water. The current 303(d) list was approved by the Commission in March 2008 (CDPHE, 2008).

For Fountain Creek, downstream from Powers Boulevard, the latest 303(d) list indicates that the water is impaired by *Escherichia coli* (commonly called E. coli), a bacterium associated with fecal matter from people and animals. A 2009 study by the U.S. Geological Survey suggests that in this case, pigeons may be largely the source of the bacterium (USGS, 2008). The presence of E. coli impairs the use of the water for recreation that involves human exposure to the water (e.g., fishing or rafting).

Fountain Creek is also on a list for further evaluation and monitoring with respect to selenium. Recent sampling to determine whether or not the water is impaired by selenium has provided inconsistent results, sometimes suggesting impairment and sometimes not. Selenium is a naturally occurring element found in shale rock formations, which can erode due to stormwater runoff. Excessive concentrations of selenium can adversely effect fish populations and other aquatic life. Fountain Creek is not impaired by the types of water pollutants attributable directly to motor vehicle use, such as copper, zinc, or oil and grease.

In its 2005 *Fountain Creek Watershed Impervious Surface Area and Watershed Health Analysis*, PPACG reported the following outlook for the 59 square-mile Sand Creek watershed, where Powers Boulevard improvements are proposed (PPACG, 2005):

- The streams in the Sand Creek subwatershed are non-supporting of aquatic life.
- Projected population and housing growth are expected to make existing erosion and flooding problems much worse, putting bridges and utility crossings at risk.
- Rapid growth will result in increased impervious surface area, likely causing flows that are currently intermittent to become perennial.

Water Quality Modeling Results

Water quality in the Powers Boulevard corridor is influenced by vehicle-related pollutants and even more so by adjacent land uses. Therefore a regional land use approach was used to evaluate water quality impacts from the Proposed Action. An analytic model called L-THIA (Long-Term Hydrologic Impact Assessment) was used since it provides estimates of changes in annual runoff and annual pollutant loads resulting from past or proposed land use changes. Details about the analysis are provided in Appendix N, Water Quality Technical Report. **Exhibit 4-22** presents the L-THIA model projections of annual runoff for baseline conditions.

Exhibit 4-22. Baseline Runoff and Pollutant Loads from Powers Boulevard and Adjacent Land Uses

Modeled Characteristic	Powers Boulevard Contribution	Total Corridor Load Including Powers Boulevard and Adjacent Land Uses
Average Annual Runoff (acre-feet)	160	367
Suspended Solids (lbs/year)	62,843	185,521
Total Phosphorous (lbs/year)	176	418
Total Nitrogen (lbs/year)	442	1,150
Total Copper (lbs/year)	23	42
Total Zinc (lbs/year)	145	319
Oil and Grease (lbs/year)	5,619	12,537
Biological Oxygen Demand (lbs/year)	2,654	10,883
Fecal Coliform (millions)	19,870	218,880

The modeling results indicate that Powers Boulevard generally contributes 40% to 45% of the runoff and most water pollutants along the corridor, with a slightly larger percentage being contributed from adjacent land uses.

Water Quality Impacts with the No-Action Alternative

With the No-Action Alternative, no new impervious surface would be added to Powers Boulevard, but adjacent land will continue to be developed and cause an increase in impervious surface and runoff volume for the Powers drainage basins. Also, traffic on Powers Boulevard would increase by a corridor-wide average of 88% by 2035, generating more contaminants in the same amount of stormwater runoff. As a result, water quality in local drainages would decline. The resulting future production of runoff and water pollutants is indicated in Exhibit 4-23. Compared to baseline conditions, runoff would increase 26% and most water pollutants would increase by similar percentages.

Exhibit 4-23. Runoff and Pollutant Loads, Baseline and No-Action Alternative

Modeled Characteristic	Current Corridor Total	2035 Corridor Total (No-Action)	Change
Average Annual Runoff (acre-feet)	367	461	26%
Suspended Solids (lbs/year)	185,521	271,713	32%
Total Phosphorous (lbs/year)	418	537	29%
Total Nitrogen (lbs/year)	1,150	1,474	28%
Total Copper (lbs/year)	42	49	17%
Total Zinc (lbs/year)	319	407	28%
Oil and Grease (lbs/year)	12,537	17,843	42%
Biological Oxygen Demand (lbs/year)	10,883	13,093	20%
Fecal Coliform (millions)	218,880	270,252	24%
Range of Future Increase in the Modeled Corridor Characteristics			17% to 42%

The No-Action Alternative would not change roadway drainage systems or floodplains, and would not include any measures to improve water quality.

Water Quality Impacts with the Proposed Action

The Proposed Action would increase the amount of paved roadway area associated with Powers Boulevard by about 50 percent, and would also accommodate more traffic than the No-Action Alternative. Therefore, it would produce increased runoff and increased water contaminants. These effects would be in addition to the increases caused by development of adjacent land in the corridor, discussed above with respect to the No-Action Alternative. The results of the L-THIA modeling for the Proposed Action are presented in **Exhibit 4-24**.

Exhibit 4-24. Runoff and Pollutant Loads, Baseline and Proposed Action

Modeled Characteristic	Current Corridor Total	2035 Corridor Total (Proposed Action, Assuming No BMPs)*	Change*
Average Annual Runoff (acre-feet)	367	539	47%
Suspended Solids (lbs/year)*	185,521	271,713	47%
Total Phosphorous (lbs/year)	418	617	48%
Total Nitrogen (lbs/year)	1,150	1,678	46%
Total Copper (lbs/year)	42	63	51%
Total Zinc (lbs/year)	319	474	49%
Oil and Grease (lbs/year)	12,537	20,329	62%
Biological Oxygen Demand (lbs/year)	10,883	13,672	26%
Fecal Coliform (millions)	218,880	272,375	24%
Range of Future Increase in the Modeled Corridor Characteristics			24% to 62%

**Uncontrolled, potential loads are specified. However, use of BMPs is required and will considerably reduce future pollutant loads. For example, assuming that BMPs reduce Suspended Solids by 50% (see text below), the future load would be approximately 136,000 lbs/yr, a reduction of 27% compared to the Current Corridor Total.*

The projections reported above assume no new water quality controls in the corridor, but in actuality, Federal and State laws will require effective mitigation. The Proposed Action includes numerous water quality strategies and devices (referred to as Best Management Practices) that will contain sediment and associated pollutants both from the roadway and from adjacent lands.

Although this alternative involves increased pavement, increased impervious surface, and an associated increase of sediment load, proposed BMPs such as sediment basins and detention ponds are expected to reduce the overall sediment load into area streams – resulting in an overall reduction of about 50% in sediment load from existing and No-Action Alternative conditions. This overall improvement is based on studies of the effectiveness of BMPs from Denver’s Urban Drainage and Flood Control District (UDFCD, 2008). For example, assuming a 50% reduction in suspended solids due to BMPs, future loading in the Powers Boulevard corridor could be reduced by approximately 27% from current conditions.

Proposed BMPs and the right-of-way needed to accommodate them have been included in the Proposed Action. Identification of suitable land parcels for this use was part of the Context Sensitive Solutions approach used to develop the Proposed Action. This land acquisition is recognized as a right-of-way impact and included in the proposed cost of the Proposed Action as reflected elsewhere in this EA.

Construction activities typically involve disturbance of soils and exposure of soils to wind and precipitation, resulting in the potential for sediment runoff and erosion. Fuel spills and other construction-related pollutants can occur as well. While Best Management Practices will be used to avoid, minimize and mitigate water contamination, some sediment could potentially reach Sand Creek and the other drainages along the Powers Boulevard corridor.

An analysis of floodplain impacts was conducted in accordance with methods approved by the Federal Emergency Management Agency. This analysis is documented in Appendix M that is found on the compact disc attached to the back of this EA. Widening the roadway at drainage crossings would reduce the amount of floodplain acreage in three drainages, affecting a total of 13.9 acres. The modified structures at Sand Creek's main channel, East Fork and Center Tributary would be designed to ensure no increase in the base floodplain elevations. The Proposed Action would not impair the natural and beneficial values of any affected floodplain.

Mitigation of Water Quality Impacts

Mitigation for the Proposed Action will include both permanent BMPs, for long-term water quality improvement, and temporary BMPs that address conditions during the construction process.

Permanent BMPs for stormwater quality control will be implemented throughout the project to protect the water quality of Fountain Creek, which is classified by the Colorado Department of Public Health and Environment as a Tier I receiving water. Due to this Tier I designation, the BMPs need to provide for either a 100% water capture volume or remove at least 80% of the average annual loading of total suspended solids from average storm events. At least two types of permanent BMPs will be constructed along the corridor: extended dry detention basins and grass swales.

Extended dry detention basins are sedimentation basins designed to allow sediment to settle out in the sediment basin. A water quality capture volume is used to provide adequate storage volume for sediment to settle. The capture volume includes the "first flush" of runoff, which often contains the main water quality degrading constituents such as sediments and floating and dissolved contaminants. A number of extended dry detention basins are proposed within the Powers Boulevard right-of-way.

Grass-lined swales are vegetated swales or ditches having gentle slopes. These swales are recommended in locations where the tributary drainage area is relatively small. The goal is to filter the sediment-laden runoff and allow it to settle before reaching the receiving stream. One grass-lined swale is proposed along the study area right-of-way.

Conceptual locations for the water quality basins, swales and other features are shown in **Exhibit 4-25**. Between Woodmen Road and Milton E. Proby Parkway, about 40 sites totaling 1,360 acres could be used for water quality mitigation. Much of this land is within the current Powers Boulevard right-of-way, but some of the land would need to be purchased. These sites comprise a workable conceptual approach, not a specific mitigation commitment. Some of the conceptual sites may not be available in the future due to development.

During the final design phase of the project, it could become apparent that BMPs other than an extended dry detention basin or a grass lined swale would be more appropriate for mitigation. For example, a sediment treatment structure such as a vault can be used to meet the 80% removal requirement of total suspended solids. If the BMPs are refined during design and construction, the overall commitment to protect water quality and minimize water quality impacts will be maintained, in accordance with regulatory requirements.

Since the Proposed Action includes approximately 11 miles of construction and six additional miles of right-of-way preservation, it has the potential to use large-scale mitigation approaches not well suited for typical, smaller road projects. For example, instead of focusing on small-scale roadside ditches, CDOT has worked together with the City of Colorado Springs to use regional-scale water detention facilities for Powers Boulevard. This cooperative approach is especially appropriate because, as noted earlier, Powers Boulevard itself generates about less than half of the corridor runoff. The majority of the runoff comes from adjacent properties.

Exhibit 4-25. Conceptual Locations for Water Quality Mitigation Features



CDOT will continue to work closely with City and County officials in the design and implementation of drainage systems and water quality BMPs during project phasing. The conceptual drainage design will be revised and finalized as project phases are built.

Stormwater management plans will be prepared by CDOT and reviewed by the City for consistency with established drainage criteria and guidance.

Temporary BMPs will be used to minimize and avoid water quality impacts during and after construction in accordance with CDOT's *Erosion Control and Stormwater Quality Guide* (2002) and the City of Colorado Springs *Drainage Criteria Manual* (2002). The BMPs include measures for the control of erosion and sedimentation, and the treatment of stormwater runoff.

Preparation of a stormwater management plan prior to construction is required by CDOT and the City. A key objective of a stormwater plan is to prevent sediment from reaching receiving waters. The stormwater management plan will include provisions to minimize the amount of disturbance, limit the amount of time that areas can be disturbed, and control the use, storage and disposal of construction-related chemicals and materials.

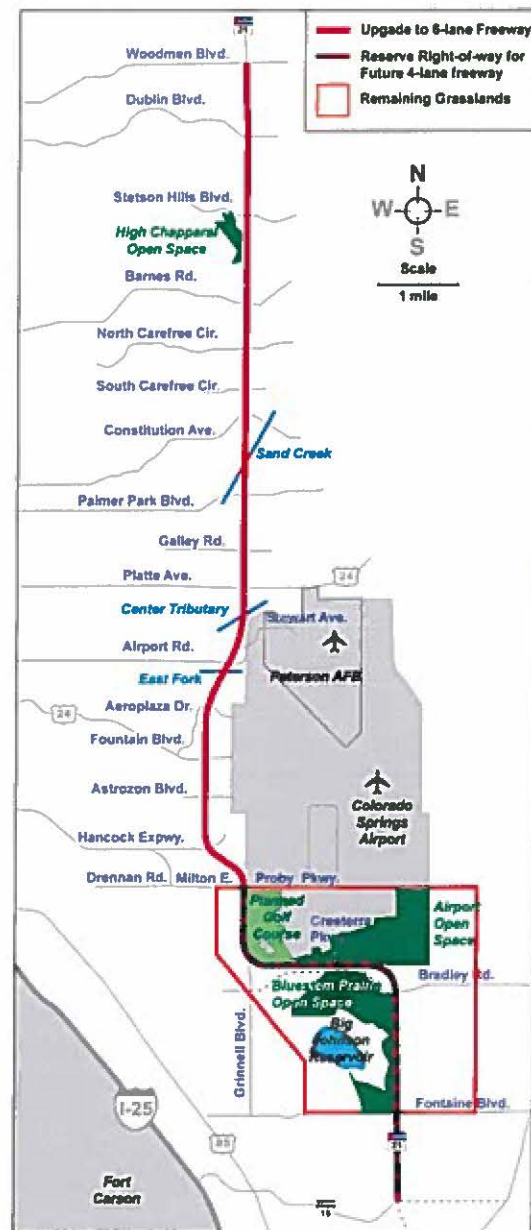
Specific BMPs that are likely to be used include: seeding and mulching; silt fencing; culvert riprap outlet protection; erosion control blankets; and check dams and sediment traps.

4.7 ECOLOGICAL RESOURCES

The Endangered Species Act of 1973, the Migratory Bird Treaty Act of 1918, and a number of other Federal and State regulations and Executive Orders provide legal protection for various plants and animals and their habitat.

As part of the Powers Boulevard EA, wildlife biologists examined the corridor and consulted with the Colorado Division of Wildlife to determine what types of species and habitat are present. The Ecological Resources Technical Report, found in Appendix K on the compact disc attached to the back of this EA, provides the complete findings of the ecological investigations. Existing resources, project impacts, and mitigation strategies are summarized below. Ecological resources in the Powers Boulevard corridor are indicated in Exhibit 4-26. The key resources in the corridor are found in the area identified as "remaining grasslands."

Exhibit 4-26. Ecological Resources in the Powers Boulevard Corridor



Existing Conditions North of Milton E. Proby Parkway

The 11 northernmost miles of the corridor, from Woodmen Road to Milton E. Proby Parkway, have been transformed over the past four decades from prairie grassland to urban development. There is minimal native vegetation or wildlife remaining in this portion of the corridor where the Proposed Action would convert the existing expressway to a freeway.

As an example of conversion to urban land use, **Exhibit 4-27** illustrates the extent of change that has occurred around the Powers intersection with Constitution Avenue, near the former Powers Dairy (upper left quadrant of the 1967 photo). Comparing the aerial photos of 1967 and 2007, all of the grassland has been converted to urban use, and the wide, meandering Sand Creek (light-colored diagonal area from top right to bottom center, in 1967) has been confined to an engineered channel.

Exhibit 4-27. Aerial Photos, 1967 and 2007, of the Site of the Former Powers Dairy



Intense urban development deprives native wildlife of the natural vegetation that is needed for protective cover, feeding sources and breeding areas. Most native animal species are no longer present in the developed areas, giving way to other opportunistic species that can adapt to urban conditions. Birds and animals better adapted to urban conditions have replaced the native species that depended on open prairie. Mammal species that have adapted to an urban landscape include the fox squirrel, desert cottontail rabbit, red fox, and raccoon. Since 2005, coyotes have also become prevalent in the area depicted above. A 54-acre patch of grassland called the High Chaparral Open Space has been preserved from development on the western side of Powers Boulevard just south of Stetson Hills Boulevard. Views to and from this open space were presented earlier in **Exhibit 4-16**.

Parks, trails, open spaces and drainages provide habitat connectivity that is important for the survival of wildlife in an urban environment. Three stream channels cross Powers Boulevard – Sand Creek, its Center Tributary, and its East Fork. These drainages are often dry and do not support aquatic life. Each of the three creeks that cross through culverts under Powers Boulevard has associated riparian areas and wetlands, although they are not plentiful or robust. Sand Creek and its Center Tributary are ephemeral, having only occasional and short-lived flows of water, usually after a storm. The East Fork of Sand Creek is wet more often, with periodic flows. To reduce sedimentation problems associated with stormwater runoff, the

streamcourses have been engineered, banks have been stabilized and drop structures have been built in Sand Creek and its East Fork. Due to all of these factors, the quality of the wetland and riparian areas along these streams is relatively poor. Nevertheless, the streams that cross under Powers Boulevard do have some notable ecological features:

- Plains ragweed (*Ambrosia linearis*), also called streaked ragweed or plains ambrosia, is a plant that was found along the East Fork of Sand Creek, in sandy soils of the embankment and adjacent to Powers Boulevard, both upstream and downstream from the bridge. This plant is not threatened or endangered, but is found only in central eastern Colorado, and seems to thrive in intermittent streams and in roadside ditches, according to the Colorado Natural Heritage Program (CNHP). CNHP is an organization at Colorado State University that tracks and ranks Colorado's rare and imperiled species and habitats.
- The same Powers Boulevard bridge over the East Fork of Sand Creek is used for nesting by Cliff Swallows, one of the many species that are protected under the Migratory Bird Treaty Act. There may also be nests of other migratory birds on the ground or in trees elsewhere within the project area.

The northern portion of the corridor also has a few, small, isolated wetlands that were created accidentally from the drainage of new commercial and residential development. Appendix L on the CD attached to this EA provides detailed information about these wetlands.

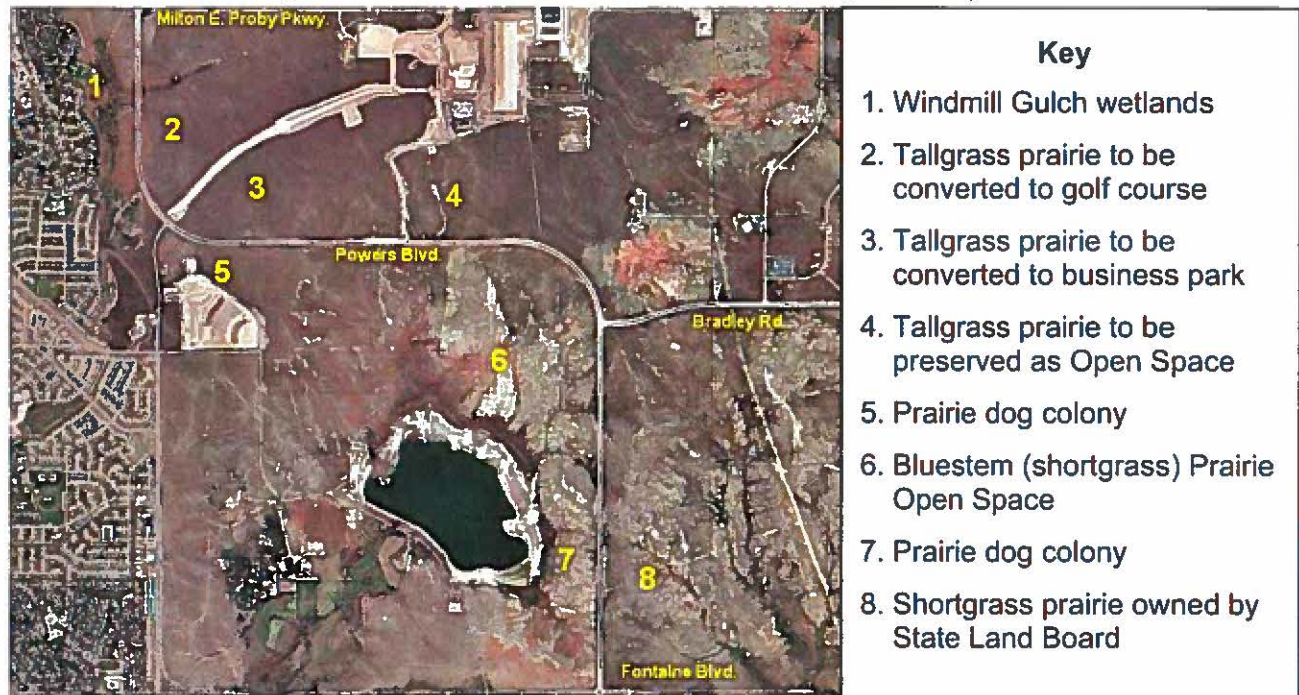
Existing Conditions South of Milton E. Proby Parkway

South of Milton E. Proby Parkway to Fontaine Boulevard, for a distance of 4.7 miles, Powers Boulevard passes through prairie grasslands. The Proposed Action does not call for any construction in this portion of the corridor, but would preserve right-of-way to convert the existing expressway to a freeway in the future. Within the area labeled "remaining grasslands" on **Exhibit 4-26**, there are two large publicly-owned dedicated open space areas: Bluestem Prairie Open Space partially surrounding the privately owned Big Johnson Reservoir; and a tallgrass prairie remnant area within the Colorado Springs Airport. This area is shown in more detail in **Exhibit 4-28**.

The area shown in **Exhibit 4-28** was identified as being a Potential Conservation Area (PCA) in 2001 by the CNHP. Designation as a PCA does not bestow any special protection to land but merely advises local officials that the land has important biological resources (CNHP, 2001). The land immediately north of Powers Boulevard, comprising the Airport Business Park, contains what is reportedly the largest remaining expanse of the big bluestem-prairie-sandreed tallgrass community still remaining in Colorado. This patch of almost two square miles in size is partially within the planned Colorado Springs Airport Business Park, which is now undergoing early stages of development.

South of Powers Boulevard, the area includes known suitable nesting and hunting areas for raptors (including Bald Eagles) on the western shore of Big Johnson Reservoir, as well as nearby to the east along Jimmy Camp Creek and to the west along Fountain Creek, both less than two miles distant. Pronghorn antelope are often found in the area, but are not the focus of the CNHP conservation recommendations.

Exhibit 4-28. Ecological Resources South of Milton E. Proby Parkway



There are two colonies of black-tailed prairie dogs within the Bluestem Prairie Open Space. The black-tailed prairie dog is not listed as a threatened or endangered species but is considered a Colorado Species of Special Concern. The two prairie dog colonies offer suitable habitat for the Burrowing Owl (a Colorado Threatened species) and suitable prey for the swift fox (a Colorado Species of Special Concern), but field observations did not detect the presence of these species in the corridor. The Bald Eagle also preys on prairie dogs.

Exhibit 4-29 provides a brief summary of findings regarding the potential presence of threatened or endangered species and other sensitive species within the corridor. Species that are not likely to occur in the Powers Boulevard corridor, including the Preble's meadow jumping mouse, are discussed in the Ecological Resources Technical Report (see Appendix K on the compact disc attached to this EA).

Out of 1,008 acres of land that CNHP recommended for conservation around Big Johnson Reservoir, the City of Colorado Springs purchased 647 acres which have become the Bluestem Prairie Open Space.

Out of the 1,100 acres of tallgrass prairie just south of the airport, one contiguous patch of 383 acres of tallgrass prairie is being preserved as open space in the Airport Business Park, along with several much smaller patches.

Exhibit 4-29. Sensitive Species Potentially Present in the Powers Boulevard Corridor

Species Common Name (and Scientific Name)	Potential for Occurrence in Project Area	Status	Basis for Occurrence Determination
Bald Eagle (<i>Haliaeetus leucocephalus</i>)	Known to occur, based on recent observation	State Threatened	Bald Eagles are known to winter near the Big Johnson Reservoir, as well as Jimmy Camp Creek to the east and Fountain Creek to the west.
Black-tailed prairie dog (<i>Cynomys ludovicianus</i>)	Known to occur, based on recent observation	State Species of Special Concern	Two colonies exist in the Bluestem Prairie Open Space, between Grinnell Boulevard and Fontaine Boulevard. There are others colonies nearby, east of the Powers Boulevard corridor.
Burrowing Owl (<i>Athene cunicularia</i>)	Possibly occurs, due to presence of suitable habitat	State Species of Special Concern	Suitable habitat (prairie dog colony) is present around Bluestem Prairie Open Space, but surveys have not detected the Burrowing Owl in this location. One adult reportedly was observed east of Powers Boulevard and north of Bradley Road in 2004.
Mountain Plover (<i>Charadrius montanus</i>)	Possibly occurs, due to presence of suitable habitat	State Species of Special Concern	The presence of the Mountain Plover around Big Johnson Reservoir in the Bluestem Prairie Open Space has been reported by the Colorado Natural Heritage Program. The area is not well suited for nesting but may be used as a migration resting stop.
Swift fox (<i>Vulpes velox</i>)	Possibly occurs, due to presence of suitable habitat	State Species of Special Concern	Suitable habitat is present around Bluestem Prairie Open Space, but surveys have not detected the swift fox in this location.

A wetland area called Windmill Gulch is located southwest of the Powers Boulevard intersection with Milton E. Proby Parkway. A wide variety of birds use this area and various raptor nests have been observed there, approximately a half-mile from the intersection. Most of this privately owned land is zoned for agricultural use. It is used for grazing, not cultivation. Land with direct roadway access is zoned commercial and is listed for sale as of early 2010.

Moisture for the Windmill Gulch wetlands comes partly from the east of Powers Boulevard, through a drainage culvert under the expressway just south of Milton E. Proby Parkway. These wetlands and those located north of Milton E. Proby Parkway are discussed in more detail in the Wetland Finding, which is found in Appendix L on the compact disc attached to this EA.

The area surrounding the Big Johnson Reservoir is shortgrass prairie. There is additional shortgrass prairie across Powers Boulevard to the east, owned by the State Land Board, City of Colorado Springs, El Paso County and various private parties. The State Land Board normally sells its holdings for their best and highest use (e.g., urban development) in order to maximize

revenues for the benefit of public education. Land to the east of this property (formerly part of the Banning-Lewis Ranch) was annexed in the 1980s for future urban development.

South of Fontaine Boulevard, to SH 16, the land on both sides of Powers Boulevard has been or is being developed into residential areas, so there are few remaining native ecological resources along this southernmost mile of the corridor.

Existing Conditions Corridor-wide: Noxious Weeds

Throughout all 17 miles of the Powers Boulevard central corridor, various species of noxious weeds were observed in a field survey. The species that were observed are listed in **Exhibit 4-30**. Noxious weeds displace native species, which reduces the ecological value of land. They also threaten the stability of the ecosystem by consuming scarce water and nutrient resources, and by reducing species diversity and wildlife habitat. Road corridors often serve as conduits for seeds, thereby aiding the spread of noxious weeds.

The State of Colorado and El Paso County both maintain noxious weed lists that identify species that are their highest priority for control (Colorado Department of Agriculture, 2009; El Paso County, 2009). Seven of the 13 species listed in **Exhibit 4-30** are on one or both of these lists.

Exhibit 4-30. Noxious Weeds Present in the Powers Corridor

Weed Species	Ecosystem	Presence within Corridor
Canada thistle (S,C)	Wetland, riparian	East Fork Sand Creek, Windmill Gulch
Musk thistle (S,C)	Shortgrass prairie	Disturbed areas in the corridor
Diffuse knapweed (S,C)	Riparian, shortgrass prairie	Sand Creek
Tamarisk (S)	Wetland	East Fork Sand Creek
Russian olive (S)	Riparian	Sand Creek
Common teasel (S)	Riparian, shortgrass prairie	Windmill Gulch
Common mullein (S)	Shortgrass prairie	Disturbed areas in the corridor
Field bindweed	Shortgrass prairie	Disturbed areas in the corridor
Pale smartweed	Wetland	East Fork Sand Creek
Curly dock	Wetland	East Fork Sand Creek, Sand Creek
Yellow sweetclover	Riparian	Sand Creek
Siberian elm	Riparian	Sand Creek
Morning glory	Riparian	Sand Creek

(S) = One of the State's top priority weeds.

(C) = One of El Paso County's top priority weeds.

One of the priority species, tamarisk, was singled out as a target for eradication by the Governor of Colorado through Executive Order D002-03, in 2003. Along the Powers Boulevard corridor, this species was found in the East Fork of Sand Creek.

Ecological Impacts with the No-Action Alternative

Land development has already changed most of the riparian, shortgrass, and tallgrass prairie ecosystems in the corridor to an urban environment. The current land use zoning and approved developments indicate most vacant and undeveloped land that can be built upon will be converted to urban use within the next five to ten years. The incremental loss of riparian and shortgrass prairie due to development, coupled with increased noise and human presence, will result in the disappearance of those species that are unable to adapt to an urban environment.

Increased traffic on Powers Boulevard will make the existing expressway an even greater barrier to animal crossings than it is today. In particular, increased Powers Boulevard traffic between Milton E. Proby Parkway and Fontaine Boulevard will more than double, from 10,000 to 15,000 vehicles per day (CDOT, 2009a) to 24,000 to 44,000 in 2035. This will make it more difficult for pronghorn antelope and other terrestrial animals to move between grasslands on the western and eastern sides of the existing expressway.

The spread of noxious weeds is likely to occur due to continued urban development in the project area.

Ecological Impacts with the Proposed Action

As with the No-Action Alternative, most of the adverse effects on riparian and wetland ecosystems have already occurred, and would continue to occur due to planned land development. Several of these effects occur at the Powers Boulevard crossing of East Fork Sand Creek. This creek is pictured in Exhibit 4-31.

Exhibit 4-31. East Fork Sand Creek



The Proposed Action would have the specific effects that are listed below.

- The right-of-way needed for the Proposed Action would impact approximately 260 acres of shortgrass prairie. Of these, 83 acres are north of Milton E. Proby Parkway, and the other 177 acres are part of the right-of-way that would be preserved for future actions.
- Up to 1.33 acres of riparian vegetation would be lost along East Fork Sand Creek for ramps and associated road connections at the Airport Road interchange. The removal of a small number of trees may result.
- Up to 0.12 acre of wetlands, including up to 0.1 acre of “jurisdictional” wetlands, would be directly impacted. This would occur in three locations: north of Dublin Boulevard; East Fork of Sand Creek; and the airport drainage to Windmill Gulch. (Impacts to wetlands are discussed further in Appendix L on the CD attached to this EA.)
- Cliff Swallow nests under the Powers Boulevard bridge at East Fork Sand Creek would be removed when the nests are inactive, prior to the widening of that structure.
- Individual plains ragweed plants in the construction area of the East Fork Sand Creek crossing may be lost during the widening of the bridge there.
- Soil disturbance in construction areas would have the potential to spread noxious weeds.
- Already a barrier to wildlife movement for pronghorn and other species, Powers Boulevard would become more difficult for wildlife to cross as traffic more than doubles from 10,000 to 15,000 vehicles per day to 24,000 to 44,000 vehicles per day by 2035 between Milton E. Proby Parkway and Fontaine Boulevard.
- Construction of a Powers Boulevard grade-separated interchange at Milton E. Proby Parkway would be close to the Windmill Gulch wetlands area and could be disruptive to raptors that nest there.

As noted above, the Proposed Action would result in an incremental loss of approximately 83 acres of shortgrass prairie for construction, and 177 acres as right-of-way preservation. The effect on wildlife habitat from the Proposed Action would be low compared to the effect from ongoing urban development. The area of permanent vegetation loss would be within long narrow strips next to the highway where the quality of the habitat is low because of introduced plant species, weeds and its close proximity to human activity and traffic noise.

There are no anticipated direct effects to federally or state listed threatened and endangered species, or to State Species of Special Concern. The sensitive species that are known or likely to occur along the corridor are all found in the Bluestem Prairie Open Space. In the six southernmost miles of Powers Boulevard, where this open space is located, the Proposed Action includes right-of-way preservation but no construction. Nests used by Bald Eagles are at least one mile away from any construction included in the Proposed Action (i.e., construction of a grade-separated interchange at Milton E. Proby interchange).

The Proposed Action would not affect the two black-tailed prairie dog colonies discussed above. If they are affected by future actions, CDOT will follow its adopted Black-Tailed Prairie Dog Policy, which calls for relocation of the animals to suitable habitat as the preferred approach.

Mitigation of Ecological Impacts

If the Proposed Action is undertaken, CDOT will provide all mitigation that is required under Federal and State regulations. The following mitigation commitments correspond to the impacts that were summarized above.

- Loss of shortgrass prairie – Replacement of shortgrass prairie is not required within the Powers Boulevard corridor and will not be undertaken in the project area.
- Loss of riparian habitat - CDOT will work with the Colorado Division of Wildlife to develop an appropriate mitigation plan in accordance with Senate Bill 40 (CRS 33-5-101). CDOT and the Colorado Division of Wildlife in January 2003 developed guidelines for obtaining Senate Bill 40 certification for CDOT projects. In accordance with these guidelines, CDOT will minimize adverse effects to riparian areas in both the design and construction of the Proposed Action. At a minimum, the plan will require replacement of any trees lost due to construction.
- Loss of wetlands – Efforts will be made in project design to further minimize any impacts to wetlands. In accordance with State policy, CDOT will replace any lost wetland area to ensure no net loss of wetlands. CDOT's existing Limon wetland bank will be used to offset the loss of wetlands on a one-to-one basis. These efforts and all necessary permits will be coordinated with the U.S. Army Corps of Engineers. The Proposed Action offers the opportunity to indirectly improve wetlands. The sediment basins that are part of the road construction plan would increase the sediment/toxicant retention and stabilization function of the drainages that have wetlands.
- Disturbance to bird nests — No more than one week before construction, a survey will be conducted for nesting birds in the shortgrass prairie, riparian, and wetland habitat, including bridge structures. The survey will be conducted by a qualified biologist to determine which species are nesting and the proximity of their nests to the project area. The Migratory Bird Treaty Act (MBTA) states it is illegal to take, possess, import, export, transport, sell, purchase, barter, any migratory bird, or the parts, nests, or eggs of such bird except under the terms of a valid permit. A 2003 memorandum from the USFWS allows for the take of inactive nests of migratory birds provided the destruction of those nests does not result in the unpermitted take of migratory birds. Prevention of nesting during the construction period will help avoid any take of migratory birds. The nesting season is normally from April 1 through August 31.
- Disturbance to plains ragweed plants near East Fork Sand Creek – Populations of plains ragweed will be delineated prior to construction and temporary fencing will be erected to prevent unnecessary disturbance to these plants. Riparian habitat at this location will be restored after construction, including control of noxious weeds. This is likely to provide an opportunity for the plains ragweed to reestablish at this site.
- Potential spread of noxious weeds – CDOT will develop a Noxious Weed Management Plan that follows Best Management Practices. Appropriate control strategies will be implemented before, during and after construction. CDOT will re-vegetate disturbed areas with native species of vegetation. Additionally, CDOT will remove all tamarisk and Russian olive trees found within its right-of-way in the construction area.
- Increased barrier to wildlife movement - In project design, CDOT will accommodate highway crossing by small mammals in the design of bridges and culverts that convey drainage, especially for Sand Creek and its tributaries. The Sand Creek trail crossing will provide a dry

pathway under Powers Boulevard while water flows in the adjacent creek. Wildlife crossings south of Milton E. Proby Parkway will be considered when road improvements are designed.

- Temporary indirect disturbance to Windmill Gulch raptor nests during construction of the interchange at Milton E. Proby Parkway - An active Red-tailed Hawk nest is located approximately ¼ mile west of Powers Boulevard in Windmill Gulch. Accordingly, construction activities around Windmill Gulch will be limited within one third of a mile from this site during the breeding period for this species, which is normally from February 15 to July 15. A survey of this and other nests will be conducted prior to construction during the breeding period. The survey will also investigate woodland areas that may be used by raptors from February 1 through July 15. If evidence of the Red-tailed Hawk or other raptors is observed, construction activities will be monitored to determine if there is any stress to the birds. Construction activities may need to be limited to daytime working hours only or stopped until such time that the activities no longer disturb the normal activities of the birds.

4.8 CULTURAL RESOURCES

Section 106 of the National Historic Preservation Act of 1966 requires federal agencies to take into account the effect of their undertakings on historic properties. Under Section 106, historic properties are defined as any prehistoric or historic districts, sites, buildings, structures, or objects listed in, or eligible for listing in the National Register of Historic Places (NRHP).

In order for properties to be eligible, they must meet one of four criteria established by the National Park Service. Eligible properties must have an association with events that have made a significant contribution to the broad patterns of history (Criterion A); have an association with lives of persons significant in our past (Criterion B); embody the distinctive characteristics of a type, period, or method of construction (Criterion C); or have yielded or may be likely to yield, information important in prehistory or history (Criterion D).

EFFECTS ON CULTURAL RESOURCES

The Proposed Action would use land from a former railroad but would have no adverse effect to this historic resource.

The term "cultural resources" also appears in this chapter and is often used to describe both prehistoric and historic resources.

Qualified experts reviewed available literature and made field investigations to identify any cultural resources within 300 feet of the roadway for 16.8 miles along the Powers Boulevard corridor, between Woodmen Road and SH 16. This was the area within which potential effects from transportation improvements might reasonably be expected. The focus of this survey was on land that has not been recently converted to urban development. Modern development typically destroys historic and prehistoric resources as well as their context.

Five resources of historical interest and four resources of archaeological interest were documented in this review. Complete details regarding the evaluation are contained in Appendix O, Cultural Resources Technical Report, on the compact disc that accompanies this EA.

Of the four documented archaeological resources, two had been documented in 1976 and have since been destroyed by development. The other two, discovered during 2003-2004, were a stone biface (two-sided tool) and a projectile point (e.g., an arrowhead). Both were isolated finds without a context that would likely provide additional information at those locations.

Five resources from the historic period were identified and evaluated as part of the field survey. These include:

- Segment of Chicago, Rock Island and Pacific Railway south of Constitution Avenue (5EP1815/5EP1815.9)
- Babcock Ranch structures, on land platted for development at the Galley Road intersection (5EP4472)
- Farmstead structures east of Powers Boulevard and north of Airport Road (5EP5031)
- Segment of feeder ditch of Fountain Mutual Irrigation Company at SH16 (5EP4475.1)
- Fragments of a porcelain plate and glass bottle at undisclosed location (5EP4712)

Information regarding these resources was submitted by CDOT to the State Historic Preservation Officer (SHPO) to obtain concurrence with CDOT's recommendations regarding their eligibility for listing on the NRHP. The Babcock Ranch structures, farmstead near Airport Road, and location of the fragments did not have sufficient historical integrity to warrant eligibility. The Fountain Mutual Irrigation Company ditch would not be affected by the Proposed Action. However, the segment of the Chicago, Rock Island and Pacific Railway was determined to be eligible for listing on the NRHP, and the SHPO concurred.

Chicago, Rock Island and Pacific Railway (5EP1815/5EP1815.9)

After serving as an important rail connection to Colorado Springs from 1888 to 1978, the Chicago, Rock Island and Pacific Railway was officially abandoned from use and was sold to a succession of private owners. The historical integrity of the railroad property has become greatly degraded, especially over the past five to ten years, by various actions including removal of the rails and ties for salvage in 2007. A CDOT historic resource survey in 2004 suggested that the railroad segment immediately west of Powers Boulevard was eligible for listing on the NRHP. However, a re-evaluation in 2008 found that while the entire railroad is NRHP eligible, the segment in the project area lacked sufficient integrity to support the significance of the overall railroad resource. Please see Chapter 6, Section 4(f) *De Minimis* Impact Documentation, in this EA for additional discussion of this historic resource.

Potential Need for Additional Survey Work

At three locations along the Powers Boulevard corridor, the private owners of undeveloped land declined to allow the historians to enter their property to look for historic resources, as is their right. These locations are as follows:

- A 0.54 acre parcel west of Powers Boulevard and immediately south of Sand Creek, zoned commercial
- A 21.9 acre parcel in the southwest corner of Barnes Road and Powers Boulevard, where the land was disturbed by a former landfill

- A 39.62 acre parcel west of Powers Boulevard at its intersection with Grinnell Boulevard, including a natural drainage area (This is in the right-of-way preservation portion of the corridor, south of any roadway construction included in the Proposed Action)

There is no reason to expect that cultural resources will be found on these parcels, but the possibility cannot be ruled out. Additional survey work will be needed if any portions of these lands are purchased for right-of-way.

On any property acquired for highway right-of-way from the three parcels where project historians have not been allowed to enter, qualified historians will conduct a field survey to determine whether or not any cultural resources are present. If any are found, CDOT will make a determination of their eligibility and the effects the project may have on them. CDOT would provide these findings to the SHPO for concurrence, and appropriate mitigation will be identified.

Cultural Resource Impacts with the No-Action Alternative

With the No-Action Alternative, no impacts to known cultural resources are anticipated. Any undiscovered cultural resources that may exist on privately-owned land are likely to be lost to continuing urban development.

Cultural Resource Impacts with the Proposed Action

As discussed above, the only known cultural resource eligible for listing in the NRHP and affected by the Proposed Action is the Chicago, Rock Island and Pacific Railroad. The segment of the railroad adjacent to Powers Boulevard has been impaired by a number of development actions. The Proposed Action would require acquisition of 113 linear feet of the abandoned rail grade east of Powers Boulevard. This would accommodate a frontage road along the western side of Powers Boulevard and a pedestrian overpass that would span the freeway to continue the eastward development of the Rock Island Trail. The SHPO has concurred that this action would have no adverse effect on the entire railroad. The overall railroad extends far beyond the project area and will still convey the feeling and association of the historic feature.

There is the possibility that other unidentified cultural resources may be discovered during construction of the Proposed Action. Resources discovered during construction are often unearthed by heavy construction equipment.

Mitigation of Cultural Resource Impacts

As the Proposed Action would have no adverse effects to an historic resource, no mitigation is necessary. However, if historic resources are identified on any of the three inaccessible parcels, and it is determined that the Proposed Action would have adverse effects, CDOT will mitigate those effects. Additionally, if any currently unknown archaeological resources are discovered within the Powers Boulevard corridor during construction, the CDOT Staff Archaeologist will be notified immediately to assess their significance and make further recommendations.

4.9 NATIVE AMERICAN CONSULTATION

Section 106 of the National Historic Preservation Act (as amended) and the Advisory Council on Historic Preservation regulations (36 CFR 800.2(c)(2)(ii)) mandate that federal agencies must involve interested Native American tribes in the planning process for federal undertakings. Consultation with a Native American tribe recognizes the government-to-government relationship between the United States government and the sovereign tribal groups. Federal agencies must be sensitive to the fact that historic properties of religious and cultural significance to one or more tribes may be located on ancestral, aboriginal, or ceded lands beyond modern reservation boundaries.

Consulting tribes are offered the opportunity to identify concerns about cultural resources and comment on how the project might affect them. If it is found that the project will impact cultural resources that are eligible for inclusion on the National Register of Historic Places and are of religious or cultural significance to one or more of the consulting tribes, their role in the consultation process may also include participation in resolving how best to avoid, minimize, or mitigate those impacts. By describing the proposed undertaking and the nature of known cultural sites, and consulting with the interested Native American community, FHWA and CDOT strive to effectively protect areas important to American Indian people.

In March 2004, eleven federally recognized tribes with an established interest in El Paso County were invited via letter to participate as consulting parties:

- Ute Mountain Ute Tribe (Colorado)
- Southern Ute Indian Tribe (Colorado)
- Ute Tribe of the Uintah and Ouray Agency ("Northern" Ute) (Utah)
- White Mesa Ute Tribe (Utah)
- Apache Tribe of Oklahoma
- Cheyenne and Arapaho Tribes of Oklahoma (two tribes administered by a unified tribal government)
- Pawnee Nation of Oklahoma
- Comanche Nation of Oklahoma
- Kiowa Tribe of Oklahoma
- Northern Arapaho Tribe (Wyoming)
- Northern Cheyenne Tribe (Montana)

Three tribal governments representing four tribes indicated in writing their desire to be consulting parties for the project: the Northern Cheyenne Tribe, Cheyenne and Arapaho Tribes of Oklahoma, and Southern Ute Indian Tribe. None of these tribes raised specific project issues, other than requesting to be notified if discoveries of human remains and/or other material attributable to Native Americans occur during construction. Documentation of the consultation with the tribes is included in Appendix A, Agency Correspondence, on the CD that is attached to the back of this EA.

Each consulting tribe will continue to receive information about the project as it becomes available, and every opportunity will be taken to involve them in the planning and project development process for the Powers Boulevard corridor. In so doing, FHWA and CDOT have fulfilled their legal obligations for tribal consultation under federal law.

Impacts with the No-Action Alternative

With the No-Action Alternative, no impacts to Native American resources are anticipated.

Impacts with the Proposed Action

With the Proposed Action, no impacts to Native American resources are anticipated.

Mitigation of Impacts

No mitigation is anticipated since there would be no known impacts. However, if discoveries of human remains and/or other material attributable to Native Americans occur during construction, CDOT will promptly contact the tribes that have indicated interest in being consulting parties for this project.

4.10 OTHER RESOURCES AND ISSUES

This section addresses project effects that are not logically grouped together with the resources discussed in preceding sections of this chapter. The following topics are covered:

- Hazardous Materials
- Paleontological Resources
- Energy Use
- Utilities
- Geology/Soils

HAZARDOUS MATERIALS

Before acquiring any property for use as roadway right-of-way, CDOT undertakes due diligence to determine whether or not the property is contaminated with hazardous materials or petroleum products in the soil and groundwater. Encountering such materials during the construction of Powers Boulevard could affect the health and safety of the public, the workers, and the environment.

Four types of contamination often found along an urban highway are:

- Soil and groundwater pollution due to a leaking of fuel from an underground storage tank
- Soil and groundwater contamination due to landfills, material spills, or industrial operations
- Asbestos found in nearby structures that are acquired for highway right-of-way and in soil where building debris has been buried
- Lead paint found on highway bridge structures or in buildings acquired for right-of-way

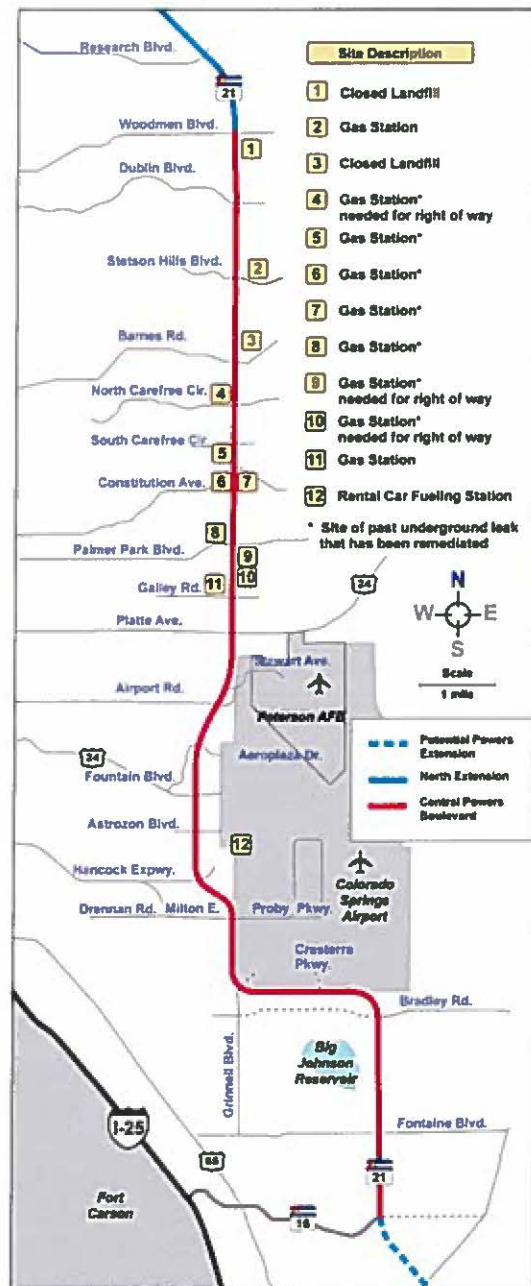
Accordingly, a study called a Modified Phase 1 Environmental Site Assessment was conducted in 2008 to determine any sites with potential contamination (CDOT, 2008b). This study was based on a public records search, site observations, and review of historic photographs, but no actual laboratory testing of soil or water samples. The study contains a considerable amount of raw data, is extremely lengthy, and becomes dated very quickly; therefore it has not been included in an appendix. However, anyone wanting to review the study may contact the CDOT office in Colorado Springs at telephone (719) 634-2323.

The findings of the study are summarized here. Prior to 1960, the corridor was an area historically utilized for farming and ranching activities and the only industrial activity was the Colorado Springs Municipal Airport and Peterson Field. Since the mid 1970s, the area has been built up with residential and commercial development. An evaluation was made for hazardous materials that may have been associated with former landfills as well as spills and leaks of petroleum products from automobile service stations, fuel storage, and aircraft operations.

The Powers Boulevard corridor contains two former landfills and ten active or former gasoline stations with underground storage tanks. Of these ten gas stations, six had leaking underground storage tanks in the past, and the resulting soil contamination was cleaned up to the satisfaction of state inspectors. The locations of all landfills and gasoline stations in the corridor are indicated in Exhibit 4-32. The landfills are discussed briefly below.

The 43-acre Templeton Gap landfill (site #1 in the exhibit), in the southeastern quadrant of Powers Boulevard and Woodmen Road, operated from 1957 to June 1988. There have been numerous studies completed throughout the years regarding groundwater quality downgradient from the landfill. A vinyl chloride plume had been delineated as trending to the southwest beneath the Powers Boulevard corridor and methane concentrations above the 95-percent-lower-than-explosive level have been detected on the west side of Powers Boulevard. The site has been mitigated with a variety of treatments, including vents to

Exhibit 4-32. Sites with Known or Potential Contamination by Hazardous Materials



release the methane into the atmosphere. The site has been delisted from the national Comprehensive Environmental Response, Compensation and Liability Information System database, and no further remedial action is planned.

The Stetson Hills landfill (site #3 on the exhibit) operated at the northeast corner of Barnes Road and Powers Boulevard until 1983. It was then excavated and the material moved to the Templeton Gap landfill. The relocated material consisted of paper, metal, glass, and debris. No known records of soil or groundwater investigations have been identified in conjunction with the landfill. Due to its proximity to Powers Boulevard, the site may have had impacts on the subsurface land and water. However, because the source has been removed, it is anticipated that concentrations, if any, would have become diluted over time.

HAZARDOUS MATERIALS

CDOT encounters hazardous materials on roadway projects throughout the State. The types of known or potential hazardous materials identified within the Powers Boulevard corridor are not unusual and will likely have minimal effects on project design and construction.

One short segment of Powers Boulevard is a State-designated route for the transport of hazardous materials. This segment, from Fountain Boulevard to Platte Avenue, is part of the US 24 hazardous material route connecting Colorado Springs with Interstate 70 at Limon. Only two reported spills of petroleum products related to traffic accidents occurred in the corridor since 1990. The fuel and impacted soils around the spill were cleaned up and there was no impact to surface or groundwater.

Hazardous Materials Impacts with the No-Action Alternative

Powers Boulevard is a major transportation route and a designated truck route in an area with many commercial businesses, including a major airport and a military base. Part of the corridor is also a designated route for transport of hazardous materials as explained above. Therefore the potential exists for accidental release of hazardous substances to the environment. Regulations and standard procedures are in place to minimize the risk of spills and to ensure their safe remediation. All of these characteristics are also applicable to the Proposed Action.

With the No-Action Alternative, hazardous materials and petroleum products are not likely to be encountered during routine maintenance, resurfacing operations, and minor construction activities.

Hazardous Materials Impacts with the Proposed Action

Three gasoline stations along Powers Boulevard would be acquired for right-of-way: the Diamond Shamrock station at the northwest corner of North Carefree Circle; the 7-Eleven at the southeast corner of Palmer Park Boulevard; and the Conoco station at the northeast corner of Omaha Boulevard. All three service stations have registered active underground storage tanks. Previous leaks have occurred and have been cleaned up at two of these stations, and no tanks at these sites are known to be actively leaking as of March 2009.

In addition to the three gasoline stations listed above, another 14 businesses and an estimated 47 residential units (23 duplexes and a mobile home) would need to be acquired and moved or demolished to provide the necessary right-of-way. The businesses include two vehicle sales lots, three auto parts or repair businesses, a carwash, five restaurants and three retail stores.

Included among these are a tire store and a muffler shop, which likely use and store grease, solvents, and other auto-related chemicals.

The buildings that house these businesses are relatively modern, and are unlikely to have asbestos or lead-based paint. The residential units are generally of 1980s vintage and will need to be checked for these hazardous materials.

Mitigation of Hazardous Material Impacts

The underground storage tanks at all three gas stations needed for highway right-of-way would be removed in accordance with state regulations and with the latest applicable guidance of the Colorado Department of Labor and Employment, Division of Oil and Public Safety. The regulations address the closure of the underground storage tanks and are designed to evaluate whether the subsoil in the areas of the tanks has been impacted by petroleum hydrocarbons. Appropriate documentation is required in order to obtain permanent tank closure.

Before construction begins, CDOT will inspect and test for asbestos, lead-based paint, and hazardous material on any bridges, buildings, and other structures that would be disturbed or demolished. Appropriate remediation will take place if any hazardous materials are identified.

PALEONTOLOGICAL RESOURCES

Paleontology is the science dealing with the life of past geological periods as known from fossil remains. This field does not include the study of human remains, which is the domain of archaeology. Colorado's Historical, Prehistorical, and Archeological Resources Act (CRS 24-80-401 et al.) protects all fossils on state-owned lands and lands controlled by any subdivision of state government. Pursuant to this act, it is the intent of CDOT throughout project development to identify and protect paleontological resources from loss or destruction caused by transportation construction projects or maintenance activities.

The technical approach used in the paleontological assessment for this Powers Boulevard EA consisted of a literature review of known sites and a late 2003 field review to look for obvious signs of paleontological remains. The field review extended to 300 feet on each side of Powers Boulevard. These efforts, undertaken by CDOT's Staff Paleontologist, were coordinated with Colorado's State Historic Preservation Office. Results of these efforts are documented in Appendix P, Paleontological Technical Report, on the CD attached to this EA.

Information on the specific locations of paleontological sites is not available to the general public in order to protect these resources. Individuals interested in information about these sites must contact the CDOT Staff Paleontologist at (303) 757-9632; however, the location and certain information about the sites may not be disclosed.

Existing Conditions

The Powers Boulevard study area contains 18 mapped geologic units, which are volumes of rock with distinctive features that identify their origin and age range. Surficial deposits include artificial fill, wind-blown sand, and alluvium, which were assessed to have low paleontological potential. Bedrock geologic units include the Pierre Shale, Fox Hills Sandstone, and Dawson Formation, from oldest to youngest. Of these, the Dawson Formation appears to offer the best potential for discovery of intact fossils.

According to the literature review, fossilized leaves have been found previously along Woodmen Road to the east of Powers Boulevard, near the former intersection with Templeton Gap Road. A baculite (extinct mollusk with a straight, pointed shell) was found in 1992 along Airport Road near Powers Boulevard [at a site that has since been largely destroyed by roadway construction] and another was found along Fontaine Boulevard, also near Powers Boulevard. Fossilized shark teeth have been found elsewhere in the Colorado Springs area.

During the field survey of the Powers Boulevard corridor, four previously undocumented fossil localities were found. Specific locations for these sites are not disclosed in an EA to avoid resource fossil damage or removal by private collectors. Under Colorado law, fossils on CDOT right-of-way belong to the state and cannot be removed without a permit.

The four new finds include clams as well as coiled and uncoiled ammonites (extinct mollusk related to the squid). **Exhibit 4-33** shows an ammonite that was previously collected along the Powers Boulevard corridor. These marine fossils are typical of the late Cretaceous Period, more than 65 million years ago, when much of modern-day Colorado was submerged by a vast inland seaway.

Although unlikely, it is possible that fossils could also be present in the very recent, Pleistocene-aged alluvial deposits within the corridor. These are sand or mud layers deposited by flowing water or wind within the past two million years.

Exhibit 4-33. Ammonite Fossil Found along the Powers Boulevard Corridor



Paleontological Impacts with the No-Action Alternative

With the No-Action Alternative, no new areas would be disturbed. Therefore, no disturbances of subsurface paleontological resources would occur. Routine maintenance activities occur primarily at surface level and have minimal potential to affect fossils.

Paleontological Impacts with the Proposed Action

The Proposed Action would take the freeway over existing at-grade arterials, so most of the project work would be at or above grade. Some below-grade work would occur, including utility relocations, preparation of bridge piers, and slope cuts. Based on the paleontological finds made in the field review, there is clearly potential to encounter fossils during construction of the Proposed Action, especially during excavation activities in the Dawson Formation.

This potential for encountering fossils is relatively low between Woodmen Road and Platte Avenue, where intense urban development has disturbed or covered most rock outcrops. The potential is higher between Platte Avenue and Milton E. Proby Parkway, especially in the vicinity of Airport Road. South of Milton E. Proby Parkway, where there has been the least adjacent development, the Proposed Action includes only right-of-way preservation, so no impacts would occur.

Mitigation of Paleontological Impacts

Mitigation for the Proposed Action will include pre-construction efforts at known fossil localities and ongoing monitoring efforts in additional areas during construction. Prior to construction, CDOT will undertake collection of a statistically valid, representative sample of the contained invertebrate fossils at four fossil localities, which the University of Colorado Museum has recorded as site numbers 2003071, 2003072, 2003073, and 2003081.

Once project design plans are finalized, the CDOT Staff Paleontologist will examine them to estimate the scope and magnitude of any needed construction monitoring. If this review indicates that there will be significant impacts to Dawson Formation outcrop, the CDOT Staff Paleontologist will write a revision to CDOT's Standard Specifications identifying the areas where monitoring will be required. These requirements will be included as part of construction plans and specifications for any project(s) in the affected areas.

During construction, the CDOT Staff Paleontologist will conduct monitoring wherever final design plans indicate there will be significant impacts to Dawson Formation outcrop. Additionally, if any sub-surface bones or other possible fossils are found within the corridor during construction, the CDOT Staff Paleontologist will be notified immediately to assess their significance and make further recommendations.

ENERGY USE

Improving energy efficiency and reducing energy consumption is an important national and state goal, and for many Americans, a personal goal as well. In the United States, about 28% of total energy consumption occurs in the transportation sector, according to the Energy Information Administration of the U.S. Department of Energy (DOE, 2009). Energy use is also associated with the production of greenhouse gases, and motor vehicles are a large contributor to greenhouse gas pollutants. This issue is discussed separately, however, in Section 4.12, Cumulative Effects.

Existing Conditions

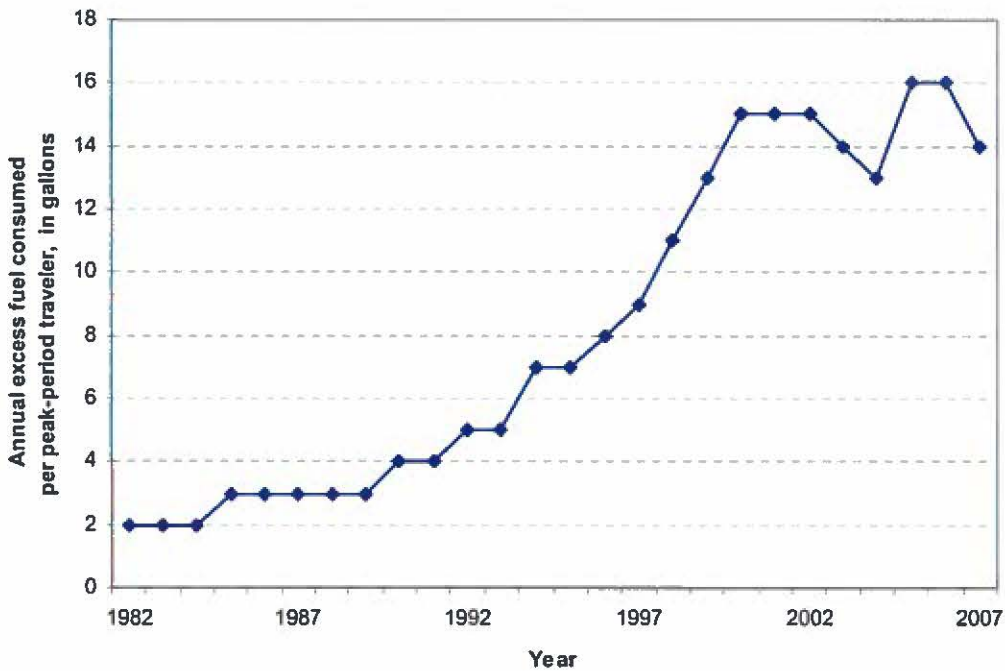
As congestion on roadways increases, energy efficiency decreases. Gasoline wasted due to congestion has been estimated for the Colorado Springs area for the past two decades in the annual *Urban Mobility Report* produced by the Texas Transportation Institute. **Exhibit 4-34** shows TTI's assessment of the Colorado Springs area for 1987 to 2007 (TTI, 2009). Excess fuel consumption tripled from 1992 to 2002 and seems to have leveled off at about 15 gallons of fuel annually per peak-period traveler. For comparison, excess fuel use in the Denver metro area is reported to be twice this amount.

The TTI report attributes reduced fuel consumption in 2007 due to high gasoline prices, adding that, "The recession that took hold soon after [2007] could prolong that effect, but experts warn that the slowdown in congestion growth will be temporary. When the economy rebounds, expect traffic problems to do the same."

In its 2035 regional transportation plan, PPACG predicts major increases in traffic congestion throughout the metro area, because funding for transportation facilities and services will not keep pace with regional population growth and travel demand. Thus, the region's upward trend in excess fuel consumption due to traffic congestion can be expected to continue in the future,

but should remain well below Denver's current level of 30 gallons annually per peak-period traveler for the foreseeable future.

Exhibit 4-34. Excess Commuter Fuel Consumption Due to Traffic Congestion in Colorado Springs, 1987 to 2007 (TTI, 2009)



Energy Impacts with the No-Action Alternative

Exhibit 4-35 presents the results of fuel use calculations based on projected traffic volumes and travel speeds for the six heaviest travel hours during an average weekday. These hours reflect the typical morning and evening commuter “rush hours”. The analysis was conducted for an area larger than just Powers Boulevard, because increased congestion on the expressway would result in traffic spilling over to alternative routes and increasing congestion there as well. While traffic on Powers Boulevard would increase by 88% with the No-Action Alternative, as reported earlier in this EA, traffic in the broader analysis area would increase by 96%. Due to the increased congestion, the fuel consumed in this area during the six busiest traffic hours of the day would increase by even more —117%.

Exhibit 4-35. No-Action Travel and Fuel Use for Study Area on a Typical Weekday

Scenario	All-Day Vehicle Miles of Travel in Study Area (million miles)	Fuel Consumed During Congested Travel Hours (gallons of gasoline)
Year 2005	1.841	45,400
2035 No-Action Alternative	3.601	98,700
Percent Increase	96%	117%

The calculations above assume a peak-period average travel speed of 24 miles per hour for roadways in the area bounded by Woodmen Road (north), Marksheffel Road (east), Fontaine Boulevard (south) and Academy Boulevard (west). In comparison to today, the increase in traffic by 2035, together with reduced travel speed and increased congestion, is predicted to result in an increase in fuel consumption by about 53,000 gallons of gasoline per day.

In addition to fuel consumed by motorists, energy would be expended continuously for other highway infrastructure such as electricity for street lighting, traffic signals, and video surveillance equipment. Routine roadway maintenance activities (resurfacing, repairs, striping and mowing) also would result in periodic energy expenditures. This energy use is minimal in comparison with the fuel used for daily travel.

Energy Impacts with the Proposed Action

Exhibit 4-36 indicates that compared with the No-Action Alternative, the Proposed Action would result in more total vehicle-miles of travel within the study area.

Exhibit 4-36. Proposed Action Travel and Fuel Use for Study Area on a Typical Weekday

Scenario	All-Day Vehicle Miles of Travel in Study Area (million miles)	Fuel Consumed During Congested Travel Hours (gallons of gasoline)
Year 2005	1.841	45,400
2035 No-Action Alternative	3.601	98,700
2035 Proposed Action	3.795	93,600
2035 Daily Savings Due to Proposed Action	N/A	5,100
Percent Increase over Current Conditions with the Proposed Action	106%	106%

However, due to improved travel speeds and reduced congestion, the amount of resulting fuel consumption would be nearly 6 percent less, on the order of approximately 5,000 gallons saved per day.

Like the No-Action Alternative, the Proposed Action would also require energy consumption for continuous operations and periodic maintenance of highway infrastructure. However, the Proposed Action would offer the opportunity to replace some existing infrastructure, especially street lighting, with more modern technology. For example, roadway lighting at ramp junctions could use light-emitting diodes (LEDs) which require 85 percent less energy and last about five times as long as conventional bulbs. When these potential energy savings are added to the likely fuel savings to motorists, it is expected that the Proposed Action would conserve energy in comparison to the No-Action Alternative.

Another energy consideration for the Proposed Action is the amount of energy expended during construction of the project. Energy is consumed during construction to move earth to its final location, to produce construction materials, and to place these materials. A common factor used

to estimate construction energy needs is the equivalent of about 75,000 gallons of gasoline used per each million dollars in construction cost. Construction equipment may use diesel fuel or electricity, but the equivalent amount of energy is given in gallons of gasoline for comparison.

The estimated \$730 million cost (in 2007 dollars) of the Proposed Action includes right-of-way and other non-construction expenses. Assuming that \$489 million is for construction, the equivalent of about 37 million gallons of gasoline is anticipated to be consumed to complete the project over an estimated ten years of construction. This energy use for construction would likely be offset by future fuel and energy savings over an approximate 20-year period, resulting in a net savings in energy usage over the long term.

Mitigation of Energy Impacts

In accordance with CDOT's commitment to environmental stewardship as documented in its Environmental Stewardship Guide, CDOT will work with designers, contractors, and suppliers to implement appropriate environmental sustainability practices, including measures that promote energy efficiency and conservation. Where appropriate, energy conservation measures including energy efficient electrical systems and lighting will be implemented.

Since much of the construction for the Proposed Action would occur after the year 2020, it is difficult to predict what new energy conservation requirements may apply or what new energy-efficient construction methods the industry may have developed by that time. Currently, techniques to reduce energy consumption during construction include:

- Locating staging areas as close as possible to actual work zones
- Limiting construction to off-peak travel hours
- Minimizing motorist delays and vehicle idling through effective traffic management
- Using recycled materials, such as fly ash additives to concrete or cold in-place recycling of reclaimed asphalt pavement, which is less energy-intensive than extracting and refining raw materials
- Using newer asphalt paving methods, such as "warm mix" asphalt, rather than conventional hot mix
- Providing courtesy patrols and incident management to remove disabled vehicles and keep traffic flowing

Current techniques to produce operational energy savings include:

- Freeway Management Systems such as video monitoring and providing traveler information on variable message signs and other media. The Powers Boulevard corridor has a variable message sign located south of the Woodmen Road interchange.
- Using energy-efficient lighting (e.g., new studies are showing how lighting can be adapted to provide only the illumination needed by drivers, which also reduces light pollution). CDOT is required to minimize the use of artificial lighting under Colorado's 2001 "Dark Skies" legislation (CRS 24-82-901).

UTILITIES

Utility lines for water, sewer, electricity, natural gas, cable television and internet service are found throughout urban areas and are frequently relocated to accommodate roadway improvements or other major development. Larger utility trunk lines tend to be more expensive to relocate, due to both their size and the difficulty of finding a suitable alternate location. In some cases, it can be better to alter the road alignment than to move the utility infrastructure. For these reasons, a survey of existing utilities was conducted early in the course of this EA so that utility impacts could be taken into account in developing conceptual alternatives for the roadway and interchanges.

Existing Conditions

Powers Boulevard is a major corridor not only for vehicular transportation but also for the conveyance of a wide variety of utility services. At 17 miles in length, the corridor crossed many times by east-west utility lines. More importantly, it was also an attractive place for local governments and the private sector to locate north-south utility lines along the corridor, over the decades of roadway development before Powers Boulevard became a State Highway in 2007. Most of the existing utilities are underground, but some are above-ground electrical or telephone wires. Existing cellular telephone towers and an airport windshear monitor that would need to be moved are discussed separately under the topic of right-of-way relocations.

Utility Impacts with the No-Action Alternative

Utility lines are upgraded, replaced, or added by their private owners from time to time. With the No-Action Alternative, these activities will continue to be allowed. Wire and fiber-optic lines can often be installed by pulling them from one side of the road to the other, underground, without disrupting traffic. Repair or replacement of a water or gas line that crosses the expressway could result in some traffic disruption and therefore typically would be done at night, if possible.

Utility Impacts with the Proposed Action

With increased traffic volumes and increased infrastructure such as structures and fill (needed to create grade-separated interchanges), the Proposed Action would make it necessary to relocate many utility lines so that owners could more easily access their utilities for maintenance. The costs for utility relocations may be borne by the utility owners or by the roadway owner, depending upon the specific circumstances involved. CDOT's applicable share for utility relocation has been included in the corridor cost projections that were discussed in Section 3.6, Building the Project.

Due to the dense development along the Powers Corridor, separate utility easements for individual utility owners would not be practical throughout the corridor. Utility easements will only be used in isolated areas. The majority of Powers Boulevard would have a utility corridor defined within the proposed right-of-way. This corridor would encompass 20 and 25 feet on the edges of the west and east right-of-ways respectively. Within this defined corridor no permanent structure would be allowed (i.e., buildings or maintenance sheds), only drainage ditches. The intent is to provide a clear area to allow the various utility providers room to maintain their facilities.

In several defined areas along Powers Boulevard, however, there would be isolated utility easements. The intent for these easements is to allow for joint use. Paved parking and drive

isles would be allowed within these utility easements. Agreements with the adjacent property owners would be made to allow for construction and maintenance of utilities to be located within these identified easements. Utility owners would not be required to commit to a relocation plan until final design has begun.

Notably, a utility corridor separate from the highway right-of-way is proposed between Galley Road and Platte Avenue, east of Powers Boulevard, due to various roadway design constraints in this area. Properties affected by this needed easement are identified in the right-of-way analysis for this EA and the easement costs have been included in the total cost for right-of-way.

Mitigation of Utility Impacts

Opportunities to minimize utility relocation will be further explored during project design. Utility relocations will be required prior to construction to minimize any potential for disruption of service as a result of constructing the Proposed Action.

GEOLOGY/SOILS

The underlying geology and soils of any roadway corridor have the potential to present opportunities or challenges that can affect construction methods and costs. For this reason, geotechnical engineering consultants conducted a database search and field reconnaissance to assess potential construction issues pertaining to the geology and soils of the Powers Boulevard corridor.

Existing Conditions

The geotech survey reported that there are several conditions within the corridor that could be encountered during construction activity. Four potential issues were identified.

- Clay and claystone associated with the undifferentiated Denver/Dawson (bedrock) Formation typically exhibit erratic swell potential, ranging from low to very high.
- The Denver/Dawson Formation typically consists of interbeds of claystone and sandstone that are variably cemented, a factor that affects the hardness of the rock. While most excavation could be done with conventional methods, there is the potential to encounter very hard bedrock that would need to be blasted and would result in excavation material that could not readily be used as fill on the project.
- Significant permeability differences between the surficial soils and the bedrock are favorable for the development of a shallow, perched water table. Thus, groundwater could be encountered during excavation.
- The Dawson Formation and its contact area with the Denver Formation have been known to contain uranium-bearing rock elsewhere in the region. In these areas, some limited areas of elevated radiation have been measured at depth in the bedrock.

Soils/Geology Impacts with the No-Action Alternative

No excavation for roadway purposes would be needed for routine maintenance of the existing Powers Boulevard expressway, and therefore no soils or geology impacts are anticipated.

Soils/Geology Impacts with the Proposed Action

The central Powers Boulevard corridor comprises the existing 17-mile expressway which was built without encountering notable issues resulting from soils or geology. Since no issues were encountered in the road's construction to date, none are expected with the Proposed Action. Implementing the Proposed Action would require some excavation and boring. There is the potential to encounter any of the soil or geologic issues that are noted above. Soils and geologic issues did not affect the conceptual alignment of the Proposed Action, and are unlikely to do so in design or construction.

Mitigation of Soils/Geology Impacts

Standard soils testing will be conducted to determine how localized soils and geologic conditions would affect project design or construction. Any excavated materials unsuitable for use as fill will be transported to an appropriate site for disposal, in accordance with standard safety practices for the type of material involved.

4.11 RESOURCES NOT PRESENT IN THE CORRIDOR

Farmlands, resources created with Land and Water Conservation Fund grants and active railroads are resources often addressed in NEPA documents for roadway projects in Colorado. However, these resources are not present in the Powers Boulevard corridor.

The corridor includes some land that is zoned agricultural in the vicinity of Powers Boulevard and Grinnell Boulevard (the Windmill Gulch area), but this is grazing land not used for farming.

Parks, recreation facilities, and other community resources that were created using Land and Water Conservation Funds have certain protections when such land is needed for a federal highway project. A review of records and consultation with local governments resulted in the determination that no such funds were used for the Skyview Sports Complex, open spaces or any other community resources along Powers Boulevard.

The only railroad that crosses the Powers Boulevard corridor is the Chicago, Rock Island and Pacific Railroad, which was abandoned in 1988. It was subsequently sold to private owners and now has become publicly owned open space. The railroad tracks have been removed for salvage. Thus, the Proposed Action would not require coordination with any railroad company or railroad regulator.

4.12 CUMULATIVE EFFECTS

The preceding sections of this chapter have discussed direct and indirect effects of the Proposed Action and the No-Action Alternative. NEPA regulations also require consideration of cumulative effects. Cumulative effects can result from individually minor but collectively significant actions taking place over time.

CUMULATIVE EFFECTS

Cumulative effects result from the incremental impact of an action when added to other past, present, and reasonably foreseeable actions, regardless of what agency or entity undertakes such actions.

Cumulative effects analysis focuses on specific resources that are directly or indirectly affected by the Proposed Action. If an individual project has no direct or indirect effect on a resource, then it would not contribute to cumulative effects upon that resource. According to federal guidance, cumulative effects analysis should focus on resources and effects that are important (“Count what counts”).

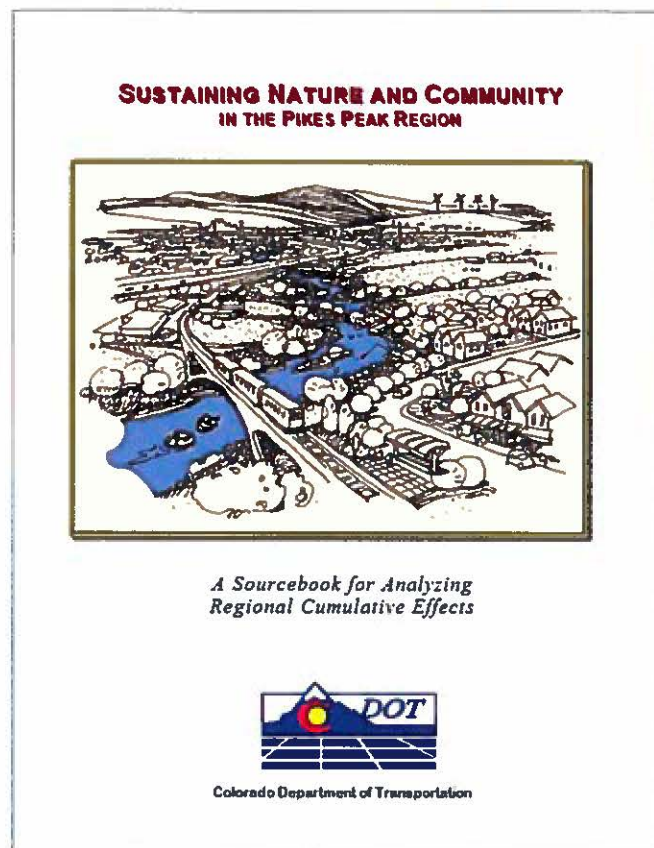
Cumulative Effects Analysis in the Pikes Peak Region

In order to determine what counts in the Pikes Peak Region, CDOT prepared a regional cumulative effects analysis in 2003. This effort, conducted in cooperation with various agencies, community groups, and citizens, resulted in a report entitled, *Sustaining Nature and Community in the Pikes Peak Region: A Sourcebook for Analyzing Regional Cumulative Effects*. The study was known informally as the Regional Cumulative Effects Analysis, or RCEA (CDOT, 2003).

The RCEA examined “big-picture” environmental trends in the region based on adopted land use and transportation plans; input from an expert panel convened for the RCEA analysis; and data supplied by local, regional, and state agencies, such as the City of Colorado Springs, El Paso County, PPACG, and the Colorado Division of Wildlife. Trends were examined going back in time to 1955 and forward to 2025, the future long-range planning horizon that was in effect when the RCEA was prepared. Also, six major topics were identified by the expert panel and confirmed by the public as indicators of the quality of life for the human and natural environment. These topics were: Landscape Patterns; Water Quality and Quantity; Air Quality; Transportation Patterns; Noise; and Visual Resources.

The RCEA also identified a number of suggested project-level strategies and policy-level strategies for improving the sustainability of the natural and built community. Implementation of these strategies is included in the analysis below. The above topics are addressed below, followed by a discussion of Greenhouse Gases, a topic that was not addressed in the RCEA.

CDOT prepared the “RCEA” in 2003, in conjunction with the I-25 EA



Landscape Patterns

The RCEA indicated that the human and natural communities are affected by landscape patterns. The term "landscape patterns" means the type, size, and arrangement of land cover and land use, which are important for such purposes as wildlife habitat and human needs. Blocks of land and their connections within a landscape are critical to wildlife for their food, shelter, movement and reproduction. For people, appropriate landscape patterns provide livable neighborhoods and efficient infrastructure. **Exhibit 4-37** provides information about past, present and future actions affecting landscape patterns both within the Powers Boulevard Corridor (34 square miles) and within the much larger expanse of the Pikes Peak Region.

Landscape Pattern Impacts with the No-Action Alternative

Even with no capacity improvements to Powers Boulevard, urban development to the east will continue, generating more traffic on the existing Powers Boulevard expressway. The natural landscape has been converted to urban use. The only remaining pockets of grassland along the Powers Boulevard corridor will be the Chaparral Open Space, Bluestem Prairie Open Space and the Airport Open Space. Increased traffic on Powers Boulevard and planned adjacent development (along Bradley Road) will intensify the effect of Powers Boulevard as a barrier separating these two pockets of grassland.

Native species will be found primarily to the east, where grasslands have been disturbed but not yet eliminated by metropolitan development. By failing to meet increased traffic demand within the Powers Boulevard corridor, the No-Action Alternative would increase the demand and urgency for planned new north-south roadway capacity improvements to the east, including the widening of Marksheffel Road and the construction of a planned Banning-Lewis Parkway.

Cumulative Landscape Pattern Impacts with the Proposed Action

Above and beyond the effects from growth reported above for the No-Action Alternative, the primary additional effect of the Proposed Action on landscape patterns would be the direct consumption of an estimated 260 acres of already disturbed grassland. This is about 1.5% of the estimated 20,000 acres of grassland expected to be lost in the Pikes Peak Region in the foreseeable future. This additional loss is so small that it is likely to be negligible when compared to the total loss of grasslands in the region. Grassland is by far the predominant land cover type in the Pikes Peak Region, comprising some 514,000 acres, or about 55% of the area studied in the RCEA.

Grassland will continue to exist as an ecological resource and major constituent of landscape patterns in the region, although not in the urbanized area, and will continue to be degraded by pressure from urban growth along Colorado's Front Range.

Exhibit 4-37. Past, Present and Future Actions Affecting Landscape Patterns

Condition or Action	Powers Boulevard Corridor	Pikes Peak Region
<p>PAST:</p> <p>Condition of landscape, mid-1950s, before major growth</p>	<p>An unpaved County road connected US 24 to the Powers Dairy, and continued north to terminate at Barnes Road. Surrounding lands were ranch holdings, providing large patches of habitat for grassland species.</p> <p>After intermittent operations following WWII, Peterson Field was reactivated by the Air Force in 1951 at the Colorado Springs Airport.</p>	<p>The City of Colorado Springs was compact in size, and had a population of approximately 60,000 residents, and El Paso County had about 110,000.</p> <p>The Army's Camp Carson during WWII became Fort Carson in 1954. Interstate 25 and the U.S. Air Force Academy were under construction during the 1950s.</p>
<p>PAST:</p> <p>Actions, 1950s to circa 2005</p>	<p>Urban development reached the corridor, necessitating paving and expansion of the road. Powers Boulevard was expanded to a 4 to 6 lane expressway, with an interchange at Platte Avenue. Powers Boulevard from Platte Avenue to Fountain Boulevard was improved as part of the "US 24 Bypass"</p> <p>Expansion of Peterson Air Force Base; Municipal airport expansion and relocation of terminal. Bluestem Prairie Open Space (647 acres) and Airport Open Space (1,200 acres) established.</p>	<p>Ranches were sold off for urban development to accommodate a six-fold population growth.</p> <p>Banning-Lewis Ranch (20,000 acres) east of Powers was annexed in 1980's for future City growth.</p> <p>New City "TOPS" tax provides funds for parks, trails and open space acquisition.</p>
<p>PRESENT:</p> <p>Condition of landscape, 2005</p>	<p>Powers Boulevard is intensively developed, with minimal native vegetation or wildlife, except south of Milton E. Proby Parkway, around Bluestem Prairie Open Space.</p>	<p>The City's population is 385,000; County population, 568,000. City encompasses 194 square miles. TOPS inventory includes 4,000 acres of public open space.</p>
<p>PRESENT:</p> <p>Actions</p>	<p>Powers/Woodmen interchange constructed, adjacent to new regional hospital. Peterson AFB main entrance shifted to Powers at Airport Road/Stewart Avenue.</p>	<p>Expanded missions and personnel approved for Peterson AFB and Fort Carson. Continued regional population growth of 100,000 per decade is planned.</p>
<p>FUTURE:</p> <p>Actions</p>	<p>The Colorado Springs Airport Business Park will replace 720 acres of prairie. An associated military facility will replace an additional 90 acres. Development is planned along the northern edge of the Bluestem Prairie Open Space. Roadways eastward from Powers Boulevard will be widened, bringing more traffic to the corridor.</p>	<p>The Southern Delivery System pipeline will carry water from the Pueblo Reservoir to accommodate metropolitan growth in the City's 20,000-acre Banning-Lewis Ranch area that was annexed in 1983.</p>

Mitigation of Landscape Pattern Impacts

CDOT will minimize the ecological effects of the Proposed Action using the following **project-level strategies**:

- Use of native and locally adopted plants for re-vegetation and landscaping, to minimize water use.
- Reduce sedimentation by using BMPs for erosion control and stormwater management.
- Protect and restore riparian areas, minimize adverse effects to wetlands, and mitigate wetland impacts to ensure no net loss of wetlands.
- Develop and implement a Noxious Weed Management Plan to control the spread of noxious weeds.

The RCEA also suggested creating large, contiguous-area, wetland mitigation sites to mitigate the loss or degradation of smaller, isolated wetlands. CDOT has developed a wetland bank near Limon, northeast of Colorado Springs, and expects to use that facility to mitigate the minimal wetland impacts (0.12 acre) of the Powers Boulevard Proposed Action.

The RCEA's **policy-level strategies** for sustainable landscape patterns focus on avoiding sprawl by encouraging mixed-use development and activity centers, and ensuring that components of the transportation system are compatible with adjacent land uses. The Colorado Springs Comprehensive Plan and the El Paso County Policy Plan include specific policies embracing these strategies (e.g., Comprehensive Plan policies LU 301 and 302, and County Policy 9.1.3). The City's Comprehensive Plan identifies Powers Boulevard as a major activity corridor, intending that Powers Boulevard and other corridor infrastructure would serve mixed-use development and activity centers as suggested in the RCEA.

Southeast of El Paso County, CDOT is actively working to preserve native habitat under a program called the Shortgrass Prairie Initiative. CDOT, FHWA, the U.S. Fish and Wildlife Service, the Colorado Division of Wildlife, and The Nature Conservancy in 2001 signed a partnership agreement that allows CDOT to preserve thousands of acres of shortgrass prairie in eastern Colorado. The purpose of this initiative is to offset the loss associated with CDOT's routine maintenance activities, bridge replacement and other activities on existing highways in Colorado's shortgrass prairie over the next 20 years. This program represents CDOT's commitment to environmental stewardship, but is not applicable mitigation for this EA.

Water Quality and Quantity

The Colorado Springs area has a semi-arid climate and has had to purchase and import water from the Rocky Mountains to meet the ever-increasing water demands of its residents. Colorado Springs Utilities provided more than 22 billion gallons of water to its customers in 2003 and plans to provide more than 28 billion gallons in 2010 (Colorado Springs Utilities, 2008). With the region's population now at an all-time high and continuing to grow, water importation and subsequent discharges are continually hitting new record levels. The quality of the water brought into the region is very good. The quality of the water after use, flowing southerly to the Arkansas River, depends greatly on how the region deals with effluent and drainage issues.

Exhibit 4-38 provides information about past, present and future actions affecting water quality and quantity both within the Powers Boulevard Corridor and the Pikes Peak Region.

Exhibit 4-38. Present and Future Actions Affecting Water Quality and Quantity

Conditions and Actions	Powers Boulevard Corridor	Pikes Peak Region
<p>PAST: Condition of landscape, mid-1950s, before major growth</p>	<p>Ranch lands along Powers Boulevard corridor generated minimal water demand, met by wells, and had minimal impervious surface to cause stormwater runoff.</p>	<p>City of Colorado Springs was compact in size, and had a population of approximately 60,000 residents, and El Paso County had about 110,000.</p>
<p>PAST: Actions, 1950s to circa 2005</p>	<p>Construction, extension and expansion of Powers Boulevard created impervious surface. Some adjacent land development was allowed to drain to Powers Boulevard.</p> <p>Extensive urban development in the corridor, including thousands of homes, plus big-box stores with huge parking lots, accounts for far more impervious surface than the Powers Boulevard expressway alone.</p>	<p>The Federal government's Frypan-Arkansas water projects in the 1960s brought water to the region from the Rocky Mountains.</p> <p>Rapid population increases (100,000 new residents each decade), resulted in increasing water demand, impervious surface, effluent discharge, and surface runoff.</p> <p>Since 2002, local governments and CDOT have been subject to more stringent stormwater control requirements. Colorado Springs enacted a Streamside Overlay Ordinance.</p>
<p>PRESENT: Condition of landscape, 2005</p>	<p>CDOT accepted Powers Boulevard onto the State Highway System in 2007, inheriting a roadway that does not meet modern stormwater control guidelines.</p>	<p>City population of 385,000; County population 568,000. City encompasses 194 square miles.</p>
<p>PRESENT: Actions</p>	<p>Drainage improvements, including some that address Sand Creek, have been funded since 2007 by a regional stormwater fee.</p>	<p>Regional land use and transportation plans facilitate continued growth of 100,000 population per decade. A November 2009 election resulted in the 2009 termination of the stormwater fee mentioned at left.</p>
<p>FUTURE: Actions</p>	<p>Due to continued urban development, impervious surface will cover 43% of Sand Creek Watershed, up from 27% in 2005 (PPACG, 2005).</p>	<p>The planned Southern Delivery System pipeline will provide additional water supply, enabling continued metropolitan growth, largely eastward.</p>

Water Quality and Quantity Impacts with the No-Action Alternative

The amount of water imported into the Sand Creek watershed will continue to increase, and the region will discharge more water. The impervious surface area will continue to increase, causing more stormwater runoff. The amount of water pollutants generated in the watershed

will continue to increase, from all land use types including roads (Powers Boulevard and numerous others). Stormwater control requirements and drainage fees will help to address water quality problems, but will not completely mitigate the impacts of continued urbanization.

Cumulative Water Quality and Quantity Impacts with the Proposed Action

With the Proposed Action, impervious surface area on Powers Boulevard would increase by an estimated 180 acres, from 317 acres today to a total of 497 acres. However, stormwater management, required in conjunction with the Proposed Action, will detain and treat runoff from the entire roadway (not just the added pavement) as well as runoff that currently flows to Powers Boulevard from adjacent properties. At the same time, the overall increase of impervious surface area in the 59 square-mile Sand Creek Watershed would increase from 27% today to 43%. Since there are 640 acres in a square mile, the watershed consists of roughly 37,760 acres, and the amount of increased impervious surface area in the watershed would be 6,040 acres. The additional contribution of Powers Boulevard, at 180 acres, is less than 3% of this change.

Mitigation of Water Quality and Quantity Impacts

The RCEA identified both project-level and policy-level strategies with potential for sustaining water quality. The following **project-level strategies** were listed:

- Ensure BMPs are appropriately applied.
- Enforce [comply with] existing local water quality regulations.
- Ensure contractors properly apply erosion control measures.
- Apply BMPs to target runoff associated with roads, highways, and bridges.
- Minimize impervious surfaces associated with parking lots, buildings and roads.
- Minimize the amount of vegetation and soil removal.
- Avoid impacts to wetlands, floodplains, and riparian corridors.

CDOT's water quality mitigation measures for the Proposed Action are detailed in Section 4.6 of this EA, and are consistent with the strategies listed above. During the development of conceptual design, the Proposed Action's "footprint" was designed to avoid and minimize impacts to vegetation, wetlands, floodplains, and riparian areas wherever possible.

The RCEA also identified **policy-level strategies** for consideration not by CDOT but by another agency with appropriate jurisdiction, recognizing that CDOT would have no ability to require their implementation. These strategies include:

- Control the creation of new impervious surface.
- Enhance public knowledge regarding the importance of vegetative cover.
- Develop policies such as streamside setbacks that control development such as parking lots and roadways adjacent to streams.
- Institute local policy that requires no net loss of wetland for projects involving impacts to wetland habitat (even if not regulated by the Clean Water Act).



Significant progress has been made along these lines. In 2002, the City of Colorado Springs adopted a Streamside Overlay Ordinance that establishes jurisdictional limits, application processes, physical standards, suitable land uses, and qualitative review criteria for development in the vicinity of streams within the City. In 2007, the City Council imposed a new drainage fee that is assessed based on the proportion of impervious area on each private parcel of land. This gives landowners and developers an economic incentive to reduce their impervious surface area. Revenues from the "Stormwater Enterprise" paid for high-priority drainage improvements within the City of Colorado Springs. In mailings of stormwater invoices, the city included information about the adverse effects of impervious surface area. However, in November 2009, the city's residents voted to phase out this and other revenue-collecting enterprises. Subsequent City Council action ended the collection of stormwater fees at the end of 2009.

Future development, carried out in compliance with Municipal Separate Storm Sewer System (MS4) requirements applicable to El Paso County and the City of Colorado Springs, should have substantially less of an adverse effect on water quality than did development over the previous decades without these requirements.

The City's Comprehensive Plan and the El Paso County Policy Plan both include policies that are supportive of and consistent with these suggested policy-level strategies. These include the City's Natural Environment Strategy NE 202a, "Natural Ecosystems Protection," and El Paso County Policy 2.2.5: "Encourage mitigation of all adverse impacts to wetlands and riparian habitat" (City of Colorado Springs, 2008c; El Paso County, 2006).

Air Quality

The economy of the Pikes Peak Region – comprised notably of military-related employment, high-tech firms, service industries and tourism -- includes relatively minimal heavy industry and produces relatively minimal pollution from industrial point sources, although coal-burning power plants operate within the airshed. Not surprisingly, motor vehicle emissions are a major source of air pollution in the region. Wood burning and re-entrained dust particles are the region's predominant sources of fine particulate matter (PM₁₀).

At the time that the RCEA was prepared, air quality emissions were estimated using then-applicable fifth-generation MOBILE emission factors, yielding a regional carbon monoxide daily emission budget of 270 tons. Since that time, the U.S. Environmental Protection Agency released improved (sixth-generation) MOBILE emission factors and now the region has an approved emissions budget of 531 tons. The implication of these numbers is not that on-road CO emissions have jumped dramatically, but instead that they were previously underestimated. There has been no recorded violation of the carbon monoxide standard since 1989, and no violations are expected in the foreseeable future.

Exhibit 4-39 discusses actions relevant to cumulative actions that have or will affect air quality in the Pikes Peak Region.

Impacts of Other Actions on Air Quality

In the future, as in the past, the region faces population growth of approximately 100,000 new residents per decade. Associated with each new resident is some production of pollutant

emissions per capita, which includes motor vehicle emissions, fireplace use, regional power plant demand, and the use of industrial and household chemicals that contribute to air pollution. Population growth of roughly 60 percent in the next thirty years will result in additional driving and other activities causing emissions. Fortunately, emissions per VMT are not fixed, but will continue to decline as the result of technological improvements to motor vehicles and fuels.

Exhibit 4-39. Past, Present and Future Actions Affecting Air Quality

Conditions and Actions	Powers Boulevard Corridor	Pikes Peak Region
PAST: Condition of airshed, mid-1950s, before major growth	Ranch lands along Powers Boulevard corridor generated negligible emissions of vehicle-related air pollutants.	City of Colorado Springs was compact in size and had a population of approximately 60,000 residents, and El Paso County had about 110,000 residents.
PAST: Actions, 1950s to circa 2005	Rapid urban growth has occurred in the Powers Boulevard corridor, while the roadway has been lengthened and expanded.	Regional population growth has been rapid (100,000 new residents each decade), and growth in vehicle-miles of travel has been even more rapid. Federal air pollution control programs were so successful that air quality improved despite increased VMT. Violations of the carbon monoxide standard occurred until 1989 but not afterward.
PRESENT: Conditions in 2005	Powers Boulevard is experiencing traffic congestion. Use of alternative transportation modes in the corridor is minimal. Powers Boulevard total VMT is 565,000 per day, 4.7% of regional total.	Monitored pollutant concentrations in the region meet all national air quality standards. Recent transit expansion funded by a regional sales tax has been scaled back due to City budget crisis. PPACG's air quality conformity analysis for the 2035 regional transportation plan indicates that the region has 11.8 million VMT per day.
PRESENT: Actions	Traffic and congestion will increase due to regional and local population growth.	Regional land use and transportation plans facilitate continued growth of 100,000 population per decade. EPA in 2010 has proposed to tighten the national ozone standard to a level that may be below recent ozone levels monitored in the region. This may result in the need for state and regional control measures to reduce emissions of ozone precursor emissions.
FUTURE: Actions	The Proposed Action would alleviate congestion, while the No-Action Alternative would not. VMT would increase to 1.06 million (No-Action) or 1.27 million (Proposed Action).	Conformity analysis of PPACG's 2035 regional transportation plan predicts continued compliance with national standard for carbon monoxide. Federal programs also will reduce emission rates of other pollutants. Regional daily VMT is projected to be 22.1 million by 2035.



Impacts on Air Quality with the No-Action Alternative

With the No-Action Alternative, traffic volumes on Powers Boulevard would increase beyond the expressway's capacity, resulting in greatly increased congestion and therefore in excess emissions due to idling. Corridor weekday VMT would increase 88% from 2005. Most signalized intersections along the corridor would experience unacceptable levels of service (LOS "E" or "F"). However, it is projected that there would be no violations of the National Ambient Air Quality Standard for carbon monoxide.

Cumulative Impacts on Air Quality with the Proposed Action

Compared to the No-Action Alternative, the Proposed Action would accommodate higher traffic volumes with less congestion. Based on microscale modeling, localized carbon monoxide concentrations would be well below the national ambient air quality standard. Also, total daily emissions of carbon monoxide in the region would be about 40% below the region's carbon monoxide emission budget.

Mitigation of Air Quality Impacts

The RCEA identified project-level and policy-level strategies for ensuring air quality sustainability. The **project-level strategies** included:

- Incorporate ozone-reducing strategies in project planning.
- Improve street-sanding techniques to produce less fine particulate pollution (PM₁₀).
- Switch to cleaner burning fuels, such as electricity, natural gas and propane.

CDOT will provide the RCEA's list of ozone-reducing strategies (or a future, updated version) for consideration by the designers and contractors who are selected to undertake project design and construction.

CDOT has newly acquired jurisdiction over Power Boulevard and assumed maintenance responsibilities from the City of Colorado Springs and El Paso County. For the past decade, CDOT has made extensive use of deicing agents such as magnesium chloride, instead of sand.

CDOT's use of cleaner burning fuels in its fleet vehicles will be guided by Executive Orders # D0011 07 and 08, Greening of State Government, issued by Colorado's Governor in April 2007.

The RCEA's **policy-level strategies** for air quality included encouragement of higher density development and mixed land use to reduce vehicle miles traveled, and support for intermodal transportation systems and voluntary carpool programs. All of these initiatives are clearly supported in the adopted City of Colorado Springs Comprehensive Plan and the El Paso County Policy Plan. A new sales tax for transportation, approved by the region's voters in 2004, has provided the first big boost for transit operations in many years. It has provided funds to update the regional transit system to a multi-hub operation, to replace the undersized downtown transit center, and to develop several new park-and-ride lots. However, the 2008-2010 recession resulted in severe transit cutbacks, reducing service levels to less than what was provided prior to the 2004 tax increase.

In addition to the strategies identified in the RCEA, the PPACG and its collaborators developed the Air Quality Strategy Improvement Report in October 2005. The report provides strategies

for local entities to implement to reduce ozone-forming pollutants and to mitigate hydrocarbon releases. The strategies include, but are not limited to:

- Coordinate public outreach and education.
- Implement local policies that minimize vehicle idling.
- Track EPA's model idling ordinance and encourage local businesses and governments to adopt them.
- Encourage lower gasoline volatility outside of areas where such fuels are mandated.
- Enact ordinances with penalty fees prohibiting visible smoke from vehicle exhaust.
- Develop methods of offering greater incentives for owners to repair high-emitting vehicles.
- Increase enforcement and tracking of potential violators of Stage 1 Recovery Systems (applies to vehicle fueling stations).
- Develop and implement an On-board Diagnostic (ODB-II) pilot program in Colorado.

Colorado Springs Utilities has taken steps to reduce pollutant emissions from its power plants. From 1997 to 2001, CSU's total power plant emissions of sulfur dioxide and nitrogen oxides decreased 6.4 percent and 40.4 percent, respectively, despite a corresponding 10.2 percent increase in the amount of power generated. Low-sulfur coal is burned and low-nitrogen oxide burners are used at the plants.

Transportation Patterns

Urban mobility is an important facet of modern quality of life. Time spent behind the wheel in traffic congestion is time that could otherwise be spent productively in many other ways. In addition to having an efficient roadway system, the availability of other transportation modes is very important, so that each person can decide what works best for any given trip. **Exhibit 4-40** describes past, present and future actions affecting regional transportation patterns. An exhibit illustrating the gradual development of Powers Boulevard over time was presented in Chapter 2 of this EA.

Impacts of Other Actions on Transportation Patterns

Colorado Springs has experienced most of its population growth since the 1950s, in the age of the automobile. The older central part of the city original had a trolley system and then bus transit. Automobiles have been the predominant transportation mode available in and around the Powers Boulevard corridor, with minimal transit service available and only a few trails in the vicinity. Development in the corridor has predominantly not been mixed-use or high density.

Powers Boulevard was identified as a major transportation corridor in the 1960s. Long-range transportation and land use plans have reinforced this role for the corridor. With connection of Powers Boulevard to I-25 south at Fort Carson and the planned northern extension of Powers to I-25 north at the U.S. Air Force Academy, only I-25 offers comparable high-speed connectivity in the Pikes Peak Region.

Impacts on Transportation Patterns with the No-Action Alternative

Regional transportation and land use plans are based on Powers Boulevard providing a high level of regional mobility, which the existing expressway could not provide under the No-Action

Exhibit 4-40. Past, Present and Future Actions Affecting Transportation Patterns

Conditions and Actions	Powers Boulevard Corridor	Pikes Peak Region
<p>PAST: Condition of transportation system, mid-1950s, before major growth</p>	<p>Adjacent ranch lands generated minimal vehicle traffic on the unpaved County road to the Powers Dairy.</p>	<p>City of Colorado Springs was compact in size and had a population of approximately 60,000 residents, and El Paso County had about 110,000 residents.</p>
<p>PAST: Actions, 1950s to circa 2005</p>	<p>Powers Boulevard was lengthened and expanded to a 4 to 6 lane expressway, with an interchange at Platte Avenue. Powers Boulevard from Platte Avenue to Fountain Boulevard was improved as part of the "US 24 Bypass".</p>	<p>Regional population growth has been rapid (100,000 new residents each decade), and growth in VMT has been even more rapid.</p>
<p>PRESENT: Conditions in 2005</p>	<p>Powers Boulevard total VMT is 565,000 per day, 4.7% of regional total. Powers Boulevard is experiencing traffic congestion. Use of alternative transportation modes in the corridor is minimal.</p>	<p>PPACG's air quality conformity analysis for the 2035 regional transportation plan indicates that the region has 11.8 million VMT per day. A recently approved local tax is funding the Pikes Peak Regional Transportation Authority. The PPRTA has made various local street improvements and increased funding for transit. However, street and transit funding has been scaled back due to the 2008-2010 recession.</p>
<p>FUTURE: Actions</p>	<p>The Proposed Action would alleviate congestion, while the No-Action Alternative would not.</p>	<p>The PPACG 2035 plan predicts that much of the regional roadway system will be congested by 2035. Total regional VMT is predicted to be 22.1 million. Bus rapid transit is planned in several corridors (e.g., Academy Boulevard) but not along Powers Boulevard.</p>

Alternative. The resulting congestion on Powers Boulevard would have ripple effects including diversion of trips to parallel north-south roads not designed to handle high volumes. Congested at-grade intersections along Powers Boulevard would also create excessive delays for all east-west cross-streets.

Cumulative Impacts on Transportation Patterns with the Proposed Action

The East-West Mobility Plan prepared by the City of Colorado Springs identified the importance of Powers Boulevard for intercepting and distributing trips to and from eastern growth areas on Powers Boulevard so that these trips would not continue through older, established portions of the city to access Interstate 25. The City identified a system of four main roadways intended to carry regional trips: I-25 on the west, Woodmen Road on the north, Powers Boulevard on the east, and Milton E. Proby Parkway on the south. Thus, mobility on Powers Boulevard does have important implications for mobility throughout the region.

The Proposed Action would be consistent with regional long-range transportation plans. It would not preclude future transit alternatives and would accommodate proposed trail development along and across Powers Boulevard.

Mitigation of Impacts on Transportation Patterns

Four key **project-level strategies** listed in the RCEA have particular relevance with respect to Powers Boulevard:

- Provide all transportation facilities and services within a reasonable timeframe of development to thereby improve concurrency between transportation facility supply and demand.
- Achieve right-of-way preservation and dedication for transportation through the land-development process.
- Coordinate with appropriate local agencies to identify future alternate mode needs and ensure that transportation project designs don't preclude future options.
- Design all projects in full compliance with applicable environmental regulations, as well as ensure designs that recognize the character of the facility's natural and community setting.

The RCEA's **policy-level strategies** focus on land use and site development planning, impacts fees, increased transit funding, and monitoring of indicator data.

This EA has determined that continued regional growth will greatly increase travel demand on Powers Boulevard. Identifying an appropriate Proposed Action at this time can help all affected agencies and stakeholders to take coordinated actions to balance transportation demand and supply to the extent that funding will allow.

The City of Colorado Springs and El Paso County have been working with local landowners and their plans for new development to minimize potential conflicts with the Proposed Action. In addition, funding from the Pikes Peak Rural Transportation Authority has been used recently for advance right-of-way acquisition, consistent with federal regulations.

Regarding long-range transit development, the City of Colorado Springs conducted a study to determine priority corridors for future transit options such as bus rapid transit. Powers Boulevard was one of the corridors considered, but Academy Boulevard (two miles to the east) was selected instead. Although transit facilities on Powers Boulevard are not envisioned at this time, the Proposed Action has been developed so as to not preclude future options.

Noise

Human activity in an urban area generates many types of noise. Planes, trains, automobiles, trucks and motorcycles are transportation-related sources of noise. Boom boxes, yard maintenance tools and construction activities are also part of the urban ensemble. As the Colorado Springs metropolitan area grows, the peace and quiet of the rural countryside is giving way to noisier suburban development. **Exhibit 4-41** describes past, present and future actions cumulatively affecting noise in the Powers Boulevard corridor and the Pikes Peak Region.

Exhibit 4-41. Past, Present and Future Actions Affecting Noise

Conditions and Actions	Powers Boulevard Corridor	Pikes Peak Region
<p>PAST: Condition of transportation system, mid-1950s, before major growth</p>	<p>The dairy and ranching countryside received noise from trains on the Rock Island railroad, occasional civilian or military flights, and traffic on US Highway 24.</p>	<p>City of Colorado Springs was compact in size and had a population of approximately 60,000 residents, and El Paso County had about 110,000 residents.</p>
<p>PAST: Actions, 1950s to circa 2005</p>	<p>Powers Boulevard was lengthened and expanded to a 4 to 6 lane expressway, with an interchange at Platte Avenue. No roadway noise walls were built. Military and civilian aircraft operations increased significantly. The railroad was abandoned.</p>	<p>Regional population growth has been rapid (100,000 new residents each decade), and growth in VMT has been even more rapid. Various noisy lawn tools are widely used including mowers and trimmers. A large amount of development has occurred close to roadways, without appropriate setbacks.</p>
<p>PRESENT: Conditions in 2005</p>	<p>Powers Boulevard is a busy expressway and a designated truck route. Several locations along the route experience traffic noise that hinders outdoor conversation.</p>	<p>Roadway noise barriers can be found along several of the region's busiest roadways. Background urban noise (primarily traffic) can be heard at all hours of the day and night.</p>
<p>PRESENT: Actions</p>	<p>Powers Boulevard became SH 21 in 2007, making the corridor subject to State noise abatement policy when improvements are made.</p>	<p>The City of Colorado Springs has been exploring the possibility of enacting a roadway noise ordinance. The City is in a financial crisis and faces numerous other priorities.</p>
<p>FUTURE: Actions</p>	<p>With the No-Action Alternative, traffic volumes and noise along Powers Boulevard would increase, but no mitigation is anticipated. With the Proposed Action, traffic volumes and noise would increase even more, and noise walls are proposed in seven locations.</p>	<p>Due to continued growth east of Powers Boulevard, east-west roadways will get much busier and need to be widened. This will increase the amount of noise from east-west roadways both in the Powers Boulevard Corridor and elsewhere throughout the city.</p>

Impacts of Other Actions on Noise

The cumulative effect of other actions has changed quiet, undeveloped ranch land in 1980 into a busy expressway corridor. Many of the homes located closest to Powers Boulevard currently experience noise levels that are just below federal and state noise abatement criteria. Powers Boulevard is a designated truck route and has several steep hills where trucks gear down or use loud braking systems, contributing extra noise that would not occur on a level roadway.

The Powers Boulevard corridor also experiences substantial noise from civilian and military aircraft ascending from or descending to the Colorado Springs Airport and Peterson AFB. The military traffic includes numerous daily flights by large cargo planes and occasional visits by

high-performance fighter planes. Aircraft noise affects residents of the corridor but is not incorporated into highway-based mitigation decisions.

Noise Impacts with the No-Action Alternative

Noise levels from traffic sources depend on volume, speed, and the type of vehicle. Generally an increase in volume, speed, or vehicle size increases traffic noise levels. However, under the No-Action Alternative, increased congestion would reduce attainable travel speeds, offsetting the increased traffic volume to some degree. The highest traffic noise levels would not occur during peak travel hours, when congestion reduces travel speeds, but instead before and after the peaks, when relatively high traffic volumes are operating at higher speeds.

Cumulative Noise Impacts with the Proposed Action

The Proposed Action would accommodate higher traffic volumes, at higher traffic speeds, compared to current conditions. It would also elevate portions of Powers Boulevard (over cross-streets at grade-separated interchanges) and would add on-ramps and off-ramps that are closer to adjacent properties than the existing expressway is today. As a result of these effects, highway noise would increase from current levels. In 22 locations, traffic noise levels would meet the federal and state thresholds triggering consideration of noise abatement such as noise walls or berms. Noise walls are proposed for seven of these locations, where State noise abatement criteria would be met.

Mitigation of Noise Impacts

The RCEA's **project-level strategies** for noise mitigation are as follows:

- Separate development from major roadways by at least 500 feet.
- Install earthen berms where possible, and use features within a development such as garages and commercial buildings as shields from roadways.
- When possible, delay major noise-producing actions until atmospheric conditions are less conducive to the spread of sound toward residences. Also, advise nearby residents of the time and duration of such activities to reduce the "startle" factor.

The Powers Boulevard corridor is already intensely developed, and the suggested 500 foot setback approach was not followed when the road was built more than a decade prior to the RCEA's publication in 2003. Since traffic noise impacts cannot be easily avoided, the focus for this corridor is instead on mitigation. The feasibility and reasonableness of providing noise barriers has been evaluated, including the potential for earthen berms or noise walls. Berms typically require much more width than a noise wall, so that the slopes of the berms are gentle enough to permit vegetation and safe maintenance. Due to tight right-of-way limitations in most areas, the noise barriers proposed at seven locations along Powers Boulevard would be walls rather than berms. This is appropriate in an urban environment.

The scheduling of Powers Boulevard construction activities would call for loudest construction activities to occur during daytime, to avoid the evening and night hours when nearby most residents would be home from school and work.

The RCEA's **policy-level strategies** regarding noise address the additional topics consisting of electric lawn equipment use, avoidance of freight rail corridors, use of zoning to separate

residential areas from noise-producing industry, and tire and pavement research. CDOT has been involved with pavement research on an ongoing basis. Pavement specifications for the Proposed Action have not been determined, but will depend on numerous factors including predicted truck traffic, climatic conditions, and life-cycle construction and maintenance costs.

Visual Resources

The discussion of visual resources in the RCEA focuses on preserving views to attractive visual features, such as lakes, streams, mountain views and other scenic vistas. Past, present and foreseeable future actions cumulatively affecting the visual character of the corridor are indicated in **Exhibit 4-42**.

Exhibit 4-42. Past, Present and Future Actions Affecting Visual Resources

Conditions and Actions	Powers Boulevard Corridor	Pikes Peak Region
PAST: Condition of transportation system, mid-1950s, before major growth	The dairy and ranching countryside east of Colorado Springs was largely undeveloped grassland. These ranches were privately owned and there were few residents in the region who ventured east to see this landscape.	City of Colorado Springs was compact in size and had a population of approximately 60,000 residents, and El Paso County had about 110,000 residents. Pikes Peak and the Garden of the Gods, both west of the city, were the area's main scenic attractions.
PAST: Actions, 1950s to circa 2005	Powers Boulevard was lengthened and expanded to a 4 to 6 lane expressway, with an interchange at Platte Avenue. Rapid urban development occurred since the early 1990s.	Growth of 100,000 residents per decade has led to urban expansion. Development has occurred on many ridges and elevated areas visible throughout the area.
PRESENT: Conditions in 2005	Powers Boulevard is lined with urban development. The Sand Creek crossing of Powers Boulevard is highly channelized and not aesthetically appealing. Three existing open spaces are adjacent to the expressway.	Since the 1990s, the Pikes Peak region has assembled a large inventory of parks, trails and open spaces funded by a local tax. These resources provide a visual respite from the otherwise continuous urban development.
PRESENT: Actions	Land development is occurring on most of the remaining privately-owned grasslands adjacent to Powers Boulevard. The land adjacent to Windmill Gulch is on the market for sale to be developed.	Erosion control improvements funded by a citywide stormwater fee are being undertaken in creek beds and drainages throughout the region. These improvements are primarily functional rather than aesthetic.
FUTURE: Actions	The city's Airport Business Park Master Plan includes a business park and golf course that will replace 720 acres of undeveloped grassland southeast of the Powers Boulevard intersection at Milton E. Proby Parkway. An associated military facility will replace an additional 90 acres of prairie.	Rapid growth in eastern Colorado Springs will continue to replace grasslands with urban development.

As discussed in Chapter 2 and Section 4.4, the Powers Boulevard corridor is largely devoid of visual character. There are two prominent water features, Sand Creek (normally with no water) and the Big Johnson Reservoir (surrounded by the Bluestem Prairie Open Space).

Impacts of Other Actions on Visual Resources

Grasslands along the Powers Boulevard Corridor have largely been replaced with urban development, including numerous “big box” retailers and their signs and parking lots. The large remaining grassland block southeast of the Powers Boulevard/Milton E. Proby Parkway intersection will be developed as the Airport Business Park, which will include a golf course adjacent to Powers Boulevard.

South of the Airport Business Park, there is a narrow strip of land between Powers Boulevard and a planned Bradley Road extension. Development here will block views of the Bluestem Prairie Open Space from the north. The Open Space will remain visible from Powers Boulevard between Bradley Road and Fontaine Boulevard.

Visual Impacts of the No-Action Alternative

Apart from the ongoing changes due to other actions, the No-Action Alternative would not affect visual resources in the Powers Boulevard Corridor.

Cumulative Visual Impacts with the Proposed Action

The Powers Boulevard Proposed Action and other transportation projects in the Colorado Springs metro area will result in the roads becoming more of a prominent feature in the urban landscape pattern. The Proposed Action would not be incompatible with the visual character of the surrounding corridor. Views would change both from the road and to the road, especially in the vicinity of grade-separated interchanges, where the freeway would be elevated to go over the cross-streets.

Mitigation of Visual Impacts

The RCEA includes 12 **project-level strategies** regarding visual resources. They are:

- Provide and maintain visual access to important community features.
- Provide significant xeriscape corridor planting in public view.
- Provide well-designed and detailed bridges and other structures.
- Buffer transportation corridor improvements from culturally and historically significant areas.
- Reveal views to streams and other natural areas through the sides of bridges.
- Plant medians, when possible, with native and locally adapted plants.
- Add public art to appropriate corridor and community locations.
- Provide entryway features in road corridors approaching cultural districts.
- Keep highway improvements from blocking public vistas.
- Plant trees in ways and places that do not restrict all-important mountain views.

- Plant numerous trees so that arterial streets become boulevards and expressways become parkways. These corridors will increase in aesthetic value as the trees mature.
- Use appropriate lighting design that shields roadway light fixtures from direct view and minimizes upward lighting.

Due to the highly developed urban nature of the Powers Boulevard corridor, there are few natural features to be viewed from the existing roadway. Therefore, the focus for mitigation in this corridor is to ensure reasonable roadway aesthetics. CDOT has developed and will follow a uniform set of design guidelines to produce consistent aesthetic standards for interchanges, noise walls, streetlights, and other freeway features. Appropriate signage will be developed to ensure that motorists are aware of how to access upcoming developments that may be difficult to see in advance of an exit.

Detailed lighting plans have not yet been finalized. However, CDOT will consider lighting schemes that minimize energy consumption and light pollution while also being compatible with any special lighting requirements in the vicinity of the adjacent municipal airport and Peterson AFB.

The corridor has medians of varying width with simple landscaping that are predominantly grass, but has some sections of shrubs and short trees. North of Milton E. Proby Parkway, the median would be replaced with a center barrier and paved inside shoulders with the Proposed Action.

More prominent than the expressway's median landscaping are the several rows and clusters of trees at the Milton E. Proby Parkway intersection, that provide a landscaped gateway effect at the entrance to the Colorado Springs Airport. This entrance, at the intersection of Powers Boulevard and Milton E. Proby Parkway, would be the site of a proposed grade-separated interchange with the Proposed Action. Also, the City of Colorado Springs plans to construct a new Milton E. Proby expressway to the south of the narrow existing parkway that was formerly called Drennan Road. Any landscaping plans developed by CDOT for this interchange will need to be created in coordination with the city's landscaping plans for the new parkway, but are likely to emphasize the use of native vegetation and minimize the need for watering and maintenance.

The RCEA includes **two policy-level strategies** regarding visual resources:

- Protect significant viewsheds and view corridors.
- Minimize the use of artificial lighting to preserve "dark skies."

Any new lights installed as part of the Proposed Action will be designed in compliance with "Dark Skies" requirements (CRS 24-82-901) enacted by the Colorado General Assembly in 2001. The law requires CDOT to avoid installing outdoor lighting, if possible, through the use of reflective road markers, lines, warning or informational signs, or other effective techniques that do not require use of artificial light. In cases where installation of new outdoor lighting cannot be avoided, it will be installed so as to shield the outdoor lighting fixtures from direct view and to minimize upward lighting and "light pollution".

Global Climate Change

The issue of global climate change is an important national and global concern that is being addressed in several ways by the Federal government and various states including Colorado. The transportation sector is the second largest source of total greenhouse gases (GHGs) in the U.S., and the greatest source of carbon dioxide (CO₂) emissions - the predominant GHG. In 2004, the transportation sector was responsible for 31 percent of all U.S. CO₂ emissions. The principal anthropogenic (human-made) source of carbon emissions is the combustion of fossil fuels, which account for approximately 80 percent of anthropogenic emissions of carbon worldwide. Almost all (98 percent) of transportation-sector emissions result from the consumption of petroleum products such as gasoline, diesel fuel and aviation fuel.

Recognizing this concern, FHWA is working nationally with other USDOT agencies through the DOT Center for Climate Change and Environmental Forecasting to develop strategies to reduce transportation's contribution to greenhouse gases – 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 Change 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 (Ritter, 2007).

CDOT issued a Policy Directive on Air Quality in May 2009. This Policy Directive 1901 was developed with input from a number of agencies, including the State of Colorado's Department of Public Health and Environment (CDPHE), the U.S. Environmental Protection Agency (EPA), the Federal Highway Administration, the Federal Transit Administration (FTA), the Denver Regional Transportation District (RTD), and the Denver Regional Air Quality Council (RAQC). This Policy Directive addresses unregulated mobile source air toxics (MSAT) and GHGs produced from Colorado's state highways, interstates, and construction activities.

COLORADO ADDRESSES CLIMATE CHANGE

A 2009 CDOT Policy Directive on Air Quality describes the agency's efforts to address Mobile Source Air Toxics and Greenhouse Gases, consistent with the Governor's Climate Change Action Plan.

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

1. Developing truck routes with the goal of limiting truck traffic in proximity to facilities, including schools, with sensitive receptor populations.
2. Continue researching 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 technologies, 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 Transportation Demand Management (TDM) efforts statewide to better utilize the existing transportation mobility network.
7. Continuing to diversify the CDOT fleet by: retrofitting 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 approach likely to be used for this).
8. Exploring congestion and/or right-lane only restrictions for motor carriers.
9. Funding truck parking electrification (mostly through external grant opportunities).
10. Researching additional ways to improve freight movement and efficiency statewide.
11. Committing to incorporating ultra-low sulfur diesel (ULSD) for non-road equipment statewide before June 2010 – likely using incentives during bidding.
12. Developing a low-VOC emitting tree landscaping specification.

With regard to the first measure listed above, it should be noted that Powers Boulevard is a designated truck route. Channeling truck traffic onto this route keeps it off of other routes that pass closer to neighborhoods, schools, and other sensitive receptors.

Because climate change is a global issue, and the emission changes due to 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 4.9 of the Powers Boulevard EA. The relationship of current and projected Colorado highway emissions to total global emissions of carbon dioxide is presented in **Exhibit 4-43**. Colorado highway emissions are expected to increase by 4.7% between 2005 and 2035. The benefits of the fuel economy and renewable fuels programs in the Energy Independence and Security Act of 2007 are offset by growth in VMT. Colorado's 2035 statewide transportation plan predicts that VMT will double between 2000 and 2035. This exhibit also indicates the amount of travel in the project corridor relative to total Colorado motorized travel.

Exhibit 4-43. Comparison of Annual Global, Colorado and Project-Level CO₂ Emissions

Global CO ₂ emissions, 2005, in million metric tons (MMT) ¹	Colorado highway CO ₂ emissions, 2005, in MMT ²	Projected Colorado 2035 highway CO ₂ emissions, 2035, in MMT ²	Colorado highway CO ₂ emissions, % of global total, 2005 ²	Powers Boulevard project corridor VMT, % of statewide VMT, 2005
27,700	29.9	31.3	0.108%	0.75%

¹EIA, *International Energy Outlook, 2007*

²Calculated by FHWA Resource Center

4.13 SUMMARY OF IMPACTS AND MITIGATION

This section summarizes the impacts and mitigation that are contained in all preceding sections of Chapter 4. The table, **Exhibit 4-44**, provides a side-by-side comparison of the impacts of the No-Action Alternative and the Proposed Action, together with corresponding mitigation commitments.

Exhibit 4-44. Summary of Impacts and Mitigation

Resource	Impacts of No-Action Alternative	Impacts of Proposed Action	Mitigation
4.2 Traffic Mobility and Access -Traffic congestion and travel time	Due to continued urban growth, traffic on Powers Boulevard would increase by about 40,000 vehicles per day (an 88% increase) and would be much more congested than it is today. The time needed to travel the corridor would increase by 19 minutes, from 24 minutes today to 43 minutes in 2035.	Traffic on Powers Boulevard would increase by about 60,000 vehicles per day (a 126% increase), but would be less congested than it is today. The time needed to travel the corridor would be 7 minutes less than it is today.	Improved Level of Service and reduced travel times are beneficial effects. No mitigation is necessary.
-Traffic south of Milton E. Proby Parkway	South of Milton E. Proby Parkway, traffic volume would approximately triple, increasing by up to 30,000 vehicles per day, but traffic Levels of Service would remain acceptable.	South of Milton E. Proby Parkway, where no improvements would be made, traffic volume would approximately triple, increasing by up to 30,000 vehicles per day, but traffic Levels of Service would remain acceptable.	South of Milton E. Proby Parkway, Powers Boulevard would operate at acceptable Levels of Service, and no mitigation is necessary.
- Business access on cross-streets	No change to business access on cross-streets is anticipated.	For safety reasons, continued use of some existing business access points on cross-streets would not be possible.	The Proposed Action includes modification of cross-street business access points to provide reasonable access to all affected properties.

Exhibit 4-44. Summary of Impacts and Mitigation (continued)

Resource	Impacts of No-Action Alternative	Impacts of Proposed Action	Mitigation
<p>4.2 Traffic Mobility and Access (continued)</p> <p>- Direct access to Powers Boulevard</p>	<p>No change in access to Powers Boulevard is anticipated.</p>	<p>Grade-separated interchanges would be constructed at 11 major cross-streets. Direct access to Powers Boulevard would no longer be available at three cross-streets and four side-streets.</p>	<p>Alternative access will be available via other streets. In some locations, the Proposed Action includes frontage roads to carry local traffic to the nearest grade-separated interchange. Three Texas turnaround ramps will be built to help motorists cross and access the freeway. Local street connections would be built in some locations.</p>
<p>4.3 Social, Economic and Land Use Considerations</p> <p>- Neighborhoods</p>	<p>No households or businesses would be displaced.</p>	<p>23 duplexes (46 households) would be displaced from Gunshot Pass Drive. With over 160 other homes in the neighborhood, a substantial residential area would remain. One household in Canterbury Mobile Home Park would be displaced. No neighborhood would be newly divided or fragmented.</p>	<p>In accordance with Federal law, land owners will be fairly compensated for their property, and displaced households will receive relocation assistance.</p>
<p>- Businesses</p>	<p>No businesses would be displaced.</p> <p>Existing roadway capacity would limit the amount of traffic that can conveniently access Powers Boulevard's commercial areas. Visibility to local businesses from the roadway would not be affected.</p>	<p>17 businesses, 8 of them vehicle-related, would be displaced. Nearby businesses and neighborhoods are not dependent on these businesses.</p> <p>Improved mobility would increase the geographic area from which customers can conveniently travel to Powers Boulevard commercial areas.</p> <p>Visibility from the roadway would be reduced for some businesses and enhanced for some others.</p>	<p>In accordance with Federal law, land owners will be fairly compensated for their property, and displaced businesses will receive relocation assistance.</p> <p>Improved mobility to commercial areas is a beneficial effect. No mitigation is necessary.</p> <p>Visibility from the roadway is not a protected resource. No mitigation is necessary.</p>

Exhibit 4-44. Summary of Impacts and Mitigation (continued)

Resource	Impacts of No-Action Alternative	Impacts of Proposed Action	Mitigation
<p>4.3 Social, Economic and Land Use Considerations (continued)</p> <p>- Minority/low-income populations</p>	<p>No minority or low-income businesses or households would be displaced.</p>	<p>In total, the project would displace 17 businesses and 47 households. Of these, one business is Hispanic-owned and five households are Hispanic. No disproportional impacts to minority or low-income populations are foreseen.</p>	<p>A Spanish-speaking relocation counselor will assist in moving the Hispanic-owned business, because there is a known language issue, and will also be available for the Hispanic households if needed.</p>
<p>- Land acquisition</p>	<p>No land would need to be acquired for right-of-way.</p>	<p>Approximately 381 acres of land would be purchased from an estimated 336 parcels of land.</p>	<p>Land owners will be fairly compensated for their property.</p>
<p>- Land use</p>	<p>No changes in land use would result from the No-Action Alternative.</p>	<p>The Proposed Action is compatible with adopted regional transportation and land use plans. It would not induce growth or change planned land use.</p>	<p>No mitigation is necessary.</p>
<p>4.4 Community Quality of Life</p> <p>- Traffic noise (Also discussed below for Section 4.5, Construction Impacts)</p>	<p>Due to increasing traffic, the number of areas experiencing traffic noise impacts would increase from five areas affected today to 11 areas affected in the future.</p>	<p>Noise would increase due to: increased traffic; new lanes closer to adjacent properties; and elevation of Powers Boulevard over cross-streets. The number of areas experiencing traffic noise impacts would increase from five today to 22 affected in the future.</p>	<p>Noise walls are proposed at seven locations to protect 246 residences and one playground.</p> <p>For 15 other locations, which include six businesses, it was determined that mitigation would not be reasonable and feasible.</p>

Exhibit 4-44. Summary of Impacts and Mitigation (continued)

Resource	Impacts of No-Action Alternative	Impacts of Proposed Action	Mitigation
<p>4.4 Community Quality of Life (continued)</p> <p>- Air quality</p> <p>(Also discussed below for Section 4.5, Construction Impacts)</p>	<p>Congested, bumper-to-bumper traffic will produce excessive idling emissions. Cleaner vehicle emissions will largely offset growth in vehicle miles traveled. The region is expected to easily meet existing national air quality standards.</p>	<p>The freeway would accommodate more vehicles, but they would operate at higher, more efficient speeds. Projected worst-case micro-scale concentrations of carbon monoxide would be comparable to No-Action conditions and would meet national air quality standards.</p>	<p>Reduction of congestion-caused vehicle idling is a beneficial effect. No mitigation is necessary.</p>
<p>- Trails, parks, recreation & open space</p> <p>(Also discussed below for Section 4.5, Construction Impacts)</p>	<p>Increased traffic on the Powers Boulevard expressway would strengthen the effect of the roadway as a barrier to non-motorized travel (bicyclists, pedestrians, and equestrians). No new trail crossings would be provided by CDOT.</p> <p>No trail closures or detours would be needed.</p> <p>No land would be acquired from any park, trail or open space.</p>	<p>Converting Powers Boulevard to a freeway would further strengthen the effect of the road as a barrier to non-motorized travel.</p> <p>The Stetson Hills Trail across Powers Boulevard and the Hometown Trail across Barnes Road could be disrupted by construction activities.</p> <p>Land totaling 1.2 acres would be acquired from the Skyview Sports Complex and 0.02 acre from the Cherokee Ridge par-3 golf course. However, this land is not used for recreation.</p>	<p>The Proposed Action includes construction of an overpass for the Rock Island Trail and underpasses for the Sand Creek Trail and East Fork Sand Creek Trail. Interchanges would accommodate at-grade crossing for the Stetson Hills Trail and for arterial street sidewalk users. CDOT will work with the City of Colorado Springs to accommodate a Powers Trail along Aviation Way.</p> <p>CDOT will provide detours to provide trail continuity at both locations, and will consult with local trail organizations in advance of the need for such detours.</p> <p>CDOT will pay fair market value for any land acquired. No additional mitigation is necessary because there would be no impact to a recreational use.</p>

Exhibit 4-44. Summary of Impacts and Mitigation (continued)

Resource	Impacts of No-Action Alternative	Impacts of Proposed Action	Mitigation
<p>4.4 Community Quality of Life</p> <p>- Trails, parks, recreation & open space (continued)</p>	<p>Two public recreation facilities would experience traffic noise levels at or above 66 decibels: the High Chaparral Open Space, and a planned community park.</p>	<p>The facilities listed at left would experience higher noise levels with the Proposed Action, due to the higher traffic volumes that would pass by. However, traffic noise would not impair the intended recreational uses of the facilities.</p>	<p>Noise mitigation for the affected sites was considered but was not determined to be reasonable and feasible. The open space has very limited active use in noise areas, and the planned park can be designed to locate noise-sensitive uses away from the freeway.</p>
<p>- Visual character</p>	<p>Urban development will continue to consume vacant grassland, giving the corridor a more urban visual character.</p>	<p>Adding pavement for ramps and frontage roads will make Powers Boulevard more visually apparent. Grade-separated interchanges would block views across the freeway.</p>	<p>CDOT has developed and will follow a uniform set of design guidelines to produce consistent aesthetic standards for interchanges, noise walls, streetlights, and other freeway features.</p>
<p>4.5 Construction Impacts</p> <p>- Traffic and access issues</p>	<p>Routine maintenance would occur on the existing expressway, causing short-term lane restrictions and temporarily increased congestion.</p> <p>Routine maintenance activities would cause minimal diversion of expressway traffic onto local streets.</p>	<p>Construction of each grade-separated interchange would result in lane restrictions and increased congestion for an extended period. Each project could last 18 to 24 months.</p> <p>Some cut-through traffic on local streets (e.g., Rio Vista Drive, Tutt Boulevard) may result in response to congestion in construction areas.</p>	<p>CDOT will require the existing number of through lanes to be maintained open to traffic using carefully planned construction phasing. The public will get advance notice of any restrictions. This will be addressed in CDOT specifications for any construction project(s).</p> <p>CDOT will request that the Colorado Springs Police Department and Colorado State Patrol provide extra enforcement on streets likely to experience cut-through traffic.</p>

Exhibit 4-44. Summary of Impacts and Mitigation (continued)

Resource	Impacts of No-Action Alternative	Impacts of Proposed Action	Mitigation
<p>4.5 Construction Impacts</p> <p>- Traffic and access issues (continued)</p>	<p>No restrictions to business access are likely to occur.</p> <p>No effects on emergency response times are anticipated.</p> <p>No effects to transit service are anticipated.</p>	<p>Access to some businesses would be shifted or temporarily restricted during certain construction activities.</p> <p>Construction delays would degrade response times for emergency service providers.</p> <p>One bus route that crosses Powers Boulevard using Galley Road could experience trip delays due to construction. Bus stops near Powers Boulevard could be inaccessible during construction.</p>	<p>Traffic management plan development will take into account the access needs of property owners during construction. CDOT specifications will require business access to be maintained and signed.</p> <p>Emergency service providers will be given advance notice of activities that could reduce response times.</p> <p>CDOT will coordinate with the transit provider to provide advance notice of planned construction activities. Bus stops may be temporarily relocated and will be re-established at the end of project construction.</p>
<p>- Construction dust and exhaust emissions</p>	<p>Routine maintenance activities usually do not generate substantial fugitive dust.</p> <p>Substantial exhaust emissions from construction equipment usually are not generated by maintenance activities.</p> <p>Routine maintenance activities cause minimal, short-term congestion.</p>	<p>Dust and emissions from construction equipment will be generated throughout the 18-24 months that construction occurs at each interchange location.</p> <p>Diesel vehicles, compressors, and other construction equipment would generate various exhaust emissions throughout the duration of the project.</p> <p>Traffic delays also would cause excessive idling through many phases of project construction.</p>	<p>Dust suppression techniques will be used in accordance with State and local permitting requirements.</p> <p>CDOT will require contractors to maintain their construction equipment in good operating condition in order to minimize exhaust emissions from diesel vehicles, compressors, and other heavy machinery.</p> <p>Traffic management plans will be designed to minimize congestion during construction.</p>

Exhibit 4-44. Summary of Impacts and Mitigation (continued)

Resource	Impacts of No-Action Alternative	Impacts of Proposed Action	Mitigation
<p>4.5 Construction Impacts (continued)</p> <p>- Soil erosion and water quality</p>	<p>Substantial exposure of soils to erosion is not anticipated.</p> <p>Construction-related fuel spills and other water pollution would be minimal.</p>	<p>Soil disturbance, material stockpiles, and other aspects of construction would result in sedimentation.</p> <p>Construction-related fuel spills and other pollutant could occur over the course of 18-24 months of construction at any given location.</p>	<p>Best Management Practices will be used to avoid, minimize and mitigate erosion.</p> <p>Best Management Practices will be used to prevent, minimize and clean up any spills or other water pollution.</p>
<p>- Consumption of resources</p>	<p>Maintenance consumes minimal resources in comparison with new construction.</p> <p>Minimal waste material would be generated.</p>	<p>Rock products, lumber, fuels and asphalt would be used for construction. Production of these resources typically results in environmental effects outside the project area (e.g., quarries).</p> <p>Waste material would be generated from demolition of structures and old pavement. These wastes would hasten the consumption of capacity at area landfills.</p>	<p>Offsite production processes are governed by environmental regulations. Contractors have a financial incentive to minimize use of materials.</p> <p>CDOT will encourage its contractors to recycle or reuse waste materials.</p>
<p>- Trails</p>	<p>No disruption to trail crossings of Powers Boulevard is anticipated.</p> <p>No disruption to other nearby trails is anticipated.</p>	<p>Construction activities would disrupt use of the Stetson Hills Trail that crosses Powers Boulevard, as well as numerous Powers Boulevard crosswalks for bicyclists and pedestrians at arterial cross-streets.</p> <p>The north-south Homestead Trail, at the edge of anticipated construction for the Barnes Road interchange, may experience temporary restrictions or detour.</p>	<p>Traffic management plans for each construction project will include accommodation of crossings for bicyclists and pedestrians.</p> <p>The City of Colorado Springs and the Trails and Open Space Coalition will be given advance notice of any activity that could temporarily impair the use of any trail.</p>

Exhibit 4-44. Summary of Impacts and Mitigation (continued)

Resource	Impacts of No-Action Alternative	Impacts of Proposed Action	Mitigation
<p>4.6 Water Resources</p> <p>- Water quality</p> <p>(also addressed above for Section 4.5, Construction Impacts)</p>	<p>Because the No-Action Alternative would not affect the amount of paved surface on Powers Boulevard, the amount of stormwater runoff would not change.</p> <p>The roadway does not have stormwater management BMPs now and none are proposed.</p> <p>Increased traffic on Powers Boulevard would result in a modeled 17% to 42% increase of various water pollutants such as sediment and heavy metals.</p>	<p>The Proposed Action would construct 180 acres of additional impervious surface area, increasing the amount of stormwater runoff by an estimated 47%.</p> <p>The increased traffic volumes with the proposed freeway are expected to increase the various water pollutants from the roadway runoff by 24% to 62%.</p>	<p>Stormwater detention and other BMPs will be incorporated into the project and will capture runoff not only from the roadway but also from adjacent properties.</p> <p>Stormwater management plans and BMPs will be prepared in accordance with CDOT's MS4 permit and will be coordinated with local governments.</p> <p>Stormwater detention and other BMPs will be incorporated into the project design. They will treat runoff not only from the roadway but also from adjacent properties. The net result is an estimated 27% reduction in sediment loading in comparison to the current conditions.</p>
<p>- Floodplains</p>	<p>Maintenance of Powers Boulevard would not affect floodplains.</p>	<p>Widening the roadway at drainage crossings would reduce the amount of floodplain acreage in three drainages, affecting a total of 13.9 acres. The modified structures at Sand Creek's main channel, East Fork and Center Tributary would be designed to ensure no increase in the base floodplain elevations. The Proposed Action would not impair the natural and beneficial values of any affected floodplain.</p>	<p>No mitigation is necessary.</p>

Exhibit 4-44. Summary of Impacts and Mitigation (continued)

Resource	Impacts of No-Action Alternative	Impacts of Proposed Action	Mitigation
4.7 Ecological Resources - Grasslands	The No-Action Alternative would not change existing ecological conditions along the corridor, which are poor and declining due to continuing, intense urban development.	260 acres of grassland that abut the existing right-of-way would be converted to highway use. Much of this grassland is already highly disturbed.	No mitigation is necessary.
- Wetlands	The No-Action Alternative would not consume any wetlands.	Wetlands totaling 0.12 acre (0.10 jurisdictional) would be lost at three locations.	Compensation for this impact will be made with credits from CDOT's wetland bank in Limon.
- Riparian habitat	The No-Action Alternative would not consume any riparian habitat.	1.33 acres of riparian habitat would be lost along East Fork Sand Creek.	In accordance with Colorado law, CDOT will avoid and minimize riparian impacts in consultation with the Colorado Division of Wildlife.
- Migratory birds	The No-Action Alternative would not disturb any birds' nests.	Widening of the Powers Boulevard bridge over East Fork Sand Creek would disturb Cliff Swallow nests. A raptor nest and other bird nests in the Windmill Gulch also would be within range of possible noise disturbance due to construction activity.	No more than 7 days prior to construction, a survey will be conducted for nesting birds in the shortgrass prairie, riparian, and wetland habitat, including bridge structures during the nesting period which is normally from April 1 through August 31. If occupied nests are identified, no construction work would take place within a buffer area recommended by the Colorado Division of Wildlife until the young have fledged.
- Vegetation	The No-Action Alternative would have minimal effects to roadside vegetation.	Adjacent to the Powers Boulevard bridge over East Fork Sand Creek, plains ragweed plants (rare but not endangered) would be harmed by construction activity.	Prior to construction, rare plants will be delineated and protected with temporary fencing to minimize disturbance. The area affected by construction will be restored to provide an opportunity for the plants to reestablish themselves there.

Exhibit 4-44. Summary of Impacts and Mitigation (continued)

Resource	Impacts of No-Action Alternative	Impacts of Proposed Action	Mitigation
4.7 Ecological Resources (continued) - Noxious weeds	Routine weed control would be practiced.	Soil disturbance during construction would provide an opportunity for the spread of noxious weeds.	Disturbed areas will be re-vegetated with native species. A Noxious Weed Management Plan will be prepared and implemented, based on weed mapping that is updated and completed during project design. Any tamarisk found on CDOT right-of-way will be eradicated.
4.8 Cultural Resources - Historic resources	No historic resources would be affected.	113 feet of the Chicago, Rock Island and Pacific Railroad grade would be used for highway-right-of-way including construction of a trail overpass across Powers Boulevard.	No mitigation is required because there would be "no adverse effect" to this historic resource.
- Archaeological resources	No archaeological resources would be affected.	The project would not affect any known resources of archaeological significance.	If any resources are discovered during construction, the CDOT archaeologist will be consulted and appropriate actions taken.
4.9 Native American Consultation	No cultural resources of interest to Native Americans would be affected.	The project would not affect any known cultural resources of interest to Native Americans.	If any Native American resources are discovered during construction, consultation with the affected tribes will occur and appropriate actions taken.
4.10 Other Resources and Issues - Hazardous materials	No disturbance of hazardous materials would occur.	Seven vehicle-related businesses, including three gas stations with underground fuel tanks, would be acquired for right-of-way. During construction, contaminated soils, groundwater, or other materials may be encountered.	CDOT will remove and properly dispose of contaminated materials using appropriate safety procedures, for the protection of the construction workers, the public, and the environment.

Exhibit 4-44. Summary of Impacts and Mitigation (continued)

Resource	Impacts of No-Action Alternative	Impacts of Proposed Action	Mitigation
<p>4.10 Other Resources and Issues</p> <p>- Hazardous materials (continued)</p>	<p>No structures would be demolished.</p>	<p>47 homes and 14 commercial buildings (17 businesses) will be demolished. When clearing structures, there is always the possibility that asbestos, lead paint or other hazardous materials may be encountered.</p>	<p>CDOT's construction specifications will ensure that any hazardous materials encountered during construction are identified, handled and disposed of properly. These specifications will provide for the protection of the construction workers, the public, and the environment.</p>
<p>- Paleontological (fossil) resources</p>	<p>Routine maintenance activities would not affect fossils in the project area.</p>	<p>During construction activities, especially excavation work, fossils may be encountered.</p>	<p>Once construction plans are finalized, a qualified paleontologist will review them to determine the scope of any needed construction monitoring. If any sub-surface fossils are encountered during construction, the CDOT staff paleontologist will be notified immediately to assess their significance and make further recommendations.</p> <p>Prior to construction, CDOT will undertake collection of a statistically valid, representative sample of the contained invertebrate fossils at four fossil localities which the University of Colorado Museum has recorded as site numbers 2003071, 2003072, 2003073, and 2003081.</p>

Exhibit 4-44. Summary of Impacts and Mitigation (continued)

Resource	Impacts of No-Action Alternative	Impacts of Proposed Action	Mitigation
<p>4.10 Other Resources and Issues (continued)</p> <p>- Energy</p>	<p>Increased traffic congestion would result in wasteful energy (fuel) use. Fuel consumption during the six busiest traffic hours would increase 117% between 2005 and 2035.</p>	<p>Due to improved traffic flow, fuel consumption during the six busiest traffic hours would increase by 106% between 2005 and 2035, Compared with the No-Action Alternative, the Proposed Action would save 5,000 gallons of gasoline per day.</p> <p>Construction activity to implement the Proposed Action would result in energy use equivalent to 37 million gallons of gasoline.</p>	<p>CDOT will abide by any applicable energy conservation mandates, and will work with its contractors to encourage energy-saving construction methods and materials (e.g., modern, efficient highway lighting).</p>
<p>-Utilities</p>	<p>Ongoing maintenance, upgrades and additional utility infrastructure would occur, resulting in minimal disruption to Powers Boulevard traffic.</p>	<p>A large number and wide variety of utility lines would need to be relocated to accommodate the Proposed Action.</p>	<p>Utilities would be relocated to a shared corridor parallel and adjacent to the freeway so that the lines would be more readily accessible for maintenance.</p>
<p>-Soils</p>	<p>No maintenance excavation activities involving excavation are planned.</p>	<p>When soil and rock is excavated during construction, issues that may be encountered include expansive soils, shallow water tables, and material unsuitable for use as fill elsewhere on the project.</p>	<p>Standard soils testing would be done to identify issues that would potentially affect design or construction. Materials unsuited for use as fill would be removed to appropriate disposal sites in accordance with established safety procedures.</p>

CHAPTER 5 – PUBLIC AND AGENCY INVOLVEMENT

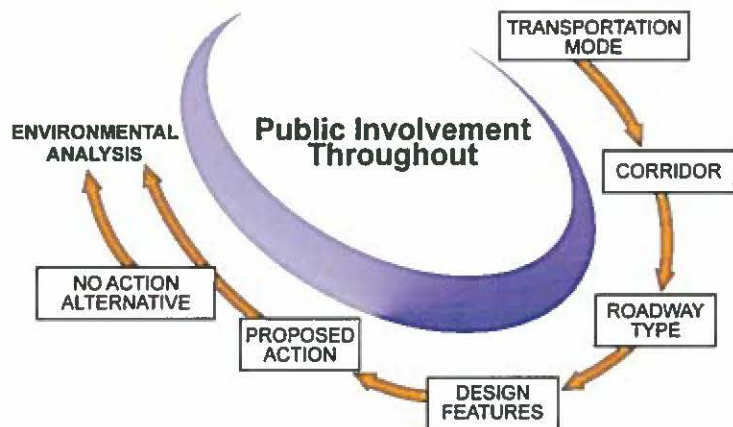
Public and agency involvement provided important direction for transportation decision-making throughout the preparation of this Environmental Assessment, and will continue to do so in any future steps leading to design and construction of the Proposed Action. The central role that public involvement played at each step in the EA is illustrated in **Exhibit 5-1**.

At the very beginning of the project, CDOT's team recognized that successful solutions to meeting the purpose and need would require a thorough understanding, not only of the characteristics of the highway and the causes for congestion, but also of the relationship between the highway and the surrounding business and residential community.

To gain this understanding, the team needed frequent and open communications with many individuals and agency partners, including residents of nearby neighborhoods and the local business community; representatives of local, state and federal agencies; and planners, engineers and other technical experts. All of these partners over many months provided information, identified issues and concerns, and contributed ideas and suggestions to address current and future capacity and safety problems on Powers Boulevard. This approach helped to clarify the business and residential context of Powers Boulevard and helped develop solutions that could potentially resolve congestion and safety problems while minimizing negative effects to the community and the environment.

This chapter summarizes the efforts that were made by CDOT and describes how the resulting input influenced project decision making. Appendix A, Agency Correspondence, describes the public and agency involvement process in more detail. It identifies the meetings and tools that were used, describes many of the issues and concerns that were expressed by the public, and documents the results of this effort. Appendix E, Context Sensitive Solutions Report, shows how many of these issues and concerns were addressed during the development of the Proposed Action. Appendix Q, Public Involvement Report, provides more detail about the public outreach efforts for this EA. All of these appendices are included in the compact disc attached to this EA.

Exhibit 5-1. Continuous Public Involvement Was a Central Focus throughout EA Development



5.1 OVERVIEW

Many different outreach tools and methods were used to engage the public during the development of this EA, from meetings and workshops to newsletters and a project website. Examples of some of these that were used are listed in **Exhibit 5-2**.

To encourage public participation early in the process, a project office was established adjacent to Powers Boulevard, at the southeast corner of the Galley Road intersection. Regular office hours were maintained several days a week and the office was open other times by appointment. This office became the focal point for obtaining information about the project, particularly for businesses and residents during the development of the Proposed Action. Current project information, maps and displays were made available, and project staff listened to issues and concerns and answered questions. Using the project hotline, individuals could make appointments for times that were convenient for them.

Exhibit 5-2. Public Outreach Tools

- Media Releases and Interviews
- Newsletters
- Public Meetings, Workshops, Individual & Small Group Meetings
- Project Office & Telephone Hot Line
- Paid Advertisements and Public Announcements
- Project Website:
www.thepowerslink.com

Direct contact with individuals by project staff was important in receiving candid and sometimes confidential information. This approach was preferred by many businesses and property developers as well as some homeowners. Information and exhibits were provided to individuals and small groups, often in their home or place of business. This was a very useful approach for capturing issues and concerns that were particularly sensitive to individuals. For example, some businesses had investment plans that they did not want publicized, or had issues regarding a neighboring business. Individual meetings with businesses and residents were also used in an outreach to minority and low-income individuals. This is discussed in the Specialized Outreach section below.

Open house public meetings were used at key project milestones as a way to inform the public about the EA process, to solicit comments, issues, and concerns, and to record ideas that might avoid or minimize potential effects to their property.

Seven sets of open house meetings were held over the course of EA development. All were informal as reflected in **Exhibit 5-3**, enabling citizens to arrive at a time convenient for them and to discuss project details one-on-one with a

Exhibit 5-3. Citizens Ask Questions at a Public Open House Meeting



number of technical experts. A variety of displays including maps and visual simulations were available for review.

In addition, briefings were provided to local elected officials and their staff, gathering comments from their constituents as well as their technical experts. Typically, briefings to elected bodies were broadcast on local cable television channels operated by those jurisdictions.

5.2 KEY ISSUES AND ACTIONS TAKEN

Although many hundreds of questions and comments were raised during the development of this EA, there were several recurring issues and themes that were heard throughout the process. The business community was predominantly concerned about potential changes in access and visibility, while the public was more concerned by possible changes in traffic patterns that might affect their neighborhood either directly or indirectly. Some concerns, such as increased traffic noise, could be addressed through appropriate mitigation measures. Others, however, required engineers, planners and technical experts to evaluate multiple options and opportunities to arrive at a solution that would minimize potential impacts. The following discussion focuses on key issues that were heard from businesses, the public, and local agencies that influenced the design of the Proposed Action.

Key issues that were raised by the public and agency staff included:

- Access and visibility to nearby business establishments
- Accommodation of future growth at the Colorado Springs Airport
- Potential for increased cut-through traffic on Rio Vista Drive
- Accommodation of crossings for bicyclists, pedestrians and equestrians
- Accommodation of a planned north-south trail between Airport Road and Bradley Road
- Potential to reduce habitat connectivity near the Bluestem Prairie Open Space
- Need for interagency coordination on design of stormwater management systems

The following describes these issues in more detail and identifies the actions that were taken to address them.

ISSUE: The business community along Powers Boulevard was concerned that making Powers Boulevard into a freeway would significantly change the way customers access their businesses. They commented many times that any change in access and local traffic patterns could affect the viability of their business.

ACTION: The project team heard this concern from the very beginning of the EA and throughout the process. To address this issue, the team met multiple times with individual businesses and with groups of businesses in a specific area, for example, those located near a proposed interchange. Dozens of these meetings were held, maps and drawings were rolled out on the table, and business owners and managers were encouraged to discuss their access needs. Most of these needs were related to the ability of customers to easily access their businesses, but in some cases, the concern was for access by their suppliers (e.g., for trucks to access loading docks). This information was then used by the project engineering team to develop access alternatives that would work within the freeway concept. When possible, multiple options were developed and were taken back for the businesses to critique. This iterative process was continued until an option was found that was acceptable to a majority of the businesses, and these were then carried forward for incorporation into the Proposed Action.

ADDRESSING ACCESS NEEDS

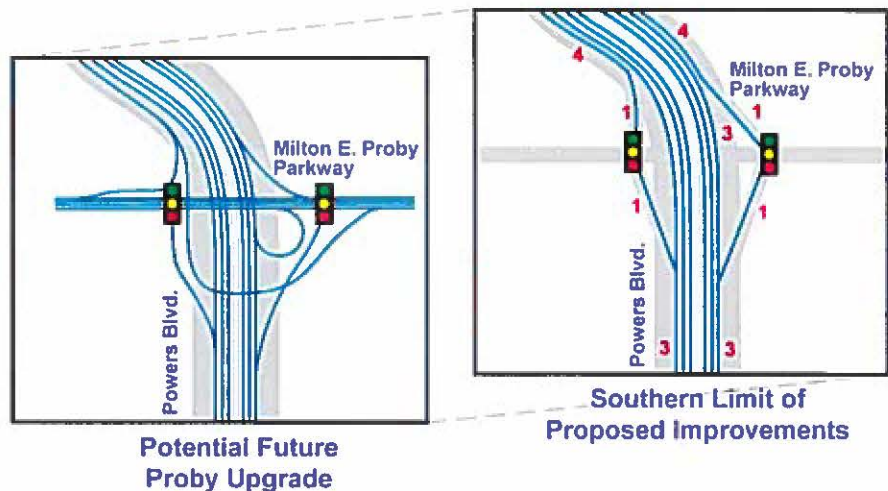
In addition to providing frontage roads in some locations and three "Texas turnaround" ramps, CDOT will build four extensions of local streets to improve continuity for local access:

- Waynoka Street, connecting Palmer Park Boulevard and Omaha Boulevard
- Paonia Street connection between Omaha Boulevard and Galley Road
- New east-west connection from Paonia Street to Conrad Street, south of Galley Road
- Aviation Way extension across Sand Creek to Industrial Drive

ISSUE: Staff from the Colorado Springs Airport explained to the project team that it expects a large amount of growth in the future from airport operations as well as its associated Business Park. For example, if a large national low-cost carrier would locate at the Airport, it would substantially increase the number of passengers. Therefore, the Powers Boulevard interchange at Milton E. Proby Parkway, the main entrance to the airport, should provide the flexibility to accommodate increased demand in the future, and preferably should provide a free-flow movement into the airport.

ACTION: Exhibit 5-4, discussed below, addresses this issue. The project's engineering team evaluated several interchange options, including some that were proposed by the airport, which would provide the desired

Exhibit 5-4. Potential Milton E. Proby Interchange Expansion



flexibility in the future to accommodate potential growth in airport traffic. This evaluation determined that a diamond interchange would be adequate to meet projected traffic demand through the year 2035, based on the PPACG regional traffic model. However, in the future as traffic warrants, a free-flow ramp could be added by others from southbound Powers Boulevard to eastbound Milton E. Proby Parkway, bypassing the signalized ramp intersections.

Exhibit 5-4, an excerpt from the diagram of the Proposed Action in Chapter 3, depicts both the proposed diamond configuration and the potential future upgrade. Note that construction of the interchange upgrade is not part of the Proposed Action. This concept satisfied the Airport's need for flexibility in the future and was acceptable to the Airport. The impacts of the expansion option were evaluated in the EA, including the extra land that would be needed from the Airport to accommodate a future upgrade of the proposed diamond interchange.

ISSUE: The neighborhood near Rio Vista Drive was concerned that non-residential traffic on Rio Vista Drive, already a problem, could increase because of the proposed freeway. Rio Vista Drive is the first north-south roadway west of Powers Boulevard, between Barnes Road and Constitution Avenue. The western side of this street is residential, and between North Carefree Circle and South Carefree Circle the eastern side of Rio Vista Drive is residential as well. The portion south of South Carefree Circle is shown in **Exhibit 5-5**.

ACTION: Cut-through traffic on Rio Vista Drive was an important consideration as the project team explored ways to accommodate traffic between Barnes Road and Constitution Avenue. Although many concepts were evaluated, CDOT's traffic engineers determined that a southbound Powers Boulevard frontage road in this stretch would reduce the potential for cut-through traffic. It would serve this north-south local circulation need for both businesses and residents in the area and is included in the Proposed Action. The frontage road would improve traffic flow both on Powers Boulevard and at its cross-streets and would reduce the need for motorists to use Rio Vista Drive as a shortcut around traffic congestion.

Exhibit 5-5. Aerial View of Rio Vista Drive between South Carefree Circle and Constitution Avenue



This frontage road concept was explained to concerned residents at open house public meetings, and was favorably received.

In addition, the project team recognized that construction activities may increase cut-through traffic on Rio Vista Drive. These efforts would help to minimize cut-through traffic, but due to the street's location and the design of the surrounding street network, the reality is that there will always be some cut-through traffic on Rio Vista Drive.

ISSUE: An evaluation of the existing trail system by the project team indicated that Powers Boulevard, as an expressway, is already a substantial barrier for pedestrians and bicyclists. Crossing the expressway at signalized intersections today is not easy due to the width of the road and the busy turn movements. The only existing trail overpass or underpass of Powers Boulevard is a pair of tunnels constructed as part of the new Woodmen Road interchange. A Powers Boulevard freeway would have the potential to increase the current barrier effect.

ACTION: During the development of the Proposed Action, the project team recognized the importance of providing connectivity of sidewalks and trails across Powers Boulevard. At key points throughout the process, the team met with staff from the City of Colorado Springs Parks, Recreation and Cultural Services Department to plan appropriate sidewalk and trail connections consistent with city plans. As a result of these discussions, the Proposed Action includes appropriate extensions of sidewalks at major cross-streets and three overpasses or underpasses for planned multi-use trails.

At most interchanges, this plan would allow bicyclists and pedestrians to cross the freeway ramps using striped, handicap-accessible crosswalks with pedestrian-actuated traffic signals. Where possible, these crossings would include "refuge islands" (a raised median area with a sidewalk) where bicyclists and pedestrians could safely wait before crossing the remaining lanes. These crosswalks would have fewer lanes to cross than the ones that cross Powers Boulevard today, and most users would find it less intimidating.

Exhibit 5-6. Location of Proposed Rock Island Trail and Sand Creek Trail Crossings of Powers Boulevard



At several locations, important multi-use trails are planned to cross Powers Boulevard. These include two major regional trails, which are planned to accommodate equestrians, and three other pedestrian and bicycle trails that connect to them. The project team worked with City staff to explore options for how to convey these planned trails over or under the proposed freeway. Of these crossings, the most complex to resolve were the Rock Island and Sand Creek regional trails, which are planned to cross Powers Boulevard about a half mile apart from each other, as shown in **Exhibit 5-6**.

The first question that the team and the City needed to address was whether or not two trail crossings were necessary since the crossings envisioned on regional trail plans are so close to each other. The two trails are planned to intersect just to the east of Powers Boulevard. If they connected to the west of Powers Boulevard, they could share a single crossing. The second question was how best to accommodate equestrians. A neighborhood less than one mile west of Powers Boulevard has 205 lots of one to two acres in size, where horses are allowed and where 20 to 30 horses are currently kept. The Rock Island Trail in this vicinity includes not only a hard-surface trail for bicyclists and pedestrians, but also a soft-surface trail beside it for equestrians.

As the result of discussions with two neighborhood representatives and a regional riding group, it was determined that crossing under the freeway was the preferred way to accommodate equestrians. Therefore, the team included in the Proposed Action an extra "cell" in the large box culvert that carries Sand Creek under Powers Boulevard. The interior height and width of the cell is large enough for use by horses. For the Rock Island Trail, an underpass could not be so readily accommodated, and an overpass is proposed. Although the project team considered design concepts to accommodate horses on an overpass, these concepts were rejected. Horses need sure footing, lateral clearance with other trail users (e.g., oncoming bicyclists), and visual shielding of the traffic and other distractions below. The result of these considerations was that an overpass for the Rock Island Trail should be designed to accommodate only bicycles and pedestrians.

Of the two trails, the Rock Island Trail is part of the region's major east-west spine trail, the America the Beautiful Trail which was honored by the White House as Colorado's Millennium Legacy Trail (RHIA, 2000). Logically, this trail across the region should cross Powers Boulevard as directly as possible, without a half-mile diversion south and back again. Since a direct overpass crossing for the Rock Island Trail would not accommodate equestrians, but the Sand Creek Trail underpass could, the Proposed Action includes both crossings.

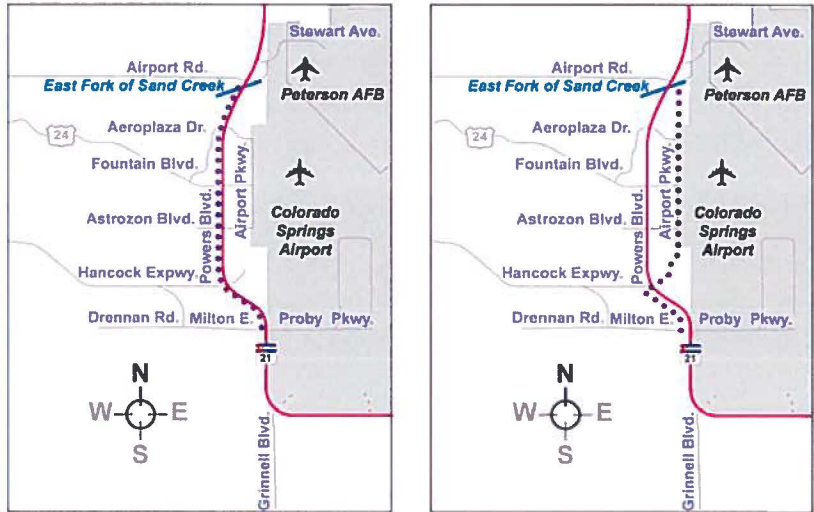
ISSUE: The City's Trails and Open Space Master Plan proposes a north-south Powers Trail that would connect the East Fork of Sand Creek to trails south of Milton E. Proby Parkway. The Proposed Action should not preclude a trail connection serving this purpose.

ACTION: The project team met with the staff of the City's Parks, Recreation and Cultural Services Department to explore options for accommodating a new trail. The City originally envisioned that a future trail would follow along Powers Boulevard, either on the eastern side, near airport-related industrial buildings, or on the western side, near mobile home parks. Highway right-of-way in the area would be extremely limited, due to the need to accommodate the freeway, water quality detention facilities (due to Clean Water Act requirements) and noise

walls. If a trail could be squeezed into the corridor, which is questionable, the trail experience would be dominated by the sight, sound and exhaust of adjacent freeway traffic.

The project team and the City developed the alternative trail alignment shown in **Exhibit 5-7**. This would follow Aviation Way south from Sand Creek to Zeppelin Drive, with access to the Skyview Sports Center. Trail users could cross under Powers Boulevard to the planned Southeast Community Park before crossing under Milton E. Proby Parkway to reach planned connecting trails. The Proposed Action would not build this trail but would accommodate this trail alignment.

Exhibit 5-7. Original Concept and Alternative Alignment for the Proposed Powers Trail



ISSUE: Pronghorn antelope are found on both sides of Powers Boulevard in the vicinity of the Bluestem Prairie Open Space (see **Exhibit 5-8**). The existing four-lane Powers Boulevard expressway already fragments the grassland in this area. The project biologists pointed out to the engineering team that the highway will continue to be a barrier, and when combined with changes in land use patterns, it would further reduce habitat continuity in the area.

ACTION: Project biologists explored options for wildlife crossings to maintain connectivity between the open space west of Powers Boulevard, and the undeveloped land east of Powers that is owned by the State Land Board. However, the State Land Board's mission is to maximize income for the benefit of Colorado's schools. Consistent with this mission, the best and highest use of the land is likely to be urban development, not wildlife conservation.

Additionally, grassland located north of the open space (on the northern side of Powers Boulevard) is owned by the Colorado Springs Airport Business Park, which has begun to develop that land.

Exhibit 5-8. Pronghorn Antelope at the Bluestem Prairie Open Space



The pronghorn issue arises in the 5.8-mile southern portion of the corridor where the Proposed Action includes no construction but instead preserves right-of-way for a future freeway. Regional development patterns for years have been gradually displacing local pronghorn herds farther and farther to the east, to less developed grassland areas. When conducting future environmental study and design for improvements in this area, CDOT will evaluate the need for wildlife crossings and other mitigation commensurate with the wildlife sustainability potential at that time.

ISSUE: Watersheds in the Colorado Springs area have had serious problems with drainage, erosion and flooding. It is important not just locally, but also for communities downstream, that stormwater in the Powers Boulevard corridor be managed effectively.

ACTION: To comply with the Clean Water Act, the City, El Paso County, and CDOT have Municipal Separate Storm Sewer System (MS4) permits from the Colorado Department of Public Health and Environment. These permits require permanent Best Management Practices to treat runoff from roadways and new development. Therefore, the Proposed Action includes water detention areas and other Best Management Practices for stormwater management. Land that would be acquired for the Proposed Action includes not only the width needed for roadway improvements but also for capturing stormwater.

WATER QUALITY COORDINATION

The Powers Boulevard Proposed Action is a large-scale project involving extensive stormwater management planning. This planning has been and will be coordinated with the City of Colorado Springs and El Paso County, for the purpose of developing mutually beneficial drainage solutions.

Extensive drainage system concepts for Powers Boulevard have been planned in cooperation with the City of Colorado Springs and El Paso County. These systems were devised not only to meet permit requirements but also to provide an efficient and effective system to minimize the potential for pollutants to enter local streams and waterways.

5.3 SPECIALIZED OUTREACH TO MINORITY AND LOW-INCOME PERSONS

Beyond the outreach to the general public using tools described earlier in this chapter, specialized outreach efforts were undertaken to ensure opportunities for participation in EA decision-making by minority and low-income populations. Approximately 12% of residents in the Powers Boulevard corridor reported themselves to be Hispanic in the 2000 Census, which is consistent with the percentage for the entire city. About 4.7% of households in the corridor are considered low-income, compared to 7.8% citywide. About 6% of the city's population speaks Spanish at home, which is more than all other non English-speaking households combined. Based on these US Census data, the Powers Boulevard corridor is not considered to have higher than average concentrations of minority or low-income persons than the rest of Colorado Springs. However, statistics at the corridor or Census block level have the potential to miss minority or low-income enclaves in small areas, such as adjacent to a highway.

Specialized outreach efforts were focused primarily toward those who would be most directly affected by the Proposed Action, and not because they were thought to be minority or low-

income individuals. Representatives from the project team conducted one-on-one interviews and small group meetings with residents, neighborhood groups and businesses where a home or business was expected to be acquired by CDOT, as follows:

- Personal interviews were conducted in the affected homes (or conducted by phone) with residents and non-resident owners of duplexes on Gunshot Pass Drive.
- Community meetings were held in the clubhouses of the Canterbury and Meadows Mobile Home Parks.
- Meetings were held with owners and managers of businesses that were considered likely to be acquired.

The primary purpose of these meetings was to explain the EA process, the Proposed Action, and the right-of-way acquisition and relocation process to these potentially affected parties. A secondary purpose was to assess potential socio-economic effects.

The two meetings held at the mobile home parks were scheduled in advance with the managers of these communities. Meeting information was posted in both English and Spanish on each community's bulletin board. The mobile home communities could be affected by access changes and increased traffic noise, but only one household would be displaced. Most meeting attendees were primarily interested in when the project might be built. When they learned that construction was likely at least a decade away, many attendees commented that they did not expect to still be in the area by then.

Direct contacts were attempted with all owners of residential properties where a household might be displaced by the Proposed Action. These included one mobile home unit and 46 Gunshot Pass Drive households in 23 duplex units. Direct mail, telephone calls and even door-hanger information bags were used in multiple attempts to schedule meetings with property owners and tenants. The project team offered to make meeting appointments with these residents at their convenience, day, night or weekend.

HOUSEHOLD INTERVIEWS

A personal invitation to meet and discuss the Powers Boulevard EA was extended to the owner of every residential property where a household would be displaced by the Proposed Action. Interview results were consistent with Census data in suggesting that the project would not disproportionately affect minority or low-income households.

Ultimately, 25 owners and two tenants participated in interviews. Four other owners and one tenant responded to say they did not want to be interviewed. No response was received from the remaining owners, some of whom may have been military personnel deployed overseas. There is no reason to believe that any language barrier was responsible for the non-responses, based on a review of the surnames of these residents. Additionally, the surnames of affected property owners did not appear to be indicative of any localized ethnic concentration.

At meetings with potentially affected business owners or managers, the interviews included questions not only about the ownership and the nature of the business, but also about their employees. The number of interviews conducted (23) exceeded the number of businesses that would be displaced by the Proposed Action (17) for two reasons. First, in cases where both the business tenant and the property owner were interviewed, there were multiple interviews for a single property. Second, some interviews were conducted with businesses that are no longer expected to be acquired as a result of the Proposed Action.

BUSINESS INTERVIEWS

Interviews were conducted in 2005 with property owners or tenants at every business that might be displaced by the Proposed Action. Displacing these businesses would not disproportionately affect minority or low-income business owners, employees or customers. More recently established businesses that would be displaced appear to have similar characteristics.

Interview Results

One Hispanic-owned business was identified, as well as five Hispanic households. While the 23 duplexes (46 households to be displaced) and mobile homes (one household to be displaced) are of lower market value than the median home price for the area, there was no indication that any of the residents there met the threshold for "low income" used in this EA. That threshold was a household income at or below \$22,540 (year 2000 dollars).

The attempt to contact all parties that might be displaced by the Proposed Action was like a "snapshot" in time. The Powers Boulevard corridor is a dynamic place with frequent residential and business turnover. Thus, some of the residents and business people who were interviewed are no longer present, and there are clearly other new businesses and residents now present who were not interviewed. The one-time attempt to contact all affected parties cannot provide any guarantee of future socio-economic characteristics in the corridor.

Bilingual Outreach

Additional outreach to the region's largest minority was made by sending press releases to the *Hispania News*. The Hispanic community is the primary target market of this Colorado Springs-based bilingual publication. Ads publicizing all public open house meetings for the Powers Boulevard EA were published in this weekly newspaper, as well as the region's daily newspaper, the *Gazette*.

Meeting Locations

Powers Boulevard public open house meetings were held at locations along the corridor for the convenience of potentially affected parties. The meetings were usually held at multiple locations, presenting identical information on several different weeknights. The meeting location closest to Gunshot Pass Drive was less than one mile away from that neighborhood, and the meeting location closest to the mobile home parks was less than two miles away from those communities.

5.4 FUTURE PUBLIC AND AGENCY INVOLVEMENT

After reviewing all the information in this EA, and after considering all public and agency comments made regarding it, CDOT and the FHWA will make decisions about whether or not the Proposed Action can be approved for implementation. If it is decided to proceed with the Proposed Action, public and agency involvement for the Proposed Action would be an ongoing effort for a number of years, since the project is not expected to be fully funded and constructed within the next decade. CDOT would maintain lines of communication to provide information about the project and to answer questions that arise. Continuing land development pressure would necessitate monitoring of proposed developments to ensure that they are compatible with the Proposed Action.

If funding becomes available, CDOT would solicit further public input during project design. Extensive dialogue with affected parties would take place when the time comes for utility relocation, final right-of-way acquisition and design decisions regarding noise barriers. Of course, extensive public involvement and agency coordination would also be needed before and during any construction projects, so that the public is aware in advance of any detours, access changes and expected traffic delays due to construction. Media alerts and website postings would be key tools for disseminating these details in a timely manner.

CHAPTER 6 – SECTION 4(f) *DE MINIMIS* IMPACT DOCUMENTATION

6.1 OVERVIEW

Since 1966, a legal provision that applies only to Federal transportation actions has afforded strong protection to publicly owned land in public parks, recreation areas, and wildlife and waterfowl refuges. It also protects historic sites on publicly or privately owned land. Because this provision was contained in Section 4(f) of the U.S. Department of Transportation Act of 1966, the regulations that implement this provision are often referred to as Section 4(f) requirements. In brief, Section 4(f) prohibits Federal transportation agencies from using land with the protected resources listed above unless there is no feasible and prudent alternative to the use, and the action includes all possible planning to minimize harm to the property resulting from the use.

The Powers Boulevard Proposed Action is expected to affect three Section 4(f) resources:

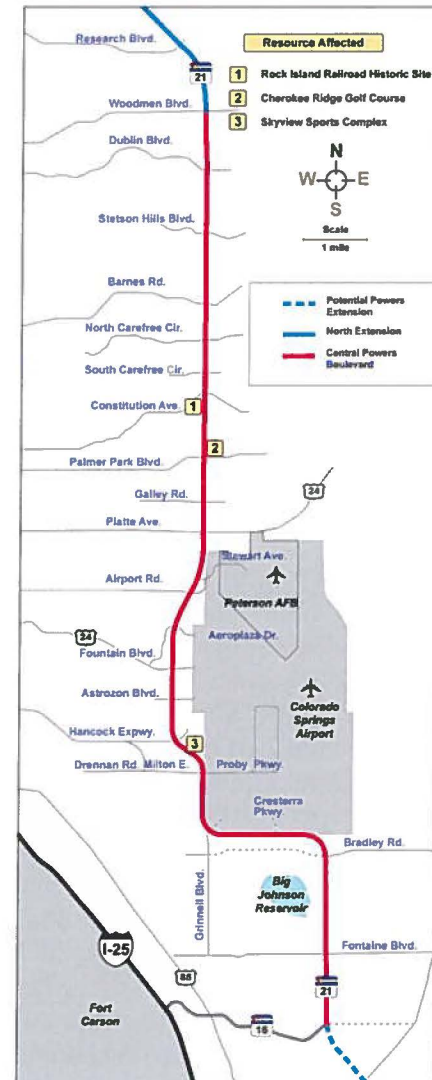
- An historic site, the railroad grade of the former Chicago, Rock Island and Pacific Railroad
- The Cherokee Hills Golf Course property, a public facility owned and operated by the Cherokee Metropolitan District
- The Skyview Sports Complex, operated by the Parks, Recreation and Cultural Services Department of the City of Colorado Springs.

The locations of these resources are shown in **Exhibit 6-1**.

Recognizing that these were Section 4(f) resources, CDOT made extensive efforts to avoid and minimize impacts to them when developing a conceptual design in the alternatives development process. However, it was concluded that the need to acquire small parcels of land from the railroad grade, golf course and the sports complex for highway right-of-way would be unavoidable.

When the likelihood of impacts was identified, CDOT consulted with the agencies having jurisdiction to determine how the resources would be affected by the Proposed Action. Through these efforts, it has been determined that the use of the land needed for highway right-of-way will have no adverse effect on

Exhibit 6-1. Location of Section 4(f) Resources Affected by the Proposed Action





the historic resource and will not impair the recreational use of the golf course or the sports complex.

De Minimis Impacts

A 2005 change to the Section 4(f) requirements allows transportation uses of protected land if the resulting impact to the resource would be negligible, or "*de minimis*." When this is the case, FHWA can make a *de minimis* impact determination, which does not require an analysis of avoidance alternatives or a least harm analysis (23 CFR 774.17[5]).

The *de minimis* criteria and associated determination are different for historic sites than for parks, recreation areas, and wildlife and waterfowl refuges. The primary differences are:

- For historic sites, *de minimis* impacts are based on the determination that no historic property is affected by the project or that the project will have no adverse effect on the historic property in accordance with Section 106 of the National Historic Preservation Act. The finding must be developed after consultation with the parties involved in the Section 106 determination, and the State Historic Preservation Officer (SHPO) must concur in the effect determination.
- For publicly owned parks, recreation areas, and wildlife and waterfowl refuges, *de minimis* impacts are defined as those that do not "adversely affect the activities, features and attributes" of the Section 4(f) resource. The public must be afforded an opportunity to review and comment on the findings.

6.2 FINDINGS OF DE MINIMIS IMPACTS

FHWA has made *de minimis* findings for each of the three Section 4(f) resources that would be affected by the Proposed Action. FHWA findings regarding the railroad were documented in a letter dated January 7, 2009. FHWA findings regarding the golf course and the sports complex were documented in a letter dated October 21, 2009. These letters and all relevant correspondence with consulting parties are included in Appendix A, Agency Correspondence. The consultation is summarized briefly below.

Chicago, Rock Island and Pacific Railroad (5EP1815/5EP1815.9) - As stated in FHWA's Guidance for Determining *De Minimis* Impacts to Section 4(f) Resources (FHWA 2005), the State Historic Preservation Officer (SHPO) must concur in writing with the Section 106 "no adverse effect" determination and must be informed that FHWA intends to make a *de minimis* finding based on the Section 106 effect determination. Consulting parties under Section 106 must also be informed of the *de minimis* finding. On October 31, 2008, CDOT submitted a letter to SHPO requesting a letter of eligibility and effects determination, and indicated FHWA's intent to make a *de minimis* finding. SHPO concurred with the "no adverse effect" finding on November 11, 2008, provided that no new information from consulting parties would result in a reconsideration of this finding (see letter in Appendix A, Agency Correspondence). As the certified local government with jurisdiction for this site, the City of Colorado Springs was informed of the *de minimis* finding on November 10, 2008. The City, in consultation with the Historic Preservation Board, concurred on November 26, 2008 in the "no adverse effect" determination and had no objection to a *de minimis* finding. On January 7, 2009, FHWA made a *de minimis* finding for this resource.

Cherokee Ridge Golf Course - On March 13, 2009, CDOT met with officials of the District and the Cherokee Ridge Golf Course to review the anticipated impacts of the Proposed Action and to confirm that this land is not used for recreation. Subsequently, the Board of Directors of the Cherokee Metropolitan District at their April 14, 2009 public meeting authorized the District's Manager to send CDOT a letter concurring with the proposed *de minimis* finding for this resource. The letter, included in Appendix A, Agency Correspondence, indicates that in the view of the owner of this property, the Powers Boulevard Proposed Action would not "adversely affect the activities, features, and attributes that qualify the property for protection under Section 4(f)." On October 21, 2009, FHWA made a *de minimis* finding for this resource.

Skyview Sports Complex - On December 10, 2008 and March 6, 2009, CDOT met with staff of the City of Colorado Springs Department of Parks, Recreation and Cultural Services to discuss effects of the Powers Boulevard Proposed Action on the Skyview Sports Complex. City staff agreed with CDOT that the Proposed Action would not adversely affect the activities, features, and attributes that qualify the property for protection under Section 4(f). Since the City is in the process of paying for this facility over time, a separate entity called the City of Colorado Springs Public Facility Authority has responsibility for matters relating to the ownership of the property. At their meeting on August 7, 2009, the authority's Board of Directors directed its president to transmit a letter to CDOT concurring with a *de minimis* finding. That letter is included in Appendix A, Agency Correspondence. Concurrence was also provided by the Colorado Springs Parks and Recreation Advisory Board at their regularly monthly meeting on October 8, 2009. This open public meeting afforded an opportunity for citizens to comment regarding the effects of the Proposed Action on the operation and recreational use of the facility. However, no public comments were received. Subsequently, on October 21, 2009 FHWA made a *de minimis* finding for this resource.

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