

EXECUTIVE SUMMARY

The Colorado Department of Transportation (CDOT) and the Federal Highway Administration (FHWA) propose improvements to the I-70 Corridor where it traverses northeast Denver, Colorado, from I-25 on the west to Tower Road on the east. The National Environmental Policy Act (NEPA) of 1969, requires that projects that are federally funded and may have an impact on the environment must be analyzed through a rigorous process that allows the public to understand and comment on the benefits and impacts of the project.

This Draft Environmental Impact Statement (DEIS) process began in 2003 as the I-70 East Corridor EIS. The process was initially a joint effort among CDOT, FHWA, the Regional Transportation District (RTD), the Federal Transit Administration (FTA), and the City and County of Denver (CCD).

In June 2006, however, it was determined that the highway and transit elements of the I-70 East Corridor EIS process serve different travel markets, are located in different corridors, and have different funding sources. Therefore, the highway and transit components of the analysis were separated; this I-70 East EIS focuses on the highway improvements between I-25 and Tower Road and is being conducted by CDOT and FHWA. The EIS for the transit elements of this area (East Corridor EIS) are being completed by RTD and FTA; documents on the transit components will be available for public review in 2009. More information on the transit elements of this corridor is available at www.eastcorridor.com.

I-70 is part of the national interstate highway system and, as shown in Exhibit S-1, it is the transportation backbone for east-west travel in the Denver region and the state, serving the growing development identified within the region as well as inter-regional and interstate travel. Within the project area, I-70 is part of a system of existing and planned intra-regional highway and transit corridors, connecting with I-25, I-270, and I-225.

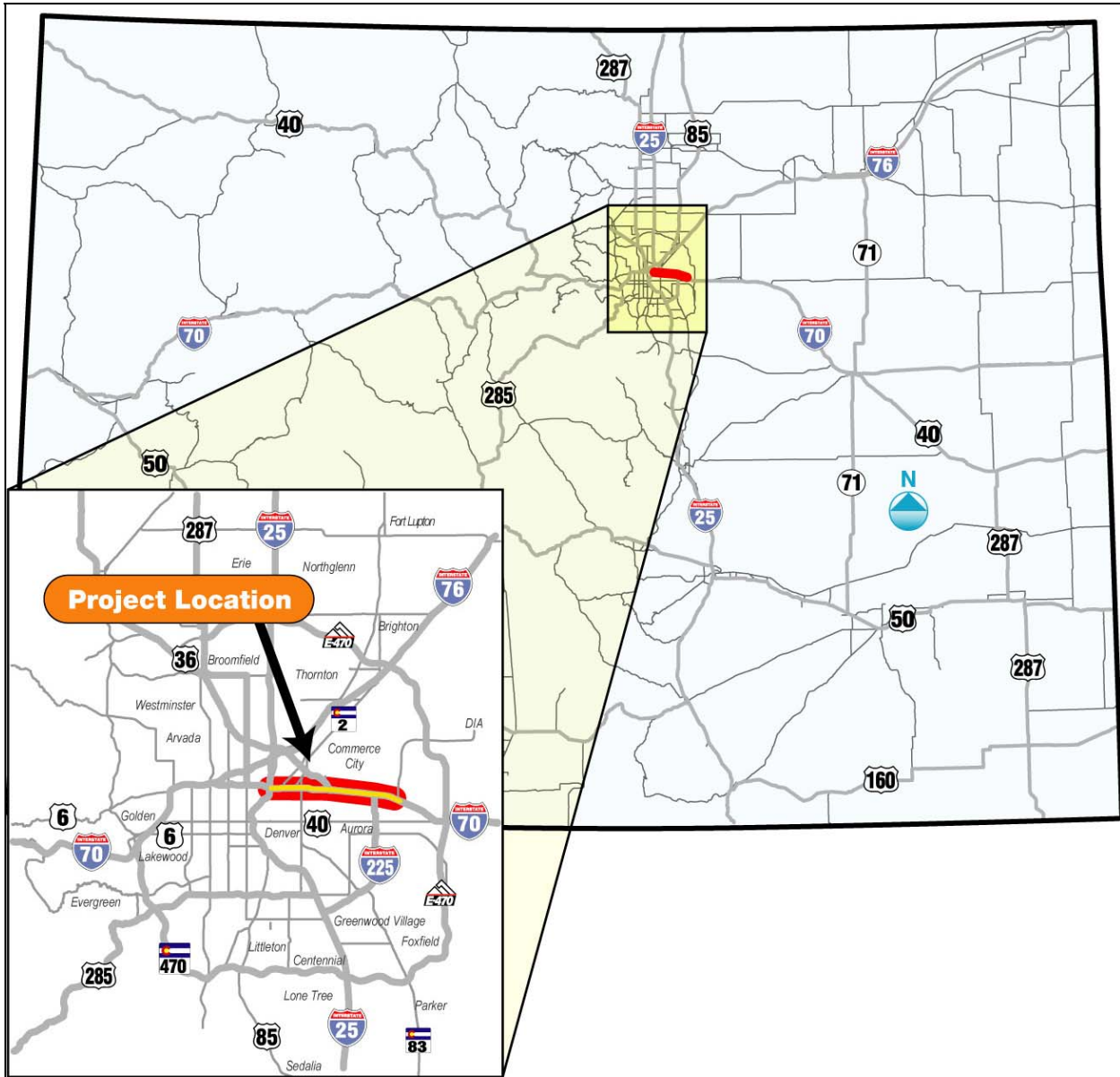
As shown in Exhibit S-2, the project limits extend along I-70 between I-25 and Tower Road and the project area covers established neighborhoods on the west end of the corridor and emerging residential and commercial areas on the east. It includes portions of Denver, Commerce City, Aurora, Adams County, and several Denver neighborhoods including Globeville, Five Points, Elyria and Swansea, Cole, Clayton, Northeast Park Hill, Stapleton, Montbello, Green Valley Ranch, and Gateway.

Existing and forecasted traffic volumes were the main factor in determining the project limits on I-70. Forecasted volumes range from 112,000 to 267,000 vehicles per day between I-25 and Peña Boulevard and decline further east, thus the limits were established at I-25 and Tower Road. An approximate one-mile buffer was created around the project limits to establish the project area. The project area was used to frame the range of transportation solutions and examine existing resource conditions.

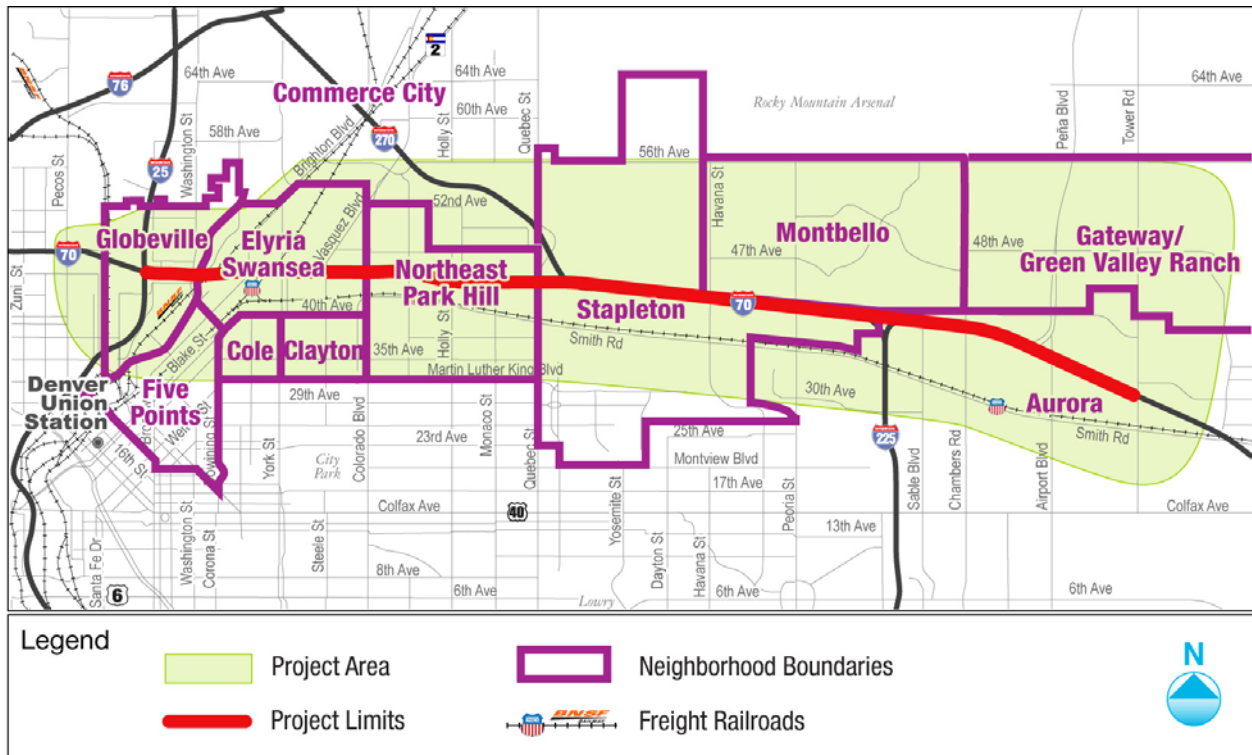
The intent of the I-70 East EIS is to identify highway improvements along I-70 and to comply with the policies and procedures under NEPA. Federal agencies are required by NEPA to prepare an EIS for major federal actions that could significantly affect the quality of the human and natural environment. The I-70 East EIS analyzes alternatives that are intended to meet the project purpose and need and details the process through which highway improvement alternatives were developed; discloses foreseeable social, economic, and environmental impacts resulting from the project; provides findings for public review; and outlines mitigation measures to minimize impacts.

This DEIS is available for review and comment to interested parties, including state and federal agencies, citizens, and elected officials. During the DEIS review period of 45 days, a public hearing will be held and comments will be recorded.

Exhibit S-1 I-70 within the State of Colorado Transportation System



**Exhibit S-2
Project Area**



S.1 PURPOSE AND NEED

The purpose of the project is to implement a transportation solution that improves safety, access, and mobility and addresses congestion on I-70. The need for the project results from several issues:

Increased Transportation Demand

The project area is experiencing rapid growth and development. This includes new development areas and redevelopment areas with substantial residential populations and business activity. The land use and development trends within the corridor will result in additional demands on the transportation system. Providing access and maximizing travel to, through, and within the corridor is critical to maintaining economic viability. This includes maintaining and enhancing connections between major activity centers within close proximity to the corridor.

Recent population and employment growth within the Denver region has resulted in increased travel demand in the corridor. Population and employment growth in the project area has been heavily influenced by the development of Denver International Airport (DIA) and other areas, and has increased by about 20 percent between 1996 and 2001, an annual growth rate of five percent. Development in the project area is projected to continue in the future as population is expected to increase 75 percent and employment is expected to increase 71 percent from 2001 to 2030, with annual growth rates of 2.5 percent and 2.4 percent, respectively. The slowing of the growth rate in the future reflects that most of the developable land in the central and eastern parts of the project area will approach build-out by 2030.

Based on the population and employment projections for 2030, access to activity centers, residential areas, and employment will become more difficult. Access to and from I-70 is provided through the existing interchanges. The interchanges at Vasquez Boulevard, Peoria Street, and Chambers Road currently have traffic and congestion issues and with the continued growth, these issues will worsen. A significant number of the people traveling on I-70, from 50 to 70 percent, begin or end their trip within the project area. I-70 also serves as a gateway to Aurora and Commerce City, provides regional access to the Stapleton Redevelopment Area and the developing northeast portion of the project area, and is a critical link for travel to DIA. In addition to accommodating airport and inter-city travel, the I-70 Corridor is home to many industrial and warehousing businesses. These businesses account for much of the trucking and freight operations located in the corridor. Between 7 and 14 percent of the traffic on I-70 is truck traffic. East of Peña Boulevard, truck traffic accounts for approximately 14 percent of the total traffic. Truck access to these established areas and future activity centers is important for future economic development.

Limited Transportation Capacity

I-70 serves a growing number of users ranging from commuters and tourists from outlying areas and DIA to regional trucking and local traffic. The demand from these various users is exceeding the existing design capacity of I-70 and associated interchanges.

Currently, I-70 within the project area is nearing or has exceeded capacity, carrying between 35,000 and 195,000 vehicles per day (east of Airport Boulevard and east of I-270, respectively) depending on the location in the corridor. Forecasted traffic for the year 2030, developed using the Denver Regional Council of Governments' 2030 travel demand model, shows that traffic on I-70 will increase substantially, carrying from 120,000 and 267,000 vehicles per day for those same sections by 2030. The current capacity for those corresponding sections averages 90,000 and 180,000 vehicles per day, respectively. This increase in traffic will result in more congestion, longer delays, and increased potential for crashes.

Without improvements, hours of congestion experienced by travelers on I-70 in the corridor will continue to increase. Currently, the highway between I-270 to I-225 experiences congestion for 12 percent of the day. By 2030, that period will increase to 42 percent of the day without improvements.

Safety Concerns

I-70 in the project area generally experiences traffic crashes at rates higher than the state average for urban freeways. Crashes on I-70 cause traffic congestion that cannot be predicted or avoided and add to or worsen the daily hours of congestion that results from travel demand that exceeds the normal capacity of the roadway. The unpredictable nature of this non-recurring traffic congestion on I-70 is inconvenient to freight carriers, employers, manufacturing, and business interests in the region as well as commuters and residents that depend upon reliability for their daily travel.

Higher than average crash rates can often be attributed to roadway conditions that do not meet current design standards, such as those found on sections of I-70. Many of the deficiencies that contribute to higher crash rates on I-70 include:

- Inadequate acceleration and/or deceleration lane length.
- Insufficient sight distances at entrance and exit ramps.
- Ramp design speeds that are too low.
- Insufficient shoulder widths of only two feet.

- Interchange spacing of less than one mile that creates weaving issues for traffic entering and exiting the highway.
- Inadequate roadway drainage.
- Other geometric deficiencies.

Transportation Infrastructure Deficiencies

I-70 was constructed in the early 1960s with bridge and drainage structures designed to last for 30 years. Now past their anticipated life span, nine structures on the corridor are classified as either structurally deficient or functionally obsolete and in need of replacement, rehabilitation, or repair. The 1.2-mile portion of the viaduct between Brighton Boulevard and Colorado Boulevard was constructed in 1964. The current sufficiency rating of the viaduct is 44 out of a possible 100, which is considered structurally deficient, functionally obsolete, and requiring replacement.

S.2 ALTERNATIVES CONSIDERED

Numerous alternatives were proposed as transportation improvements in the project area. Alternatives were developed based on input from the community at corridor-wide meetings in December 2003 and February 2004 and through involvement with affected agencies at scoping and committee meetings in late 2003 and early 2004. Alternatives were also obtained from previous studies and new concepts developed by the project team.

After completion of project scoping with interested stakeholders, the local community, cooperating agencies, and others, a list of project goals and objectives was developed by the project team. Based on the project purpose, need, goals, and objectives, specific evaluation criteria were established to compare alternatives and determine which alternatives would best address the issues and needs for the corridor.

A four-level screening process was used to reduce the full range of potential alternatives considered to the set of reasonable alternatives that received full evaluation in the DEIS. Alternatives were evaluated with increasing levels of detailed analysis at each screening level: initial screening, comparative screening, detailed screening, and alternative refinement. This process included extensive public and agency scrutiny through corridor-wide meetings, project committees, and community working groups. As a result of the screening process, a series of reasonable build alternatives, as well as the No-Action Alternative, are fully evaluated in the I-70 East DEIS.

Each of the alternatives took into account other transportation system improvements within the project area that are reflected in approved transportation plans and programs. These include major transit projects such as RTD's East Corridor commuter rail project and improvements to surface streets.

The No-Action Alternative was evaluated to identify the environmental impacts of not making major improvements to I-70. Evaluating this alternative also helps determine whether the benefits of the build alternatives are acceptable considering cost and environmental, economic, and social impacts. The No-Action Alternative must be given full consideration and a thorough evaluation in order to compare it adequately to the build alternatives. The No-Action Alternative includes replacement of the existing I-70 viaduct between Brighton Boulevard and Colorado Boulevard. While this replacement in itself would be a major investment (\$396 to \$606 million, depending on right of way [ROW] costs), the determination has been made by CDOT that regardless of the alternatives being considered, the viaduct must be replaced (for Alternatives 1 and 3) or removed (for Alternatives 4 and 6) if I-70 is to remain a safe, functioning highway.




The four build alternatives include two variations on alignment and two variations on lane configuration. Two alternatives would be on the existing alignment through the entire corridor and two alternatives would place I-70 on new alignment in a portion of the corridor. Each of those alignment scenarios has two lane configurations. One lane configuration would add general purpose lanes to the existing lanes along the entire corridor. The second lane configuration would add two tolled express lanes in each direction in the middle of the corridor.

In addition to these four basic alternatives, design options have been identified for each of the alternatives being evaluated in the DEIS.

- For alternatives on the existing alignment, the section between Brighton Boulevard and Quebec Street would either be widened to the north or to the south.
- For realignment alternatives, two alignment options are being considered in the vicinity of the National Western Complex.



These four basic alternatives and their design options are described further in Exhibit S-3. Detailed information on these alternatives, as well as other alternatives that were considered is included in Chapter 3, Alternatives Considered.

**Exhibit S-3
DEIS Alternatives**

Alternative	Description/Key Features	Design Options
 No-Action	<ul style="list-style-type: none"> • Replace the viaduct between Brighton Boulevard and Colorado Boulevard without any added capacity 	<ul style="list-style-type: none"> • Shift north (No-Action North) • Shift south (No-Action South)
 1 EXISTING Add general purpose lanes on the existing alignment	<ul style="list-style-type: none"> • Typical lane configuration: <ul style="list-style-type: none"> - Add one general purpose lane in each direction: I-25 to Brighton Boulevard (restriping), I-225 to Tower Road - Add two general purpose lanes in each direction: Brighton Boulevard to I-225 • Eliminate York Street interchange • New interchange at Central Park Boulevard • Columbine Street and Clayton Street would no longer have north-south access across I-70 	<ul style="list-style-type: none"> • Shift north between Brighton Boulevard and Quebec Street (Alternative 1 North) • Shift south between Brighton Boulevard and Quebec Street (Alternative 1 South)
 3 EXISTING, TOLLED Add tolled express lanes on the existing alignment	<ul style="list-style-type: none"> • Typical lane configuration: <ul style="list-style-type: none"> - Add one general purpose lane in each direction: I-25 to Brighton Boulevard (restriping), I-225 to Tower Road - Add two general purpose lanes in each direction: Brighton Boulevard to Holly Street - Add two tolled express lanes in each direction: Holly Street to I-225 • Eliminate York Street interchange • New interchange at Central Park Boulevard • Columbine Street and Clayton Street would no longer have north-south access across I-70 	<ul style="list-style-type: none"> • Shift north between Brighton Boulevard and Quebec Street (Alternative 3 North) • Shift south between Brighton Boulevard and Quebec Street (Alternative 3 South)

Note: Alternatives 2 and 5 were eliminated during the screening process.

**Exhibit S-3
DEIS Alternatives**

Alternative	Description/Key Features	Design Options
 <p>4 REALIGNED</p> <p>Realignment with general purpose lanes</p>	<ul style="list-style-type: none"> • Typical lane configuration <ul style="list-style-type: none"> - Add one general purpose lanes in each direction: I-25 to Brighton Boulevard (restriping), I-225 to Tower Road - Construct/add four general purpose lanes in each direction along the realignment: Brighton Boulevard to I-270/I-70 connection - Add two general purpose lanes in each direction: I-270 to I-225 • Existing interchanges at Colorado Boulevard and Quebec Street would be retained and modified • New interchange at Central Park Boulevard • New interchange at Colorado/ Vasquez Boulevards on realignment • Viaduct would be removed and 46th Avenue would be rebuilt as a four-lane arterial roadway 	<ul style="list-style-type: none"> • Western connection to I-70 near Brighton Boulevard (Alternative 4 West) • Eastern connection to I-70 near Brighton Boulevard (Alternative 4 East)
 <p>6 REALIGNED, TOLLED</p> <p>Realignment with tolled express lanes</p>	<ul style="list-style-type: none"> • Typical lane configuration <ul style="list-style-type: none"> - Add one general purpose lane in each direction: I-25 to Brighton Boulevard (restriping), I-225 to Tower Road - Construct/add four general purpose lanes in each direction along the realignment: Brighton Boulevard to west of Colorado Boulevard - Construct/add three general purpose lanes and two tolled express lanes in each direction: west of Colorado Boulevard to I-270/I-70 connection - Add two tolled express lanes in each direction: on I-270 portion of realignment, I-270 to I-225 • Existing interchanges at Colorado Boulevard and Quebec Street would be retained and modified • New interchange at Central Park Boulevard • New interchange at Colorado/ Vasquez Boulevards on realignment • Viaduct would be removed and 46th Avenue would be rebuilt as a four lane arterial roadway 	<ul style="list-style-type: none"> • Western connection to I-70 near Brighton Boulevard (Alternative 6 West) • Eastern connection to I-70 near Brighton Boulevard (Alternative 6 East)

Note: Alternatives 2 and 5 were eliminated during the screening process.

As shown in Exhibit S-4, construction costs for the build alternatives range from \$1.26 billion (Alternative 1 North) to \$1.99 billion (Alternative 6 West). The estimated cost of the No-Action Alternative would range from \$396 million to \$606 million, depending on the design option and ROW costs.

**Exhibit S-4
Construction and Maintenance Cost Summary**

Alternative	Construction Cost (million, 2005 dollars)*	Annual Maintenance Cost (million, 2005 dollars)
No-Action North	\$396 - \$411	\$14.6
No-Action South	\$491 - \$606	\$14.5
Alternative 1 North	\$1,260 - \$1,277	\$21.2
Alternative 1 South	\$1,328 - \$1,443	\$21.1
Alternative 3 North	\$1,415 - \$1,432	\$22.5
Alternative 3 South	\$1,479 - \$1,594	\$22.4
Alternative 4 West	\$1,639 - \$1,743	\$20.6
Alternative 4 East	\$1,531	\$21.1
Alternative 6 West	\$1,885 - \$1,989	\$24.2
Alternative 6 East	\$1,785	\$24.6

**Cost ranges for Alternatives 1 and 3 and the No-Action Alternative represent upper and lower ranges for ROW costs for properties between Brighton Boulevard and Colorado Boulevard. Ranges for the western connection option of Alternatives 4 and 6 represent upper and lower ranges for ROW costs for parcels associated with the National Western Complex.*

Following the public review and comment period for this DEIS, a Final EIS (FEIS) will be initiated. As part of that document, a preferred alternative will be identified, which defines the proposed I-70 improvement program, with detailed finance plans.

S.3 TRANSPORTATION IMPACTS AND MITIGATION MEASURES

Implementation of improvements to I-70 has the potential to affect the surrounding transportation system including other roadways, transit services, rail and motor freight, and bicycle and pedestrian facilities.

The No-Action Alternative would not adequately improve the transportation system to meet future needs of the corridor. Congestion would continue to worsen and the need for a reliable mobility choice within the project area would remain. Travel times from I-25 to Tower Road would increase from today's 16 minutes to 32 minutes by 2030, even with all of the approved projects in the *DRCOG 2035 Metro Vision Regional Transportation Plan (2007b)*. In the opposite direction, from Tower Road to I-25, the increase would be more dramatic, from 19 minutes to 60 minutes.

Detailed information on the impacts of the project alternatives on various transportation systems is included in Chapter 4, Transportation Impacts and Mitigation Measures.

S.4 AFFECTED ENVIRONMENT, ENVIRONMENTAL CONSEQUENCES, AND MITIGATION

Detailed studies were conducted to determine the effects of the project alternatives on different social, environmental, and economic resources including:

- Social and economic conditions
- Environmental justice
- Land use and zoning
- Land acquisition, displacements, and relocation of existing uses
- Historic preservation and paleontological resources
- Visual and aesthetic qualities
- Parklands and recreation areas
- Air quality
- Energy
- Noise
- Biological resources
- Floodplains and drainage/hydrology
- Wetlands and waters of the U.S.
- Water quality
- Geology and soils
- Hazardous materials
- Utilities
- Construction
- Cumulative effects

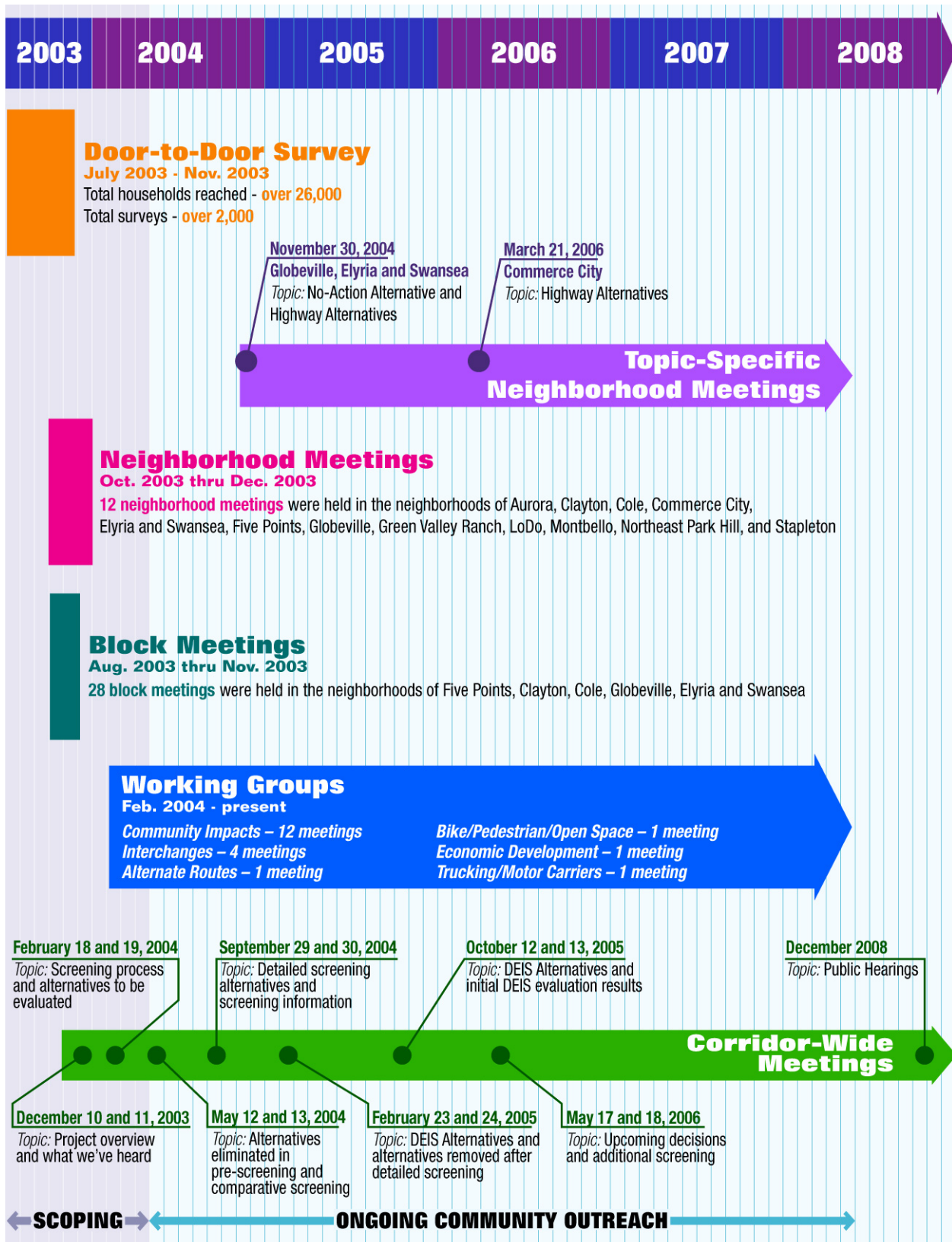
Exhibit S-6 at the end of this chapter summarizes the impacts of project alternatives and includes mitigation strategies to address the effects. Detailed information on the existing conditions in the corridor; effects of the project alternatives on the various social, environmental, and economic resources; and mitigation strategies are included in Chapter 5, Affected Environment, Environmental Consequences, and Mitigation.

S.5 COMMUNITY OUTREACH AND AGENCY INVOLVEMENT

The I-70 EIS has followed an extensive community and agency involvement process since the project began in July 2003 as the I-70 East Corridor EIS. From the beginning, the overall goal of the community outreach and agency involvement program has been to solicit input through an open, dynamic process that includes as many of the residents, businesses, agencies, stakeholders, and community groups within the project area as possible. The process has been structured to involve people early and often, and share information as it has become available. Exhibit S-5 highlights the community outreach activities that have occurred throughout the development of the DEIS. Detailed information on the extensive community and agency involvement process is included in Chapter 6, Community Outreach and Agency Involvement.

The I-70 East EIS committee structure provided a framework for involvement by all interested agencies. The corridor complexity, multiple competing interests, and high-level of sensitivity demanded an encompassing outreach and committee structure to ensure that everyone was provided an opportunity for meaningful involvement. The structure also managed the wealth of ideas of the multiple participants that sometimes had conflicting interests. In addition, coordination activities with federal and state resource agencies included phone calls, emails, letters, and meetings to provide study information to these agencies and to gain necessary acceptance through the planning and environmental process.

**Exhibit S-5
Community Outreach Activities**



S.6 SECTION 4(F) EVALUATION

Section 4(f) of the United States (U.S.) Department of Transportation Act of 1966 declares that "[it is] the policy of the United States Government that special effort should be made to preserve the natural beauty of the countryside and public park and recreation lands, wildlife and waterfowl refuges, and historic sites" (49 United States Code §303). Section 4(f) is applicable to historic properties if those properties are eligible for listing, or are listed, on the National Register of Historic Places (NRHP).

Effects on Section 4(f) resources vary among alternatives. Effects range from a minimum of seven Section 4(f) resources affected by the No-Action Alternatives to 14 Section 4(f) resources affected by Alternative 1 North and Alternative 3 North on the existing alignment.

There are 141 NRHP listed, eligible, or contributing historic resources within the cultural resources area of potential effect. Thirty-six of these historic resources were identified as adversely affected by one or more project alternative and would require a Section 4(f) use of the property. Seventy-seven parks and recreational facilities were identified within the project area. However, only one of these properties would require a Section 4(f) use under the I-70 East alternatives, the Swansea Elementary School playground.

Numerous avoidance alternatives were considered, but none were prudent and feasible as defined by Section 4(f). None of the build alternatives avoid all of the 4(f) resources, and a final avoidance determination will not be made until the preferred alternative is selected and the final 4(f) is completed. Since the different alternatives propose to use different 4(f) resources, the importance of the resources will be considered. For example, three marginal acres of a large park may be less important than one acre of a smaller city park. To provide support for these complex evaluations, the officials with jurisdiction over the 4(f) resources will be consulted and their opinions documented in the administrative record. CDOT and FHWA are looking for additional input from the public and agencies on the alternatives.

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**Exhibit S-6
Summary of Impacts and Mitigation Measures**

Resource	Impacts and Benefits ¹					Mitigation Approach
	No-Action	Alternative 1	Alternative 3	Alternative 4	Alternative 6	
Transportation						
Traffic - freeway operations	Poor operations for extended periods throughout the corridor.	Satisfactory operation of general purpose lanes.	Satisfactory operation of tolled express lanes, poor operation of general purpose lanes where tolled express lanes are present.	Satisfactory operation of general purpose lanes.	Satisfactory operation of tolled express lanes, poor operation of general purpose lanes where tolled express lanes are present.	Design refinements during project development to minimize operating deficiencies.
Traffic - local access and operation	No-Action North – No changes. No-Action South – minor change at York Street.	Removal of York Street interchange; between York Street and Steele Street, only York Street, Josephine Street, and Steele Street retain continuity under I-70.		Some increase in traffic on local streets between existing I-70 and realignment; large increase in traffic on converted 46th Avenue.		Street, signal, and intersection improvements at ramps and on relocated frontage roads.
Transit	No anticipated effect on current or planned operations; tolled express lanes available for transit operation in Alternatives 3 or 6, improving reliability of some routes.					None.
Freight facilities (rail)	No anticipated effects.	Union Pacific Railroad (UPRR) spur track relocation at Havana; all current grade-separated crossings retained.		UPRR spur track relocation at Havana; all current grade-separated crossings retained.		Coordination with affected railroads.
Freight movement (trucks)	No changes.	Removal of York Street interchange would marginally increase truck traffic on local streets.		Increase in truck traffic on 46th Avenue due to conversion of portion of I-70 to 46th Avenue.		Maintenance of adequate intersection geometry for trucks during construction.
Bicycle/pedestrian	Opportunity for Stapleton bicycle/pedestrian bridge preserved; no other anticipated effects.					Provisions for pedestrian and bicycle path continuity during construction.
Safety	No change over existing conditions.	Improved safety due to added capacity, and improved roadway and ramp geometry.	Improved safety due to managed lanes, added capacity, and improved roadway and ramp geometry. Improved incident response with managed lanes.	Improved safety due to added capacity, improved interchange spacing, and improved roadway and ramp geometry.	Improved safety due to managed lanes, added capacity, improved interchange spacing, and improved roadway and ramp geometry. Best incident response with managed lanes.	None.
Social and Economic Conditions (See Section 5.2)						
Housing, population, and households	22 to 24 housing units displaced (1.3 to 1.4 percent of Elyria and Swansea housing units).	64 to 93 housing units displaced (3 to 4 percent of Elyria and Swansea housing units).		18 to 53 housing units displaced (1 to 2.7 percent of Elyria and Swansea housing units).	26 to 61 housing units displaced (1 to 2.6 percent of Elyria and Swansea housing units).	Acquisition and relocation services will follow CDOT and federal policies and procedures.
Public services and community organizations	3 community markets displaced. Relocation required for Denver Rescue Mission. Encroachment of I-70 on Swansea Elementary School or Dunham Park. Temporary disruptions during construction.	2 or 3 neighborhood markets displaced. Relocation required for Denver Rescue Mission. Encroachment of I-70 on Swansea Elementary School or Dunham Park. Temporary disruptions during construction.		3 neighborhood markets displaced Relocation required for the Stockyards post office and Denver automobile impound facilities. New elevated highway passes near Elyria Johnson Center Park or Elyria Park. Temporary disruptions during construction.		Acquisition and relocation of public services will follow CDOT and federal policies and procedures.

¹ Where a range of impacts is cited, this represents the difference between design options for that alternative.

Exhibit S-6
Summary of Impacts and Mitigation Measures

Resource	Impacts and Benefits ¹					Mitigation Approach	
	No-Action	Alternative 1	Alternative 3	Alternative 4	Alternative 6		
Neighborhood character and cohesion	Increased barrier effect in residential and other portions of Elyria and Swansea due to wider I-70. Temporary disruptions during construction. Increased traffic on neighborhood roads. Loss of 3 community markets and elementary school ROW.	Increased barrier effect in residential and other portions of Elyria and Swansea due to wider I-70. Temporary disruptions during construction. Decreased cut-through traffic on neighborhood streets. Improved mobility for local neighborhoods. Loss of 4 I-70 underpasses. Loss of some public services. Loss of 2 or 3 community markets and elementary school ROW.				Traffic from Brighton Boulevard may divert to 48th Avenue and Race Street on south and east sides of Elyria Park in Elyria and Swansea. Temporary disruptions during construction. Decreased cut-through traffic on neighborhood streets. Removal of major neighborhood barrier (Existing I-70 viaduct). New neighborhood barriers near National Western Complex. Loss of some public services. Improved mobility for local neighborhoods. Loss of current highway access points in Elyria and Swansea. Loss of 3 community markets.	Urban design workshop to guide artwork on nonstructural design elements of the highway (facades, noise barriers). Relocations within current neighborhoods (if desired). Signage and notifications to reduce adverse effects on access to homes, businesses, and services during the construction period. Notifying public transit users of temporary or permanent closure.
Economic effects	20 to 16 business displacements. 1,182 jobs created during construction. Disrupts regional economy during construction. Loss of tax revenue from acquired properties. Low (long term) mobility of goods and services.	42 to 45 business displacements. 2,546 jobs created during construction. Disrupts regional economy during construction. Full or partial acquisition of 6 prominent businesses. Loss of tax revenue from acquired properties. Improved access to businesses.	63 to 56 business displacements. 2,900 jobs created during construction. Disrupts regional economy during construction. More commercial and business acquisitions than Alternative 1. Loss of tax revenue from acquired properties. Improved access to businesses.	52 to 58 business displacements. 4,000 to 4,300 jobs created during construction. Disrupts local and regional economy during construction, but for a shorter duration than Alternatives 1 and 3. Permanent change in access to existing businesses. Loss of National Western Complex (West option only). Loss of tax revenue from acquired properties.	62 to 73 business displacements. 4,500 to 4,800 jobs created during construction. Disrupts local and regional economy during construction, but for a shorter duration than Alternatives 1 and 3. Permanent change in access to existing businesses. Loss of National Western Complex (West option only). Loss of tax revenue from acquired properties.	Acquisition and relocation services will follow CDOT and federal policies and procedures.	
Environmental Justice (See Section 5.3)							
Disproportionate impacts	Yes.	Yes.	Yes.	Yes.	Yes.	Mitigation measures by resource	
Land Use and Zoning (See Section 5.4)							
Consistency with local and regional plans	Not consistent with local and regional plans due to low regional mobility.	Generally consistent; conflicts with local plans in that community cohesion is affected by ROW acquisitions.	Generally consistent; conflicts with local plans in that community cohesion is affected by ROW acquisitions.	Generally consistent; conflicts with local plans in that community cohesion is affected by ROW acquisitions, but would improve conditions where the viaduct is removed.	Generally consistent; conflicts with local plans in that community cohesion is affected by ROW acquisitions, but would improve conditions where the viaduct is removed.	None required.	
Land Use Change	Land use change due to ROW acquisition (23.5 to 38.6 acres from 81 to 83 parcels).	Land use change due to ROW acquisition (198.3 to 204.4 acres from 248 to 279 parcels).	Land use change due to ROW acquisition (232 to 236.9 acres from 256 to 286 parcels).	Land use change due to ROW acquisition (335.6 to 415.4 acres from 369 to 382 parcels).	Land use change due to ROW acquisition (362.1 to 435.4 acres from 402 to 415 parcels).		
Induced development	None expected.			Potential changes along 46th Avenue and proposed realignment access points.	Potential changes along 46th Avenue and proposed realignment access points.		

**Exhibit S-6
Summary of Impacts and Mitigation Measures**

Resource	Impacts and Benefits ¹					Mitigation Approach
	No-Action	Alternative 1	Alternative 3	Alternative 4	Alternative 6	
Land Acquisition, Displacements, and Relocation of Existing Uses (See Section 5.5)						
Land acquisition and property acquisitions	Requires 23.5 to 38.6 acres of right of ROW. Full acquisition of 24 to 26 residential properties. Full acquisition of 17 to 30 commercial properties. Prominent acquisitions include the Nestlé Purina Petcare Company plant (South).	Requires 198.3 to 204.4 acres of ROW. Full acquisition of 68 to 89 residential properties. Full acquisition of 46 to 48 commercial properties. Full acquisition of 0 to 2 governmental properties. Prominent acquisitions include Nestlé Purina Petcare Company plant (South) or Swansea Elementary School (North).	Requires 232.0 to 236.9 acres of ROW. Full acquisition of 68 to 89 residential properties. Full acquisition of 52 to 53 commercial properties. Full acquisition of 0 to 2 governmental properties. Prominent acquisitions include Nestlé Purina Petcare Company plant (South) or Swansea Elementary School (North).	Requires 335.6 to 415.4 acres of ROW. Full acquisition of 10 to 41 residential properties. Full acquisition of 101 to 142 commercial properties. Full acquisition of 9 governmental properties. Prominent acquisitions include National Western Complex (West option only).	Requires 435.4 to 362.1 acres of ROW. Full acquisition of 24 to 54 residential properties. Full acquisition of 104 to 146 commercial properties. Full acquisition of 9 governmental properties. Prominent acquisitions include National Western Complex (West option only).	Acquisition and relocation services will follow CDOT and federal policies and procedures.
Historic Preservation and Paleontological Resources (See Section 5.6 and 5.7)						
Historical resources	7 or 8 resources adversely affected.	6 or 34 resources adversely affected.	6 or 34 resources adversely affected.	11 or 14 resources adversely affected.	11 or 14 resources adversely affected.	Mitigation measures to be developed in consultation with State Historic Preservation Office (SHPO) and formalized in a Memorandum of Agreement.
Paleontological resources	No known effects.					In any areas where construction activities will impact geologic units of high paleontological sensitivity, the CDOT staff paleontologist or a qualified designee will conduct continuous or spot-check construction monitoring of those activities.
Visual and Aesthetic Qualities (See Section 5.8)						
Visual	No substantial change in visual character from viaduct reconstruction on existing alignment.	Increased mass of the highway and noise barriers would increase the highway's visual presence in existing neighborhoods along I-70.		Realigned portion of I-70 would introduce new transportation elements to a predominantly commercial/industrial area. Positive visual effect along 46th Avenue between Brighton Boulevard and Colorado Boulevard due to the removal of the viaduct.		Mitigation measures to soften the effects of highway improvements will be developed through a collaborative process with community input during final design.

Exhibit S-6
Summary of Impacts and Mitigation Measures

Resource	Impacts and Benefits ¹					Mitigation Approach
	No-Action	Alternative 1	Alternative 3	Alternative 4	Alternative 6	
Parklands and Recreation Areas (not considered Section 4(f) or 6(f) properties, See Section 5.9)						
Parklands and recreation areas	No anticipated effects.	Sand Creek Greenway trail would require temporary trail detours and permanent trail realignment within CDOT ROW. 16.09 acres of the Trunk Open Space is permanently affected and the relocation of 1,500 feet of bike path.	Sand Creek Greenway trail would require temporary trail detours and permanent trail realignment within CDOT ROW. 16.94 acres of Trunk Open Space permanently affected and the relocation of 1,400 feet of bike path.	South Platte River trail would require a temporary trail detour. Sand Creek Greenway trail would require temporary trail detours and permanent trail realignment within CDOT ROW. 0.16 acres of Northfield Pond Park would be permanently affected. 17.42 acres of Trunk Open Space permanently affected and 1,400 feet of bike path relocation.	South Platte River trail would require a temporary trail detour. Sand Creek Greenway trail would require temporary trail detours and permanent trail realignment within CDOT ROW. 0.37 acres of Northfield Pond Park would be permanently affected. 17.64 acres of Trunk Open Space permanently affected and 2,000 feet of bike path relocation.	Construction best management practices (BMPs). Trails will be detoured during construction. Parks and trails will be returned to their existing or comparable state following construction. Acquisition and relocation services will follow CDOT and federal policies and procedures.
Air Quality (See Section 5.10)						
Air quality	No violations of National Ambient Air Quality Standards (NAAQS) are anticipated.					BMPs for the control of fugitive dust and other air quality issues related to construction activities per Colorado Air Quality Control Commission Regulation No. 1. Implementing strategies that reduce emissions during operation.
	2030 emissions (annual VMT of 10,103,500): VOC = 779 tons/year CO = 32,117 tons/year NO _x = 1,230 tons/year SO ₂ = 35.20 tons/year PM ₁₀ = 2,230 tons/year	2030 emissions (annual VMT of 10,657,300): VOC = 822 tons/year CO = 33,878 tons/year NO _x = 1,298 tons/year SO ₂ = 37.13 tons/year PM ₁₀ = 2,353 tons/year	2030 emissions (annual VMT of 10,742,700): VOC = 828.50 tons/year CO = 34,149 tons/year NO _x = 1,308 tons/year SO ₂ = 37.43 tons/year PM ₁₀ = 2,372 tons/year	2030 emissions (annual VMT of 10,536,600): VOC = 813 tons/year CO = 33,552 tons/year NO _x = 1,283 tons/year SO ₂ = 36.71 tons/year PM ₁₀ = 2,326 tons/year	2030 emissions (annual VMT of 10,554,700): VOC = 814 tons/year CO = 33,552 tons/year NO _x = 1,285 tons/year SO ₂ = 36.77 tons/year PM ₁₀ = 2,330 tons/year	
Energy (See Section 5.11)						
Energy	3,800 to 5,700 Billion British Thermal Unit (BTU) consumed though construction. In 2030, 67,332 billion BTU expended daily through fuel consumption.	11,900 to 13,700 Billion BTU consumed though construction. In 2030, 71,022 billion BTU expended daily through fuel consumption.	13,400 to 15,100 Billion BTU consumed though construction. In 2030, 71,592 billion BTU expended daily through fuel consumption.	14,500 to 16,500 Billion BTU consumed though construction. In 2030, 70,218 billion BTU expended daily through fuel consumption.	16,900 to 18,900 Billion BTU consumed though construction. In 2030, 70,339 billion BTU expended daily through fuel consumption.	CDOT implement environmental sustainability policies as infrastructure is designed and constructed. Where appropriate, energy conservation measures including energy efficient electrical system specifications, lighting, mechanical equipment, and building insulation will be implemented.
Noise (See Section 5.12)						
Noise	Elevated roadway noise levels would occur in Elyria and Swansea between Brighton and Colorado Boulevards.	Elevated roadway noise levels would extend further into residential areas in Globeville, Elyria and Swansea, and Montbello..		Increased roadway noise levels would occur along I-270 and in areas not currently experiencing highway noise in Elyria and Swansea, Northeast Park Hill, Globeville, and Montbello. Elevated roadway noise levels would extend further into residential areas in Globeville, Elyria and Swansea, and Montbello..		Noise mitigation measures will be recommended for sensitive areas when feasible and reasonable and/or when noise exceeds CDOT's noise abatement criteria. Noise barriers are determined to be the most appropriate mitigation strategy for this project

**Exhibit S-6
Summary of Impacts and Mitigation Measures**

Resource	Impacts and Benefits ¹					Mitigation Approach
	No-Action	Alternative 1	Alternative 3	Alternative 4	Alternative 6	
Biological Resources (See Section 5.13)						
Wildlife	No anticipated effects.	Loss of 219.7 acres of resident mule deer area. Loss of 118.58 acres of white-tailed deer overall range.	Loss of 225.9 acres of resident mule deer area. Loss of 125.65 acres of white-tailed deer overall range.	Loss of 219.7 acres of resident mule deer area. Loss of 204.82 acres of white-tailed deer overall range. Loss of 25.20 to 37.60 acres of Mule Deer limited use area.	Loss of 237.7 acres of resident mule deer area. Loss of 231.21 acres of white-tailed deer overall range. Loss of 25.20 to 37.60 acres of Mule Deer limited use area.	New structures at the South Platte River and Sand Creek would allow wildlife to continue to cross at these locations without restrictions.
Other small mammals may be temporarily displaced during construction, but would likely relocate to open space east of the project area.						
Riparian vegetation	No anticipated effects.	Permanent effects to 0.68 to 1.22 acres of riparian vegetation. Temporary effects to 0.49 to 1.81 acres of riparian vegetation.	Permanent effects to 0.73 to 1.54 acres of riparian vegetation. Temporary effects to 0.54 to 1.72 acres of riparian vegetation.	Permanent effects to 0.46 acres of riparian vegetation. Temporary effects to 1.07 acres of riparian vegetation.	Permanent effects to 0.35 acres of riparian vegetation. Temporary effects to 1.03 acres of riparian vegetation. Other effects to 0.15 acres of riparian vegetation.	All permanent effects to riparian vegetation would be mitigated through Senate Bill 40 guidelines.
Special status species – Bald eagles	No anticipated effects.	Potential for effects to bald eagles due to construction noise, human activity, and decrease in winter prey base (prairie dogs).				Mitigation will be conducted in accordance with the Migratory Bird Treaty Act
		Loss of 42.76 acres of bald eagle winter range.	Loss of 44.89 acres of bald eagle winter range.	Loss of 50.67 acres of bald eagle winter range.		
Special status species – Black tailed prairie dog	No anticipated effects.	Loss of 21.30 acres of existing habitat.		Loss of 21.59 acres of existing habitat.		Prior to construction, CDOT will coordinate with Colorado Division of Wildlife to relocate large colonies of black-tailed prairie dogs.
Noxious weeds	Newly disturbed surfaces during construction would be susceptible to invasive/noxious weed infestations.					Use approved reseeding mixtures to limit invasive weed infestation on disturbed sites. Site monitoring to identify any noxious weed invasion. Existing areas infested with noxious weeds would be pre-treated with herbicides prior to construction to prevent the future spread and damage to newly paved surfaces.
Floodplains and Drainage/Hydrology (See Section 5.14)						
Floodplains and drainage/hydrology	All build alternatives, including the No-Action Alternative, provide the opportunity to improve the highway drainage system to meet current standards for drainage capacity. The existing floodplains would remain as they are.					Improved drainage systems.

Exhibit S-6
Summary of Impacts and Mitigation Measures

Resource	Impacts and Benefits ¹					Mitigation Approach
	No-Action	Alternative 1	Alternative 3	Alternative 4	Alternative 6	
Wetlands and Waters of the U.S. (See Section 5.15)						
Wetlands and waters of the U.S.	No effects anticipated.	0.31 acres of permanent effects on jurisdictional wetlands. 1.59 acres of permanent effects on non-jurisdictional wetlands. Total of 1.90 acres of permanent wetland impacts.	0.27 acres of permanent effects on jurisdictional wetlands. 1.59 acres of permanent effects on non-jurisdictional wetlands. Total of 1.86 acres of permanent wetland impacts.	1.06 acres of permanent effects on jurisdictional wetlands. 0.98 acres of permanent effects on non-jurisdictional wetlands. Total of 2.04 acres of permanent wetland impacts.	0.58 acres of permanent effects on jurisdictional wetlands. 1.61 acres of permanent effects on non-jurisdictional wetlands. Total of 2.19 acres of permanent wetland impacts.	Coordination with United States Army Corps of Engineers (USACE) for Section 404 permit. All permanently impacted wetlands, jurisdictional or non-jurisdictional, would be replaced 1:1. Wetlands temporarily affected during construction would be restored.
Water Quality (See Section 5.16)						
Water quality	If unmitigated, pollutant runoff would increase 5 percent to South Platte River over existing conditions.	If unmitigated, pollutant runoff would increase 62 percent to Sand Creek over existing conditions. If unmitigated, pollutant runoff would increase 17 percent to South Platte River over existing conditions.	If unmitigated, pollutant runoff would increase 74 percent to Sand Creek over existing conditions. If unmitigated, pollutant runoff would increase 19 percent to South Platte River over existing conditions.	If unmitigated, pollutant runoff would increase 54 percent to Sand Creek over existing conditions. If unmitigated, pollutant runoff would increase 11 percent to South Platte River over existing conditions.	If unmitigated, pollutant runoff would increase 38 percent to Sand Creek over existing conditions. If unmitigated, pollutant runoff would increase 15 percent to South Platte River over existing conditions.	Municipal Separate Storm Sewer System (MS4) improvements part of alternatives. Colorado Discharge Permit System permits for stormwater discharge during construction. Possible dewatering permits. Permanent tiered BMPs. Adherence to <i>CDOT Erosion Control and Stormwater Guide (2002b)</i> and <i>Urban Storm Drainage Criteria Manual (Urban Drainage and Flood Control District, 2001)</i> . Additional detention basin mitigation. Winter maintenance. Construction BMPs.
Geology and Soils (See Section 5.17)						
Geology and soils	No effects anticipated.					BMPs for erosion and sediment control, dust control, and storm water control, to be implemented during construction. Site-specific engineering design studies are performed during final design. Adherence to Senate Bill 40.

**Exhibit S-6
Summary of Impacts and Mitigation Measures**

Resource	Impacts and Benefits ¹					Mitigation Approach
	No-Action	Alternative 1	Alternative 3	Alternative 4	Alternative 6	
Hazardous Materials (Section 5.18)						
Hazardous materials	1 to 7 sites potentially affected.	17 to 18 sites potentially affected.	18 sites potentially affected.	29 to 31 sites potentially effected.	29 to 31 sites potentially effected.	Health and safety plans. Environmental site assessments. Management measures. Dust suppression measures. Avoidance and investigation. Worker health and safety measures Site surveys. Treatment of de-watered groundwater. Contaminated soils removed, disposed of according to government regulations.
Utilities (Section 5.19)						
Utilities	All build alternatives may require temporary service interruptions to safely accommodate construction activities or during utility relocation.					Early coordination with utility owners to modify design to avoid/minimize conflicts. Schedule disruptions in service to coincide with periods of lower demand. Minimize disruptions in service by connecting to active utilities. Provide protective cover over underground utilities under a new roadway.
Construction (See Section 5.20)						
Transportation	Temporary congestion and road closures.					Transportation management actions would be taken to help alleviate congestion during the construction period.
Right of way	Property lease and acquisition.					After completion of use and prior to termination of the lease, the land will be restored to its original condition through grading and reseeding as necessary.
Visual and aesthetics	Temporary view obstructions and construction staging.					Throughout final design and construction phases, stakeholders will be consulted to minimize undesirable temporary obstructions of views, when feasible.

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Air quality	Fugitive dust.					All contractors will be required to comply with all applicable air quality regulations. Dust suppression measures will be implemented.
Noise and vibration	Vibrations could occur from general construction equipment usage in proximity to sensitive receptors, particularly pile driving for substructure elements from compaction equipment. Construction noise will present short-term effects to those receptors located along the corridor and along designated construction access routes.					Noise mitigation and monitoring plans for project construction will be completed to minimize the effects of noise and vibration. The effective control of highway construction noise and vibration can be achieved by considering alternative design options, mitigation at the source, mitigation along the path, and mitigation at the receiver.
Cultural resources	Excavation.					In the event that previously unrecorded cultural resources are found during construction, activities in the immediate area would be halted and the project archaeologist/paleontologist would be contacted to assess the find.
Biological resources	Indirect impacts to bald eagles, potential for the proliferation of noxious weeds.					Mitigation for bald eagles and all migratory birds will be conducted in accordance with the Migratory Bird Treaty Act. Monitoring of disturbed sites will be required during the construction periods to identify and treat any noxious weed invasion.
Geology and soils	Since construction activities of any of the alternatives would take place in an already urbanized area, mostly along an existing highway, implementation of any of the alternatives may cause either minor or no effects to geologic and soil resources.					BMPs for erosion and sediment control, dust control, stormwater control, and expansive soils will be implemented during construction.
Water quality	Sedimentation.					
Hazardous materials	Construction activities at hazardous materials sites have the potential to spread soil or groundwater contamination.					Construction activities will require preparation of site-specific health and safety plans and materials management plans. For known areas of contamination, health and safety plans and materials management plans will be prepared to minimize exposure and protect construction workers.