3.10 Land Use

3.10.1 Issues, Methods, and Coordination

The potential area of influence for land use centers on I-70 from Glenwood Springs to C-470, includes communities immediately adjacent to I-70, and extends beyond the immediate geographic area to address indirect consequences of alternatives. This area includes the counties traversed by I-70 (Garfield, Eagle, Summit, Clear Creek, and Jefferson), as well as counties that are adjacent to the Corridor counties (Pitkin, Lake, Grand, Park, and Gilpin).

Land Use Issues

Direct impacts: Effects of alternatives on communities, related to alternative footprint and construction disturbance zones:

- Property encroachment (required use of any portion of a property by an alternative)
- Structure loss (structures required to be removed to accommodate the alternative)
- Effect on property function
- Change in property access
- Effects on federal lands

Indirect impacts: Effects of alternatives on communities, related to growth:

- Growth and development in Corridor counties and towns
- Effects on land use and patterns of development
- Induced growth effects on environmental quality
- Effects on federal lands

Direct land use impacts will be the effects on communities related to the alternative construction footprints and will include Garfield, Eagle, Summit, and Clear Creek counties, and a portion of Jefferson County. Indirect/secondary land use impacts will be those related to possible alternative-induced growth (see description in section 3.9, Social and Economic Values), and will include relevant portions (based on existing/planned development) of Eagle, Summit, and Clear Creek counties. The counties not directly adjacent to I-70 but adjacent to the Corridor counties may also be influenced by project alternatives. Therefore, information about each of these counties is presented, along with information about the directly affected counties, in section 3.10.2, Affected Environment. It is important to note that Jefferson County, east of C-470, is not anticipated to be subject to indirect and cumulative impacts such as induced or suppressed growth. While other counties discussed under indirect impacts are primarily accessed via I-70, Jefferson County is largely considered to be part of the Denver metropolitan area and has associated well-developed transportation infrastructure. In the Resource Maps section, Map 3.10-1 depicts the land ownership and jurisdiction of the land along the Corridor.

3.10.1.1 Inventory Methods and Coordination

Resource management information was collected for all federally managed lands in the Corridor through letters, phone calls, and meetings with US Forest Service (USFS) land managers and Bureau of Land Management (BLM) planners. Data collected included resource management plans, environmental impact statements, existing special use permits, applicable standards and guidelines, and geographic information system (GIS) data layers. Appendix K, Overview of Water Availability and Growth, and Forest Service Land Management, provides applicable standards and guidelines and existing special use permits relevant to USFS lands.

Planning and zoning information was collected from all counties and municipalities within the Corridor area of influence through letters, phone calls, and meetings with local planners. These areas included the counties mentioned above and the major communities potentially affected in these counties. Data collected included master or comprehensive plans, zoning regulations, open space and recreation plans, and GIS data layers.

The plans were then reviewed to help define, by community, current and future conditions including community priorities, values, quality of life, growth policies, and constraints. This information, along with discussions with local planners and USFS and BLM representatives, helped form the basis for the land use analysis.

Supporting Documentation

- Appendix A, Environmental Analysis and Data
- Appendix K, Overview of Water Availability and Growth, and Forest Service Land Management
- Resource Maps 3.10-1 through 3.10-14 Land Ownership/Jurisdiction

Due to the inconsistency of zoning classifications between each town and county, a uniform zoning map was created for the entire Corridor that illustrates residential, commercial, industrial, public, mixed use, open space, and other zoning categories. In areas without zoning, known land uses were used as guidance for zoning classifications. Zoning regulations were used to interpret zoning categories to achieve a comprehensive zoning map. These generalized categories were chosen to best represent the zoning for the entire Corridor and are described in Table 3.10-1.

Table 3.10-1. Generalized Zoning Categories

Category	Description
Residential	
Residential Estate	1 unit per 20 acres or more
Rural	1 unit per 2 to 19 acres
Low Density	1 to 5 units per acre
Medium Density	6 to 10 units per acre
High Density	11 or more units per acre
Lodging	Hotels, motels, and resort lodging
Commercial	Service, retail, and office uses
Industrial	
Light Industrial	Light manufacturing
Heavy Industrial	Heavy manufacturing
Mining	Mining and related activities
Public facilities owned by the town or county	Town hall, town/county offices, cemeteries, libraries, schools
Mixed Use	Mixed residential and commercial area, typically associated with a downtown
Open Space	Natural areas that have been set aside for passive recreation or preservation
Parks and Urban Spaces	Town/county parks
Agricultural	Active agricultural or very low-density residential in an agricultural setting
Resource	Conservation/preservation areas
Planned Unit Development	Planned development that has been approved by the town/county
Public Lands	
Bureau of Land Management	Federally owned and managed land
White River National Forest	Federally owned and managed national forest
Arapaho and Roosevelt National Forests	Federally owned and managed national forest
Pike/San Isabel National Forest	Federally owned and managed national forest
State Lands	State Land Board and Colorado Division of Wildlife Areas

Coordination with Corridor and state agencies and community organizations was an integral part of the land use study. Broad-scale involvement is described in Chapter 6, Public and Agency

Involvement. More specific efforts included meetings with and presentations to Corridor county, community, and regional planning organizations, such as the Northwest Colorado Council of Governments (NWCCOG), and Garfield, Eagle, Summit, and Clear Creek counties. Eagle and Summit counties are part of the NWCCOG. Numerous discussions involved the Corridor issues of growth, buildout, tourism, and second homes. Chapter 6 contains a full list of these coordination organizations.

The National Forest Management Act (NFMA) requires that USFS lands be managed for various uses on a sustained basis to ensure in perpetuity a continued supply of goods and services to the American people. NFMA regulations also establish extensive analytical and procedural requirements for the development, revision, and considerable amendment of forest plans. Forest plans also are prepared in accordance with National Environmental Policy Act (NEPA) regulations. USFS policy further defines as environmentally preferable an alternative that best meets the goals of Section 101 of NEPA. Traditionally, "environmentally preferable" has been defined as the alternative that causes the least damage to the biological and physical environment and best protects, preserves, and enhances historical, cultural, and natural resources. PEIS coordination has included numerous discussions with the USFS in relation to potential I-70 impacts on Arapaho and Roosevelt National Forests (ARNF) and White River National Forest (WRNF) lands.

3.10.2 Affected Environment

Land use is discussed in terms of federal lands and by Corridor county. Federal lands consist of the Glenwood Springs District of the BLM, the WRNF, and the ARNF. Corridor counties include numerous land jurisdictions (federal and state lands, private lands, county open space, and urban and rural development). Counties traversed by the I-70 alignment include Garfield, Eagle, Summit, Clear Creek, and Jefferson. Other counties within the Corridor area were more generally considered with respect to possible indirect impacts on land use and include Lake, Park, Grand, Gilpin, and Pitkin counties.

3.10.2.1 Federal Lands

The Corridor traverses lands within the federal jurisdictions of the Glenwood Springs District of the BLM, the WRNF, and the ARNF. Those federal lands managed by the BLM and the USFS are governed by resource management plans. Specific issues related to federal land management include coordination with federal management agencies, compliance with current land management plans, effects on recreational areas of federal land (see section 3.14, Recreation Resources), effects on primitive and near-primitive areas of federal land, and effects on National Land Policy Management Act special use permits.

The USFS permits certain forest land uses (compatible with their land classifications) for the following generalized categories: communications, developed recreation (downhill ski areas), electric and gas utilities, water conveyance and storage, transportation easements, recreational residences and camps, data measurement stations, and outfitters. These forest uses are permitted through "special use permits" under the Federal Lands Policy Management Act. Existing special use permits in the immediate vicinity of the Corridor were identified based on information provided by WRNF (Dillon and Holy Cross districts) and ARNF (Clear Creek district) Forest Service Realty Specialists. Appendix K includes a list of special use permits identified in the Corridor area and location maps.

Bureau of Land Management, Glenwood Springs District

The BLM manages 568,000 acres of public lands in the Glenwood Springs Resource Area. Within the Corridor, BLM lands are located primarily within Garfield and Eagle counties and make up approximately 25 percent of the lands bordering I-70. BLM lands are interspersed among privately owned lands extending from Glenwood Springs to Vail. The Glenwood Springs District manages diverse natural resources and provides for various uses, including livestock grazing, firewood cutting, oil and gas development, big game hunting, rafting, and motorized and nonmotorized recreation (BLM 1988).

The *Record of Decision and Resource Management Plan* for the Glenwood Springs Resource Area (revised 1988) include management directions for public land in the Glenwood Springs Resource Area. Major direction addressed in the Resource Management Plan includes:

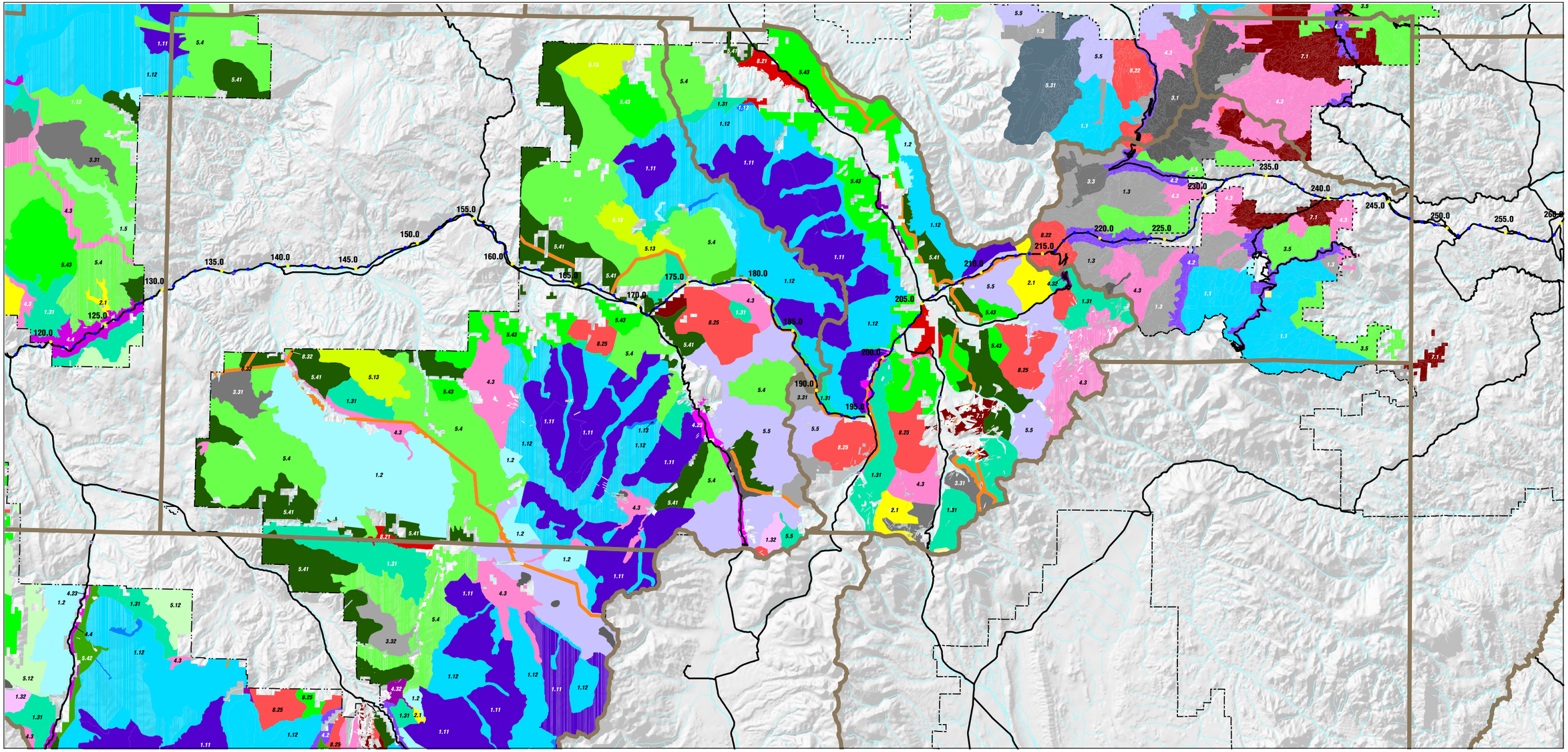
- Maintain or increase existing wildlife populations
- Stabilize grazing operations
- Protect critical watersheds near Glenwood Springs
- Protect visual resources
- Keep most of the resource area open for mineral exploration and development, but restrict mineral development in some areas having other important and unique resource values
- Harvest timber at current levels
- Ensure the continued availability of outdoor recreational opportunities not readily available from other resources, reduce impacts of recreational use, and continue to manage the upper Colorado River for float boating use
- Dispose of 15,500 acres of mostly small, isolated, and difficult to manage public lands
- Designate 393,615 acres as open, 153,001 acres as limited, and 20,426 acres closed to motorized vehicle use

White River National Forest

WRNF lands are located along I-70 through Glenwood Canyon and between the Wolcott area (in Eagle County) and the Continental Divide (at the Summit County/Clear Creek County line). The forest's boundaries encompass lands within a total of nine counties, three of which are traversed by I-70: Garfield, Eagle, and Summit. The WRNF includes 3,547 square miles (USFS 2002). The WRNF encompasses approximately 748 square miles within Garfield County, 930 square miles within Eagle County, and 484 square miles within Summit County.

The *Land and Resource Management Plan for the White River National Forest* (2002 Revision) includes goals, objectives, standards, and guidelines and provides direction on how to manage different land areas. Within the WRNF, management prescriptions are grouped into eight categories that share related management emphasis. Only the management prescription areas adjacent to I-70 are defined below as documented in the *Land and Resource Management Plan for the White River National Forest* (2002 Revision). See Figure 3.10-1 for the location of WRNF designated management areas. *Note that the eight general categories include numerous sub-categories denoted by decimal place numbers that follow the major category number as shown in the figure key.*

The WRNF utility corridor designation (8.32) generally encompasses I-70 from mileposts 182 to 200 and mileposts 208 to 213. The existing I-70 footprint is encompassed by a right-of-way buffer where the utility corridor is not present through the WRNF. Management categories surrounding the utility corridor and where the utility corridor is not present are identified in the discussion of management areas along the I-70 Corridor. It is important to note that the scale of Figure 3.10-1 does not allow sufficient detail to directly confirm all of the identified areas along I-70 (as discussed below).



Forest Management Prescriptions

- 1.11 Pristine Wilderness
- 1.12 Primitive Wilderness (Wilderness for Arapaho Roosevelt - 1.1)
- 1.13 Semi-Primitive Wilderness
- 1.2 Recommended Wilderness
- 1.3 Backcountry Recreation Non-Motorized (assumed non-motorized for ARNF)
- 1.31 Backcountry Recreation - Non-Motorized
- 1.32 Backcountry Recreation - Limited Winter Motorized
- 1.5 Wild Rivers - Designated Eligible
- 2.1 Special Interest Areas - Minimal Use & Interp.
- 2.2 Research Natural Areas
- 3.1 Special Interest Areas Emphasizing Use or Interp.)
- 3.21 Limited Use Areas
- 3.31 Backcountry Recreation - Year Round Motorized (3.3 for ARNF)
- 3.32 Backcountry Recreation - Non-Motorized w/ Winter Motorized
- 4.2 Scenery
- 4.23 Scenic Byways, Areas, Vistas, or Travel Corridors
- 4.3 Dispersed Recreation
- 4.32 Dispersed Recreation - High Use
- 4.4 Recreation Rivers - Designated & Eligible
- 5.12 Resource Production - Range Vegetation Emphasis
- 5.13 Resource Production - Forest Products
- 5.31 Experimental Forest
- 5.4 Forested Flora & Fauna Habitats (3.5 for ARNF)
- 5.41 Deer & Elk Winter Range
- 5.42 Bighorn Sheep Habitat
- 5.43 Elk Habitat
- 5.5 Forested Landscape Linkages (WRNF), Forest Products and Dispersed Recreation (ARNF)
- 7.1 Intermix
- 8.21 Developed Recreation Complexes
- 8.25 Ski-Based Resorts - Existing & Potential (8.22 ARNF)
- 8.32 Designated Utility Corridors

N
W E
S

4 0 4 Miles

SCALE - 1:471,000 or 1" = 39,250'

Figure 3.10-1. White River and Arapaho and Roosevelt National Forests Management Areas

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Category 1, Wilderness Areas

Category 1 sub-categories include pristine wilderness (areas are managed to protect and perpetuate their essentially pristine conditions) and primitive wilderness. Primitive wilderness land is located in the Eagles Nest Wilderness Area, north of I-70 between east Vail and Copper Mountain. No roads, designated trails, or signs are present in these areas. The backcountry recreation – nonmotorized management prescription is designated along the north side of I-70 through Vail Pass and the south side of I-70 in Officers Gulch/Tenmile Canyon.

Category 2, Research Natural Areas

Category 2 includes the special interest areas, minimal use management prescription designated in Summit County west of the EJMT along the Continental Divide. Areas with this prescription are managed to protect or enhance areas with unusual or unique ecological, zoological, geological, scenic, historic, or prehistoric characteristics.

Category 3, Balance of Ecological Values with Human Occupancy

Category 3 includes the backcountry recreation – year-round motorized designation. Backcountry motorized recreation areas are managed to provide summer motorized recreation on roads and trails and winter motorized recreation throughout the area in a natural-appearing landscape. This land use category is present along the south side of I-70 at the Summit/Eagle county border.

Category 4, Scenic Values and Recreation

Category 4 includes the scenic byways, scenic areas, vistas, and travel corridor management prescription with locations in the Officers Gulch/Tenmile Canyon area. Areas with this designation are managed to protect or preserve the scenic values and recreation uses of designated scenic byways, scenic areas, vistas, and other heavily used scenic travel corridors. Dispersed recreation management lands (within this category) are located outside the town of Vail and Vail Pass, south of I-70. Areas with this prescription are managed to provide undeveloped recreation opportunities in natural or natural-appearing landscapes. Dispersed recreational opportunities include viewing scenery and wildlife, dispersed camping, picnicking, fishing, snowmobiling, cross-country skiing, and mountain biking.

The recreation rivers – designated and eligible management prescription is designated in Glenwood Canyon. Areas with this prescription are managed to protect and perpetuate eligible and designated recreation river segments. These areas include one or more outstandingly remarkable features, which include scenic, recreational, geologic, wildlife, or fisheries values.

Category 5, Primarily Forested Ecosystems Managed to Meet a Variety of Ecological and Human Needs

Category 5 includes forested flora or fauna habitat areas, primarily forested ecosystems intermingled with grassland and shrub communities. These areas are managed to provide a mix of ecological and human needs including wildlife and aquatic habitats, livestock forage, and forest products. These areas also provide for recreational opportunities, scenic quality, and various other miscellaneous goods and services.

Deer and elk winter range management areas are designated west of Vail. Areas with this prescription are managed to provide adequate amounts of quality forage, cover, and solitude for deer, elk, and other species.

Elk habitat management areas are designated in lands surrounding Silverthorne and Dillon. Areas with this prescription are managed for elk and characterized by low road densities and optimum forage and cover ratios.

Forested landscape linkages areas are designated in lands surrounding the utility corridor designation along Straight Creek and Vail Pass. Areas with this prescription are managed for landscape-scale movement, migration, and dispersal of forest carnivores and other wide-ranging wildlife species. These areas provide safe travel connections between large blocks of forested landscapes across the forest and provide security from intensive recreational and other human disturbances.

Category 7, Intermixed Ownership Areas

Category 7 includes intermix land management areas designated in lands surrounding west Vail. Areas with this prescription are managed for protection of natural resources, provide compatible multiple uses, and maintain cooperative relationships between private landowners and other governments with jurisdiction.

Category 8, Human Activities on Forest Lands (Developed Recreation Areas to Utility Corridors)

Category 8 includes developed recreation complexes land management areas designated in lands surrounding Frisco. Areas with this prescription contain developed recreation sites that provide an array of recreational opportunities and experiences in a forested environment. These may include campgrounds, day-use areas, swimming beaches, visitor centers, marinas, boat launches, trailheads, scenic overlooks, winter sports sites, and ski areas.

Ski-based resorts – existing and potential land management areas are designated in Copper Mountain. Ski-based resorts are developed and operated by the private sector to provide opportunities for intensively managed outdoor recreation activities during all seasons of the year.

Designated utility corridors – existing and potential land management areas apply to lands directly adjacent to I-70, between east Vail and Officers Gulch/Tenmile Canyon, and between Silverthorne and the EJMT. Areas with this prescription emphasize management of existing and potential linear and nonlinear right-of-way corridors. Among other things, these corridors are used for major routes for highways, roads, and railroad rights-of-way; aerial and underground utility facilities for transmission of electricity; and major communication systems.

Arapaho and Roosevelt National Forests

The jointly administered ARNF lands were established as federally owned public land in 1908 and 1897, respectively, and include nearly 1.3 million acres (USFS 1997). The ARNF occupies portions of the foothills and most of the high country along the Colorado Front Range—a total north-south distance of 95 miles. Five ranger districts, including the Clear Creek Ranger District located in the Corridor, administer the ARNF. The portion of ARNF lands located in the Corridor area is in Clear Creek County between the Continental Divide and the Idaho Springs area. Existing ARNF lands encompass approximately 242 square miles within Clear Creek County.

The 1997 revision of the *Land and Resource Management Plan for the Arapaho and Roosevelt National Forests* provides guidance for all resource management activities. The management prescription areas adjacent to I-70 are defined below. *Note that management categories 1, 2, 5, and 6 are not described because they are not present in the Corridor.]* See Figure 3.10-1 for the location of ARNF management areas. It is important to note that the existing I-70 footprint is encompassed by a right-of-way buffer through the ARNF.

Category 3

Category 3 includes the forested flora and fauna habitats lands management area located immediately northwest of Georgetown at milepost 227. Management emphasis for this area is on providing adequate amounts of quality forage, cover, escape terrain, solitude, breeding habitat, and protection

for a wide variety of wildlife species and associated plant communities; providing quality, all-season habitat for wildlife species; providing dispersed recreational opportunities outside critical periods for wildlife; restricting recreational use to the extent necessary to protect the values for which the area is designated; protecting areas and communities that are providing important habitat components such as wintering areas, birthing areas (especially for calving, fawning, lambing and kidding), rearing areas, and migration routes; and managing and protecting healthy forested and nonforested riparian areas to retain their value as quality habitats for terrestrial and aquatic wildlife.

Category 4

Category 4 includes the scenery lands management area that extends from the Herman Gulch area east to Silver Plume. Forest direction for management of this area includes protecting the scenic quality; providing viewing opportunities of the natural landscape; working with CDOT to reduce impacts of I-70, emphasizing protection of soils and water quality, and wildlife habitat; increasing trailhead and day-use developed facilities; improving universal access; improving bicycling opportunities within the I-70 and US 6 corridors; allowing for low-impact telecommunication sites along the Corridor; and continuing to permit existing recreation residences. Dispersed recreation lands are managed for ecological values and to provide recreational use but are maintained well within the levels necessary to safeguard overall ecological functioning systems.

Category 7

Category 7 includes intermix lands where public lands are intermingled with private lands to such an extent that ecosystem management objectives for USFS lands must be tempered by other landowners' uses and objectives. Resource use is not planned on a sustainable basis but may occur in concert with surrounding private land values. Intermix lands are located in the vicinity of Idaho Springs.

Category 8

Category 8 includes ski-based resorts land management areas that extend from the Continental Divide to Herman Gulch and consists of the Loveland Basin and Loveland Valley facilities. Forest direction for management of this area includes continuing to provide day-use developed alpine skiing and snowboarding opportunities and facilities; continuing to provide day-use dispersed recreation opportunities at Loveland Pass and Mine Dumps areas, including backcountry alpine and Nordic skiing and snowboarding; providing trails and other facilities to concentrate and accommodate recreational use within 1.5 miles of either side of Loveland Pass; accommodating both winter and summer use at high levels; and providing loop trails, interpretation, and viewing areas.

3.10.2.2 Garfield County

The western terminus of the Corridor, located in eastern Garfield County, is defined by mileposts 116 to 130 around the city of Glenwood Springs. Zoning in the vicinity of Glenwood Springs is shown on Map 3.10-2 (see Resource Maps section), 2-Mile Corridor Zoning in the Vicinity of Glenwood Springs. A summary of land use characteristics is provided below.

Area:	2,970 square miles
Land use and ownership/ jurisdiction:	64 percent public land (BLM, WRNF, and Bureau of Reclamation) Of the remaining privately owned land: 88 percent agriculture 12 percent residential, commercial, and minor amounts of industrial
Population (per 2000 census):	43,791 (45 percent in unincorporated areas, 20 percent in Glenwood Springs)
Description:	While the county retains part of its ranching and farming heritage, tourism has become important, with many bedroom communities arising to house resort workers.
Key towns in county:	Glenwood Springs, Carbondale, Rifle, New Castle, Silt

The *Garfield County Comprehensive Plan* (1994, revised 1997) was developed to provide general direction to guide development in unincorporated portions of the county. Garfield County uses its zoning resolution to pursue the long-range planning objectives and goals via current planning regulations and enforcement.

3.10.2.3 Eagle County

Eagle County is located east of Garfield County, centered on I-70 from mileposts 130 to 190. Map 3.10-3 (see Resource Maps section), Eagle County Generalized Zoning, illustrates the zoning throughout Eagle County. Additional figures in the Resource Maps section related to Eagle County include Map 3.10-4, 2-Mile Corridor Zoning in the Vicinity of Glenwood Canyon and Dotsero; Map 3.10-5, 2-Mile Corridor Zoning in the Vicinity of Eagle and Gypsum; Map 3.10-6, 2-Mile Corridor Zoning in the Vicinity of Wolcott; Map 3.10-7, 2-Mile Corridor Zoning in the Vicinity of Avon and Edwards; and Map 3.10-8, 2-Mile Corridor Zoning in the Vicinity of Vail and Minturn. The following is a summary of Eagle County land use characteristics.

Area:	1,688 square miles
Land use and ownership/ jurisdiction:	More than 80 percent publicly owned (WRNF, including Eagles Nest Wilderness Area; BLM land; and some state-owned lands). Land uses in unincorporated areas include agriculture, large-lot rural residential, and subdivisions. Land uses within towns are commercial and industrial. Remote areas are largely undeveloped outside this area. Development is located primarily along I-70.
Population (per 2000 census):	41,659
Description:	One of the fastest growing regions in Colorado. Houses two resorts, Vail and Beaver Creek, as well as many other outdoor year-round recreational opportunities. Changing from its rural, agricultural heritage to a resort/recreation/tourism orientation.
Key towns in county:	Gypsum, Eagle, Avon, Minturn, and Vail (and unincorporated residential areas of Wolcott, Edwards, and Eagle-Vail)

Eagle County has developed a future land use map (Eagle County Planning Commission 1998) that illustrates the desired future land use distribution scenario, based on 2010 population projections. The intent in developing this map is to direct future growth to major transportation corridors, towns, existing community centers, rural centers, and resorts that have existing infrastructure to support such growth, while maintaining the rural character of other county lands with relatively lower densities. According to the *Eagle County Master Plan* (1996), not all municipalities within the county have adopted this philosophy, and annexation requests adjacent to existing communities, as well as development proposals, have been rejected. The county vision includes controlling sprawl and protecting the qualities that make Eagle County unique, while encouraging the diversity of the economic development and allowing for a reasonable amount of growth.

3.10.2.4 Summit County

Summit County is located just west of the Continental Divide, from mileposts 190 to 214. Map 3.10-9 (see Resource Maps section), Summit County Generalized Zoning, illustrates the generalized zoning throughout Summit County. Additional figures in the Resource Maps section related to Summit County include Map 3.10-10, 2-Mile Corridor Zoning in the Vicinity of Copper Mountain; Map 3.10-11, 2-Mile Corridor Zoning in the Vicinity of Dillon, Frisco, and Silverthorne; and Map 3.10-12, 2-Mile Corridor Zoning in the Vicinity of EJMT. Summit County land use characteristics are summarized below.

Area:	600 square miles
Land use and ownership/ jurisdiction:	75 percent publicly owned (WRNF, including the Ptarmigan Wilderness Area, and some state-owned lands). Privately owned lands predominantly in a narrow band along the bottoms of valleys and adjacent to I-70, SH 6, and SH 9. Four major ski areas: Copper Mountain, Breckenridge, Keystone, and Arapahoe Basin. The county also offers many other outdoor year-round recreational opportunities. Land uses in unincorporated areas include agriculture, large-lot rural residential, subdivisions, some mining-related. Land uses in established towns include commercial, mixed use, mixed residential concentrated in Frisco, Silverthorne, Dillon, Breckenridge, and Blue River.
Population (per 2000 census):	23,548
Description:	Historically an agricultural and ranching area, Summit County is transitioning into a recreation and tourism community with many second-home residences. Due to natural constraints and the predominance of federal land, incorporated towns house most of the county's population. Outside the towns, densities are considerably lower and eventually transition into a rural or undeveloped character. More remote areas of the basin are largely undeveloped.
Key towns in county:	Silverthorne, Dillon, Frisco, Breckenridge

The *Summit County Comprehensive Plan* (1994) provides a general framework and goals for development in the county. Countywide goals focus on preserving the character of each community through separating communities with open space and buffering. Open spaces, recreation areas, and visually prominent lands that define the rural mountain character of Summit County are to be protected from encroaching development within and between communities. The county contains four planning areas: Tenmile, Lower Blue, Upper Blue, and Snake River.

3.10.2.5 Clear Creek County

Clear Creek County is located directly east of the Continental Divide from mileposts 214 to 247. Map 3.10-13 (see Resource Maps section), Clear Creek County Generalized Zoning, illustrates the generalized zoning throughout Clear Creek County. Additional figures in the Resource Maps section related to Clear Creek County include Map 3.10-14, 2-Mile Corridor Zoning in the Vicinity of Georgetown and Silver Plume; and Map 3.10-15, 2-Mile Corridor Zoning in the Vicinity of Idaho Springs, Lawson, Downieville, and Dumont. Existing Clear Creek County land use characteristics are summarized below. Clear Creek County is located within the mountains and plains area of the Denver Regional Council of Governments (DRCOG).

Area:	396 square miles
Land use and ownership/ jurisdiction:	75 percent publicly owned (a majority is ARNF, and a small portion is Pike and San Isabel National Forests) and state-owned lands. In 1994, BLM transferred more than 10,500 acres (16.4 square miles) of land to Clear Creek County, freeing up more area for the county to grow. Development in the county is limited largely to incorporated towns and unincorporated areas near the Corridor. Steep slopes and federal jurisdiction are large inhibitors to development. Land uses include residential, commercial, industrial, public, and recreation areas. Growth has been modest to date; however, a substantial amount of private lands in the county could be subject to development pressures in the future.
Population (per 2000 census):	9,322
Description:	Rich in mining heritage, Clear Creek County is best known for its mineral extraction history, the Loveland Ski Area, proximity to the gambling community, and 14,000-foot peaks.
Key towns in county:	Silver Plume, Georgetown, Idaho Springs, Empire, Lawson, Downieville, and Dumont

The *Clear Creek County Master Plan* (2003) was developed to provide guidance to county officials and residents for making decisions concerning the future development of unincorporated areas of the county. Public input was used to evaluate the primary community concerns that are important to the future development of Clear Creek County. The *Master Plan* provides policy statements that direct future decisions and actions toward achieving desired county goals and objectives. *Master Plan* goals and objectives include balancing personal, cultural, and environmental values with economic vitality; providing regional and connected open space, parks, trails and recreation facilities; preparing for a balanced intermodal and multimodal transportation system; and preserving mineral and natural resources. Clear Creek County uses its zoning regulations to work toward the long-range planning objectives through current planning regulations and enforcement.

3.10.2.6 Jefferson County Corridor Area

A small portion of Jefferson County serves as the east terminus of the Corridor from mileposts 247 to 260, including Golden and the unincorporated areas of Evergreen and Genesee. Map 3.10-16 (see Resource Map section), 2-Mile Corridor Zoning in the Vicinity of Genesee and Evergreen, illustrates generalized zoning throughout the portion of the Corridor within Jefferson County. For this PEIS, Jefferson County has been assessed at a sub-county level, focusing on two Jefferson County planning areas that are traversed by I-70 in the Corridor. This area, referred to as the Jefferson County Corridor Area, contains Jefferson County's Evergreen and Central Mountains community planning areas. Jefferson County is a member of DRCOG. The following is a summary of Jefferson County Corridor Area land use characteristics.

Area:	772 square miles (655 incorporated, 117 unincorporated)
Land use and ownership/ jurisdiction:	72 percent mountain areas (557 square miles); 28 percent plains areas (217 square miles); Pike National Forest, 22 percent (217 square miles); ARNF, 0.5 percent (4 square miles). Within the study area, Evergreen and Genesee are the largest population centers within close proximity to I-70. These unincorporated areas have a wide variety of commercial, office, and industrial uses located mostly near I-70 and along major thoroughfares in the communities. The suburban character with low-density residential and numerous recreational opportunities serves as the main attraction to these areas.
Population for Corridor Area (per 2000 census):	31,733 (Corridor area) 527,056 (entire county)
Description:	Located along the Front Range, Jefferson County is considered a gateway to the Rocky Mountains. Once an agricultural and mining area, Jefferson County is now a thriving suburban, business, industrial, and residential community within the greater Denver metropolitan area. The Central Mountains community planning area includes three canyons, Mount Vernon, Bear Creek and Clear Creek, and is home to many historical sites, structures, roads, trails, and railways. The Evergreen community planning area offers the convenience of numerous services and shopping in a rural mountain setting.
Key towns in Corridor area:	Evergreen, El Rancho, Bergen Park, Kittredge, Marshdale, Genesee, Mount Vernon, Lookout Mountain, Idledale (Golden is in the urban Denver metropolitan area)

The *Jefferson County General Land Use Plan* (1986) is a guide for future land use decisions in the county. Jefferson County promotes the development of a clearly defined and understandably built environment by ensuring that development complements or creates appropriate community features and respects the unique sense of community between areas. The county plans to create visible boundaries between different activity areas, neighborhoods, and districts. To create a scenic corridor along I-70 in the mountains, Jefferson County plans to ensure that the visibility and site disruption of any development in this Corridor is minimized. Planning documents have been prepared for the Central Mountains and Evergreen areas.

The *Central Mountains Community Plan* intends to maintain the mountain residential scale and character. The plan suggests that the area should remain primarily residential and open space, with commercial and industrial limited to the existing areas. No additional development should occur within the I-70 and US 40 scenic corridors unless the development can be screened or mitigated. The *Evergreen Area Community Plan* proposes to maintain mountain residential character, with lower-density residential and open space. Higher-intensity land uses, including higher-density residential, commercial, and industrial, should be consolidated to activity centers.

3.10.2.7 Lake County

Lake County is adjacent to the Corridor, located south of Eagle and Summit counties, 20 miles south of I-70. The two entrances into the county from I-70 are from Eagle County, through US 24, and from Summit County, through SH 91. A summary of land use characteristics is provided below.

Area:	390 square miles
Land use and ownership/ jurisdiction:	66 percent of county land managed by USFS, BLM, Bureau of Reclamation, and the US Fish and Wildlife Service (USFWS). Privately owned lands primarily in the central corridor along the Arkansas River Valley, at the Climax mining site, and east of Leadville. Mining-related activities account for most of the land uses within the county. The Climax mining site is located off SH 91 at the northeast corner of the county near the Summit County line. Private mining claims are mostly within a large area east of Leadville, and some are scattered within and adjacent to federal lands at higher elevations. Agricultural uses are found in the Arkansas River bottomlands and meadows in the central corridor of the county. Rural land subdivision activity has occurred sporadically in Lake County, scattered along the central corridor near Leadville and at several upland locations overlooking the valley. Development is concentrated in and around the vicinity of Leadville and to a lesser extent in the Twin Lakes area. The Lake County Airport is located southwest of Leadville.
Population (per 2000 census):	7,812
Description:	The county is in a state of transition, where agricultural land from private family ownership is being converted to subdivision development, nonprofit retreats, and manufactured housing parks. Lake County resident workers help supply the labor demands of adjacent resort counties including Eagle, Pitkin, and Summit.
Key towns in county:	Leadville

The *Lake County Comprehensive Plan* (1998) presents several policies to guide future land use to prevent uncontrolled land development on the county's limited private developable land. The county, in cooperation with Leadville, plans to designate an urbanizing growth boundary to cluster future higher-intensity uses, including substantial commercial and business uses, in and adjacent to Leadville. The county's plan includes a goal of retaining its small town and rural lifestyles by protecting identified view sheds and retaining low-density uses outside Leadville.

3.10.2.8 Grand County

Grand County is located 20 miles north of I-70, north of Clear Creek and Summit counties. Berthoud Pass along US 40 and SH 9 serves as the primary southern entrance into the county from I-70. A summary of Grand County land use characteristics is provided below.

Area:	1,847 square miles
Land use and ownership/ jurisdiction:	75 percent managed by state and federal agencies. Remaining private lands line highway corridors throughout the county, of which more than 33 percent consists of large properties that exceed 640 acres. Most private development has occurred within or adjacent to established towns. Rural and agricultural lands that stretch between towns are beginning to experience piecemeal residential and commercial development.
Population (per 2000 census):	12,442
Description:	Grand County is dependent on its natural and scenic resources for ranching and tourism. Winter Park Resort, Silver Creek ski area, and Berthoud Pass, combined with a rich history of mining, ranching, and timber, attract many visitors.
Key towns in county:	Winter Park, Fraser

Municipal and unincorporated development in the Fraser Valley is the primary Grand County issue because I-70 provides the primary access to this area. The future land use and socioeconomic projections in this section will consider only Winter Park, Fraser, and surrounding unincorporated areas. Grand County and its towns adopted community growth areas to allocate future development. The county growth areas provide only for residential development, whereas town growth areas provide for residential, commercial, and industrial development. The growth areas of the towns contain sufficient land to accommodate reasonable population growth through 2020. Growth areas do not include production agricultural land, critical open space, or sensitive environmental areas. The county's objectives are to concentrate new development to previously built-up areas and designated growth areas. The plans call for growth areas to protect the county's rural character, existing ranching economy, and culture, while maintaining the general county economy.

3.10.2.9 Gilpin County

Gilpin County is adjacent to the Corridor, located north of Clear Creek County and west of Jefferson County, 15 miles north of I-70. A summary of land use characteristics is provided below.

Area:	150 square miles
Land use and ownership/ jurisdiction:	Approximately 50 percent of the county is owned and managed by state and federal agencies, including the USFS, BLM, and Colorado Division of Parks and Outdoor Recreation. Rural residential is the predominant land use in the county, with population located near SH 119 and US 6.
Population (per 2000 census):	4,757

Characterization:	In 1990, the state of Colorado authorized limited-stakes gambling in Central City and Black Hawk. Gaming activity in Central City has decreased considerably over the last several years, leaving many casinos closed, and historic buildings unoccupied. The construction of the Central City Parkway is expected to be a catalyst for economic recovery. Fifty-nine percent of Gilpin County's employed residents commute to other counties (primarily Denver and Boulder) for work.
Key towns in county:	Central City and Black Hawk

Gilpin County plans to preserve and enhance the rural mountain character of the county by locating commercial development within or near town centers but to minimize impact of new development on existing activities, neighborhoods, and resources. The county plans to preserve mineral, agricultural, and forest assets by limiting development within recognized resource areas and maintaining visual mountain character and the overall wooded environment. The addition of two new access points from I-70, the Central City Parkway and the Black Hawk Tunnel, directly affect the travel demand projected for I-70.

3.10.2.10 Pitkin County

Pitkin County is adjacent to the Corridor, located south of Eagle and Garfield counties, 15 miles south of I-70. A major access route from I-70 (at Glenwood Springs) to Pitkin County (and the Aspen area) is via SH 82. Pitkin County can also be accessed via SH 91 and US 24 routes from I-70 through Lake County. A summary of land use characteristics is provided below.

Area:	975 square miles (mostly rugged terrain)
Land Use and Ownership/Jurisdiction:	The county's eastern boundary is the Continental Divide, and the Crystal, Roaring Fork, and Frying Pan rivers flow in from the north. WRNF dominates the county and includes the Maroon Bells Snowmass, Hunter Frying Pan, and Collegiate Peaks Wilderness Areas.
Population (2000 Census):	14,872
Characterization:	The county was carved out of Gunnison County in 1881. The first settlers came to the Roaring Fork Valley in search of silver in 1879. Almost all of the early settlers arrived from Leadville, Colorado, in neighboring Lake County, via Independence Pass. The town of Aspen, originally known as Ute City, was founded in 1880 and is the county seat. Aspen was redeveloped into a world famous ski area in 1948. Ski areas include Snowmass, Buttermilk Mountain, Aspen Highlands, and Aspen Mountain. The Aspen area is directly accessed from I-70/ Glenwood Springs via SH 82 (a distance of more than 30 miles).
Key towns in county:	Aspen, Snowmass Village, Basalt, Redstone, Snowmass

Pitkin County's *Land Use and Policy Guidelines* (2002) includes the following general statement regarding land use patterns:

> *"It is the policy of the County to locate future urban development within adopted urban growth boundaries in order to eliminate residential sprawl and strip commercial development, to ensure the provision of adequate service levels, to preserve agriculture, forestry and open space land uses, and to maximize the utility of funds invested in public facilities and services. Lands outside the growth boundaries will be deemed most appropriate for the preservation of agriculture, natural habitat, environmental resources, open space and rural residential uses."*

The *Aspen Area Community Plan* (2000) was "developed to address not only issues of the quantity of growth, but also the quality." Highlights of the Plan include the following elements:

- Developing an Aspen Community Growth Boundary
- Providing affordable housing
- Managing transportation: developing a multimodal valley-wide transportation system
- Promoting economic sustainability
- Managing parks, open space, and the environment: maintaining valued open space and wildlife corridors
- Maintaining community character and design

3.10.2.11 Park County

Park County is adjacent to the Corridor, located south of Summit County and west of Jefferson County, more than 20 miles south of I-70. A summary of land use characteristics is provided below.

Area:	2,201 square miles
Land Use and Ownership/Jurisdiction:	Park County is bordered by Jefferson County and the Denver metropolitan area on the east. The county is dominated by public lands including Pike National Forest, state lands, and BLM lands. The Rocky Mountain Front Range (east) and the Mosquito Mountain Range (west) surround the South Park intermontane valley.
Population (2000 Census):	14,523
Characterization:	In 1859, gold was discovered in Tarryall Creek. Park County was established in 1861, and its county seat is Fairplay. The county is known for its lush valley ranch land, known as "South Park." The county offers numerous popular recreation amenities including two wilderness areas and reservoirs including Elevenmile and Lake George. Park County provides workers to Summit County via SH 9 from the communities of Alma and Fairplay.
Key towns in county	Bailey, Fairplay, Alma, Antero Junction, Hartsel, Lake George

Park County's *Strategic Master Plan* (Draft, 2000) includes the following general goals:

- Update development regulations to ensure the protection of environmentally sensitive areas; promote and develop open space areas
- Manage the pace and location of residential growth in the county; direct new commercial/industrial and smaller-lot residential development to existing communities and rural centers
- Improve the quality of new development as to site and architectural design, compatibility with existing rural character, and sensitivity to the natural environment
- Limit land parcelization and small or substandard lot subdivision

3.10.3 Environmental Consequences

A GIS overlay process was used to identify impacts on currently developed lands (including parcels and structures) and additional right-of-way requirements. Land use, more than any other resource, is subject to impacts associated with interchange improvement. Most interchanges throughout the Corridor are in close proximity to currently developed lands. Direct impacts on currently developed lands have been identified where alternative footprint and construction disturbance zones extend into parcels adjacent to I-70.

Impacts associated with project alternatives would potentially result in losses of structures and portions of parcels. In addition, a review of aerial photography was conducted to identify impacts on other land use features such as local access and commercial parking. It is important to note that the identification of impacts on currently developed parcels is independent of additional right-of-way requirements, as some parcels, especially in Clear Creek County, already extend into the existing CDOT right-of-way. Such parcels could be affected by alternatives regardless of whether additional right-of-way is required.

As documented in Chapter 2, each alternative would include select Minimal Action components, which are currently conceptually defined. The level of design detail is limited at this Tier 1 stage of analysis, and until project-level designs are completed (during and following Tier 2 studies), a more exact extent of direct impacts on land use cannot be determined. Possible impacts on currently developed lands are anticipated to be most prominent around interchange modifications. As is evident from the number of parcels and structures affected by the Minimal Action alternative in relation to the other alternatives, most impacts could be accounted for by the Minimal Action components associated with action alternatives. At this Tier 1 level of analysis and alternative design, interchange impacts are based on conceptual interchange layouts that will be refined during Tier 2 and for final designs. Because these interchange layouts are conceptually defined, GIS analysis provides a conservative estimate of impacts.

Land use impacts on Corridor properties are summarized in Appendix A, Environmental Analysis and Data, based on the number of affected parcels and the number of affected structures. Appendix A also includes a table showing additional right-of-way acreage requirements (acres of footprint/construction disturbance zone outside existing right-of-way). The impact of the Minimal Action components of each action alternative is included in the total alternative impacts.

Direct impacts on two categories: currently developed lands and areas of additional right-of-way acquisition, are discussed by Corridor county below. Impacts on structures, which occur only in Clear Creek County, are also discussed in that county's section.

Direct impacts on management area prescriptions were evaluated through GIS overlay of alternative footprints and construction disturbance zones onto WRNF and ARNF management area prescription maps (see section 3.10.2).

3.10.3.1 Direct Impacts

No direct impacts on parcels are anticipated to occur in Garfield or Jefferson counties. Additionally, no direct impacts on structures are anticipated outside Clear Creek County.

The No Action alternative would consist of several planned or permitted projects, which are described in detail in Chapter 2, Description and Comparison of Alternatives. Impacts that would be associated with these projects are addressed in other environmental documents, including the *Eagle County Airport Interchange EA*, the *SH 9 EIS*, the *Gaming Area Access EIS*, and the *Hogback Parking Facility EA*. No additional direct impacts on currently developed lands are anticipated to occur under the No Action alternative.

Eagle County

Currently Developed Lands

The Minimal Action alternative would result in impacts on 29 parcels. The Rail with IMC, Highway, and Combination alternatives would affect 28 parcels. Most of the parcels affected in Eagle County would be within Avon, Eagle, and unincorporated Eagle County. Each project alternative, other than the No Action alternative, would result in losses of portions of parcels. Proposed improvements of the interchanges in Eagle (milepost 147), Avon (milepost 167), Minturn (milepost 171), and Vail (milepost 173) are associated with each action alternative. As previously described, these interchange modifications are conceptually defined and account for most of the impacts in Eagle County. At the Tier 2 level of analysis, techniques to avoid or minimize impacts associated with interchange modifications will be explored. Section 3.10.4 describes possible techniques for mitigation of impacts.

See Table 3.10-2 for details of impacts on parcels in Eagle County.

Table 3.10-2. Impacts on Parcels in Eagle County

	No Action	Minimal Action	Rail with IMC	AGS	Dual-Mode or Diesel Bus in Guideway	6-Lane Highway 55 mph	6-Lane Highway 65 mph	Reversible/ HOV/HOT Lanes	Combination 6-Lane Highway with Rail and IMC	Combination 6-Lane Highway with AGS	Combination 6-Lane Highway with Dual-Mode or Diesel Bus in Guideway
Eagle	0	7	7	7	7	7	7	7	7	7	7
Avon	0	7	7	7	7	7	7	7	7	7	7
Eagle-Vail	0	2	2	2	2	2	3	2	2	2	2
Minturn	0	1	1	1	1	1	0	1	1	1	1
Vail	0	2	2	0	0	2	2	2	2	2	2
Unincorporated Eagle County	0	10	9	9	9	9	9	9	9	9	9
Eagle County Total	***0***	***29***	***28***	***26***	***26***	***28***	***28***	***28***	***28***	***28***	***28***

Right-of-Way

Project alternatives would require acquisition of additional right-of-way in five areas throughout Eagle County: Avon, Eagle, Vail, Minturn, and unincorporated Eagle County. Approximately 0.4 acre is outside the right-of-way in Avon for all alternatives. Approximately 2.5 acres would be affected in Eagle for all action alternatives, and approximately 0.3 acre would be affected in Vail for all action alternatives, except the Transit alternatives. From 0 (Transit and Six-Lane Highway 65 mph alternatives) up to 3.5 acres would be affected in Minturn, and from 14.9 acres to 22.6 acres (Rail with IMC and Combination Six-Lane Highway with Rail and IMC alternatives) would be affected in unincorporated areas.

For details of right-of-way acquisition in specific locations in Eagle County, see Appendix A, Environmental Analysis and Data.

Summit County

Currently Developed Lands

Interchange improvements associated with the Minimal Action components of all action alternatives would affect a total of five parcels in Summit County. Four public and mixed-use parcels surrounding the Silverthorne interchange (milepost 205) would be affected and one residential parcel located north of the Frisco interchange (milepost 203) would be affected. Each of these impacts would comprise alternative footprints and construction disturbance zones extending into the edge of each parcel. As previously described, these interchange modifications are conceptually defined and account for most of the impacts. At the Tier 2 level of analysis, techniques to avoid or minimize impacts associated with interchange modifications will be explored. Section 3.10.4 describes possible techniques for mitigation of impacts.

See Table 3.10-3 for details of impacts on parcels in Summit County.

Table 3.10-3. Impacts on Parcels in Summit County

	No Action	Minimal Action	Rail with IMC	AGS	Dual-Mode or Diesel Bus in Guideway	6-Lane Highway 55 mph	6-Lane Highway 65 mph	Reversible/ HOV/HOT Lanes	Combination 6-Lane Highway with Rail and IMC	Combination 6-Lane Highway with AGS	Combination 6-Lane Highway with Dual-Mode or Diesel Bus in Guideway
Silverthorne	0	3	3	3	3	3	3	3	3	3	3
Unincorporated Summit County	0	2	2	2	2	2	2	2	2	2	2
Summit County Total	***0***	***5***	***5***	***5***	***5***	***5***	***5***	***5***	***5***	***5***	***5***

Right-of-Way

Project alternatives would require acquisition of additional right-of-way in two areas of Summit County: Silverthorne and unincorporated Summit County. Approximately 0.2 acre would be affected in Silverthorne, and from 1.0 to 1.6 acre (Rail with IMC alternative) would be affected in unincorporated areas for all action alternatives.

For details of right-of-way acquisition in specific locations in Summit County, see Appendix A, Environmental Analysis and Data.

Clear Creek County

Currently Developed Lands

The Combination alternatives would result in the greatest impacts throughout Clear Creek County. Most of the parcels affected in Clear Creek County would be within Idaho Springs. Each project alternative, other than the No Action alternative, would result in losses of portions of parcels and removal of structures. Proposed improvements of the three Idaho Springs interchanges (mileposts 239, 240, and 241) would be included as components of each action alternative. As previously described, these interchange modifications are conceptually defined and account for most of the impacts in the Idaho Springs area. The central Idaho Springs interchange (milepost 240) would not only affect adjacent parcels and structures, but also overlap onto Water Street and into the parking area south of the Idaho Springs Commercial District. Techniques to avoid or minimize impacts associated with interchange modifications will be explored at the Tier 2 level of analysis. Section 3.10.4 describes possible techniques for mitigation of impacts.

Up to seven Lawson area parcels would be affected by the Rail with IMC, Six-Lane Highway (55 or 65 mph), and Combination alternatives. The construction disturbance zone associated with these alternatives would extend into the back edge of multiple residential parcels in this area and would result in losses of portions of parcels. Combination alternatives would affect one parcel in Georgetown, the historic Toll House parcel.

Effects on unincorporated parcels in Clear Creek County would range from 8 (Minimal Action alternative) to 13 (Rail with IMC and Combination Six-Lane Highway with Rail and IMC alternatives) parcels.

See Table 3.10-4 for details of impacts on parcels in Clear Creek County.

Table 3.10-4. Impacts on Parcels in Clear Creek County

	No Action	Minimal Action	Rail with IMC	AGS	Dual-Mode or Diesel Bus in Guideway	6-Lane Highway 55 mph	6-Lane Highway 65 mph	Reversible/ HOV/HOT Lanes	Combination 6-Lane Highway with Rail and IMC	Combination 6-Lane Highway with AGS	Combination 6-Lane Highway with Dual-Mode or Diesel Bus in Guideway
Georgetown	0	0	1	0	0	1	1	1	3	3	3
Lawson Downieville Dumont	0	0	0	0	0	0	3	6	10	10	9
Idaho Springs	0	28	30	30	34	28	28	28	28	28	28
Unincorporated Clear Creek County	0	8	13	12	10	9	11	12	13	13	12
Clear Creek County Total	***0***	***36***	***44***	***42***	***44***	***38***	***43***	***47***	***54***	***54***	***52***

Right-of-Way

Project alternatives would require acquisition of additional right-of-way in three areas of Clear Creek County: Central City, Idaho Springs, and unincorporated areas. Right-of-way acquisition of lands under Central City would be associated with the area surrounding the new Central City Parkway, recently annexed into Central City's jurisdiction. Approximately 0.1 acre of recently annexed Central City land associated with the Central City Parkway is anticipated for the Rail with IMC, Combination Six-Lane Highway with Rail and IMC, and Combination Six-Lane Highway with Dual-Mode or Diesel Bus in Guideway alternatives. Right-of-way acquisition required would range from 3 acres (Rail with IMC alternative) to 1 acre (all other action alternatives) in Idaho Springs, and from 3.2 acres (Minimal Action alternative) to 5.6 acres (Six-Lane Highway 65 mph alternative) in unincorporated areas.

For details of right-of-way acquisition in specific locations in Clear Creek County, see Appendix A, Environmental Analysis and Data.

Structures

As stated above, direct impacts on structures are anticipated to occur only in Clear Creek County.

Table 3.10-5 provides an overview of potential impacts on structures by town in Clear Creek County, based on conceptual interchange improvement and mainline alternative design.

As stated previously, impacts on structures provided on Table 3.10-5 are based on preliminary designs, which include conceptual footprints for interchanges. However interchange designs at the Tier 2 level of analysis will focus on the actual ramp deficiency, which may include only a portion of the ramp configuration.

Because impacts on structures would be more absolute than impacts on parcels (a portion of a parcel may be affected, while a structure is either wholly affected or not), analysis was conducted at this Tier 1 level to determine the avoidance potential for alternatives. The analysis found that all impacts on structures could be avoided through design and minimization of the alternative footprint and construction disturbance zone. Interchanges could be constructed in a manner that would not require an entire interchange to be rebuilt; the entire interchange footprint conceptually designed at Tier 1 may not be required. It is also possible that the construction disturbance zone could be narrowed.

Table 3.10-5. Impacts on Structures in Clear Creek County[a]

	No Action	Minimal Action	Rail with IMC	AGS	Dual-Mode or Diesel Bus in Guideway	6-Lane Highway 55 mph	6-Lane Highway 65 mph	Reversible/ HOV/HOT Lanes	Combination 6-Lane Highway with Rail and IMC	Combination 6-Lane Highway with AGS	Combination 6-Lane Highway with Dual-Mode or Diesel Bus in Guideway
Lawson	0	0	1	0	0	0	0	7	7	7	7
Georgetown	0	0	1	0	0	1	1	1	1	1	1
Idaho Springs	0	9	12	10	9	9	9	9	9	9	9
Silver Plume	0	0	0	0	0	0	0	0	0	0	0
Unincorporated	0	2	2	2	3	3	3	3	3	3	3
Tier 1 Total[a]	0	11	16	12	12	13	13	20	20	20	20
Assumed Avoidance Potential Total[b]	0	0	0	0	0	0	0	0	0	0	0

[a] *Based on preliminary Tier 1 designs, which will be refined at Tier 2.*

[b] *Avoidance potential based on reduction in footprint and construction disturbance zone, primarily associated with coarsely designed interchange areas.*

Jefferson County

Currently Developed Lands

No impacts on currently developed parcels are anticipated in Jefferson County.

Right-of-Way

Project alternatives would require the acquisition of additional right-of-way in two areas: Golden and unincorporated Jefferson County. Additional right-of-way requirements would range from 0 acres (Minimal Action and Highway alternatives) to 5.3 acres (Rail with IMC and Combination Six-Lane Highway with Rail and IMC alternatives) in Golden, and from 0.5 acre (AGS alternative) to 1.9 acres (Combination Six-Lane Highway with Rail and IMC alternative) in unincorporated areas.

Summary and Alternative Comparison

Currently Developed Lands

Minimal Action components associated with action alternatives would account for 80 to 99 percent of the impacts on currently developed lands. The greatest impacts Corridor-wide on currently developed lands would result from the Combination alternatives. The Combination Six-Lane Highway with Rail and IMC alternative would affect 87 parcels. The Rail with IMC, Six-Lane Highway 65 mph, and Reversible/HOV/HOT Lanes alternatives would have intermediate impacts Corridor-wide, ranging from 76 to 80 parcels affected. The Minimal Action, AGS, Bus in Guideway, and Six-Lane Highway 55 mph alternatives are anticipated to have the least impact on currently developed lands Corridor wide, with a range of 70 to 75 parcels affected.

Most affected parcels would be in Clear Creek County (Idaho Springs), and most affected parcels would be commercial (see Chart 3.10-1 and Chart 3.10-2). The Six-Lane Highway 65 mph, Reversible/HOV/HOT Lanes, and Combination alternatives would affect parcels in the Lawson, Downieville, and Dumont area, Georgetown, Idaho Springs, and unincorporated areas of Clear Creek County. The Six-Lane Highway 55 mph and Rail with IMC alternatives would affect parcels in all of these areas, except the Lawson, Downieville, and Dumont area. The Minimal Action and AGS alternatives would not affect the Lawson, Downieville, and Dumont area or Georgetown. All alternatives would affect parcel areas of Eagle County to a similar degree, except that the AGS and Dual-Mode or Diesel Bus in Guideway alternatives would not affect parcels in Vail.

Chart 3.10-1. Parcel Impacts by Alternative

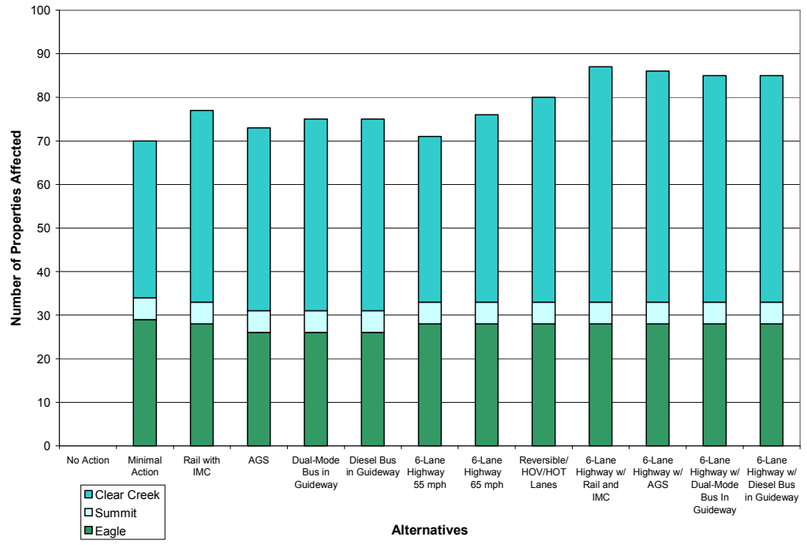


Chart 3.10-2. Parcel Category Impacts by Alternative

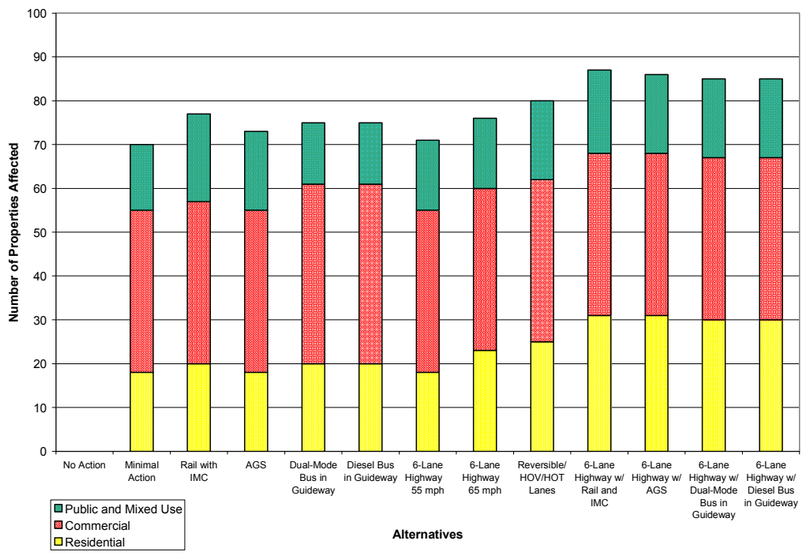
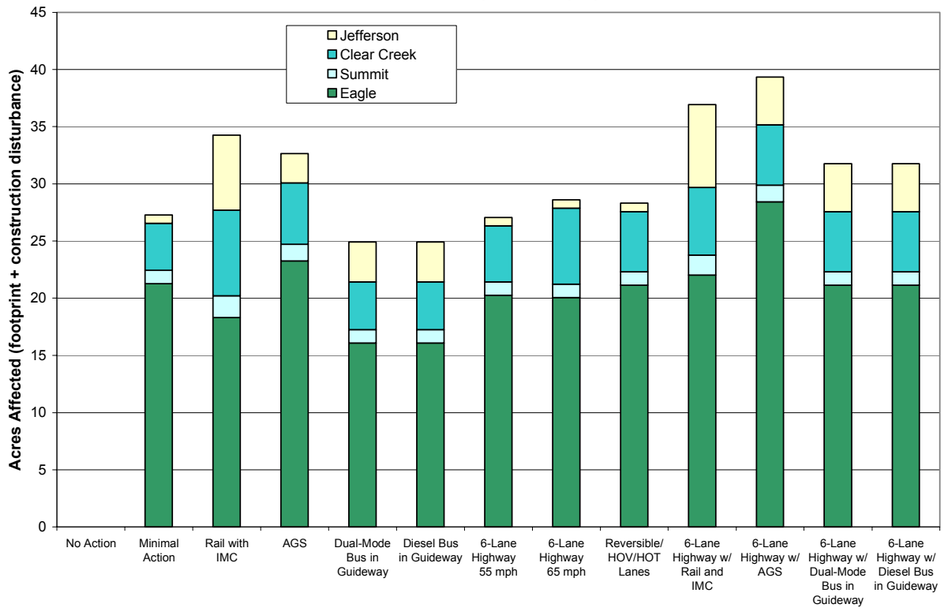


Chart 3.10-3. Required Right-of-Way by Alternative



Right-of-Way

Project alternative footprint/construction disturbance outside the existing I-70 right-of-way would range from 24.9 acres (Dual-Mode or Diesel Bus in Guideway alternatives) to 39.5 acres (Combination Six-Lane Highway with AGS alternative) in the Corridor. The greatest impacts (associated with all alternatives) would be for areas of unincorporated Eagle County. Chart 3.10-3 illustrates the amount of additional required right-of-way for each affected county by alternative.

Structures

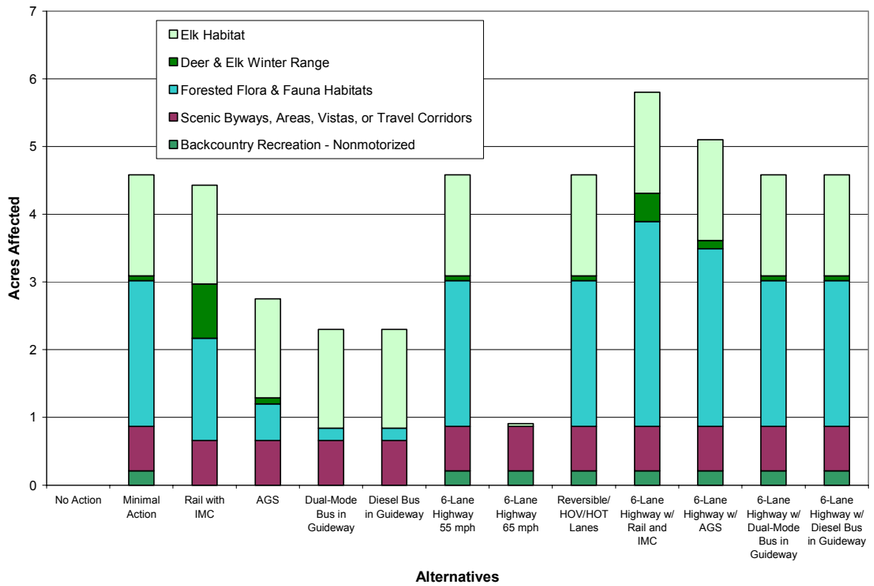
Impacts on structures from project alternatives would be indicated only in Clear Creek County. The greatest impacts on structures would be associated with the Reversible/HOV/HOT Lanes and the Combination alternatives. It is anticipated that all impacts on structures would be avoided.

3.10.3.2 Direct Impacts on Federal Lands

Discussion of direct impacts on WRNF and ARNF lands are also addressed in relation to recreation resources in section 3.14, Recreation Resources, and specifically in relation to 4(f) properties in section 3.16, Section 4(f) Evaluation. The major impacts on federal lands from project alternatives are summarized below.

Direct impacts on management area prescriptions were evaluated through GIS overlay of alternative footprints and construction disturbance zones onto WRNF and ARNF management area prescription maps. A typical width of 200 feet on each side of the I-70 centerline was used to estimate the existing I-70 easement through the WRNF and the ARNF where CDOT easement information for USFS lands was not available. This typical width is conservative based on the review of the original I-70 construction plans. The impact results in acreage are provided in Appendix A, Environmental Analysis and Data (see Management Area Prescriptions), and WRNF results are illustrated in Chart 3.10-4 by alternative and by types of management area prescriptions.

Chart 3.10-4. Management Area Prescription Impacts by Alternative, WRNF



Project alternatives would closely follow the existing I-70 alignment and, therefore, would be largely located within the Designated Utility Corridor management area prescription (8.32) throughout the WRNF. Total impacts on WRNF lands outside the Designated Utility Corridor easement would range from 0.9 acre (Six-Lane Highway 65 mph alternative) to 5.8 acres (Combination Six-Lane Highway with Rail and IMC alternative). All alternatives other than the Bus in Guideway and Six-Lane Highway 65 mph alternatives would affect management area prescriptions for Forested Flora and Fauna Habitats (5.4), Deer and Elk Winter Range (5.41), and Elk Habitat (5.43) in the vicinity of Dowd Canyon. Minimal Action, Highway, and Combination alternatives would affect management area prescriptions for Backcountry Recreation, Nonmotorized (1.31) in the vicinity of east Vail. All project alternatives would affect management area prescriptions for Scenic Byways, Areas, Vistas, or Travel Corridors (4.23) in the vicinity of Copper Mountain and Officers Gulch. All project alternatives in the vicinity of Frisco and Silverthorne would affect management area prescriptions for Elk Habitat (5.43). Forested Flora & Fauna Habitats would have the greatest acreage impacts for the Minimal Action, Rail with IMC, Six-Lane Highway 55 mph, Reversible/HOV/HOT Lanes, and Combination alternatives. Impacts on Elk Habitat would range from 1.46 to 1.49 acres for all alternatives except the Six-Lane Highway 65 mph alternative, which would affect 0.04 acre.

On ARNF lands, all action alternatives, except the Minimal Action alternative, would affect the Ski Based Resort (8.22) management area prescription in the vicinity of the Loveland Ski Area along the north side of I-70. According to the USFS, "under the terms of the Loveland Resort permit, the use is Nonexclusive [meaning that] the Forest Service reserves the right to use or allow others to use any part of the permit area (ski resort) including roads, for any purpose provided. However, others may only use part of the permit area provided that the use does not materially interfere with the holder's authorized use. The final determination of conflicting uses is reserved to the Forest Service" (S. Ludwig, USFS coordinator for I-70 PEIS personal communication).

Direct impacts on special use permits may include disturbance to access roads, utilities, river recreational access, and other facilities (see Appendix K, Overview of Water Availability and Growth, and Forest Service Land Management, for an inventory of USFS special use permits within 1 mile of I-70). Outfitter/guide permits may also be affected indirectly due to possible access issues during construction. Tier 2 studies will identify specific direct and indirect impacts on USFS special use permits. It should be noted that future permits (as valid during design and construction phases) may differ from those identified in the PEIS due to permit expiration or other changes. Tier 2 studies will also provide additional permit information to designers so that alternative footprints and construction activities may avoid and minimize impacts.

3.10.3.3 Indirect Impacts on Land Use

Land use issues related to indirect effects of project alternatives are discussed below.

Growth and development in Corridor counties and towns. Counties and communities in the Corridor area have future land use and zoning plans. The plans anticipate considerable growth based on existing growth trends and DOLA projections for 2025. Existing development versus planned development is evaluated and discussed as a cumulative impact in Chapter 4, Cumulative Impacts Analysis. Development activities in the Corridor accelerated during the 1990s, and many Corridor communities are approaching buildout. Project alternatives would have the potential to induce further growth pressure.

Land use and patterns of development. Corridor planning has initiated limitations on housing densities and dispersed development. Other factors, such as infrastructure limitations (water supply), would affect development patterns and density. Numerous Corridor communities are projected to experience steep increases in the percentage of second homes. This type of development has generally been rural/dispersed and is expected to reach expansion limits in resort areas by 2025. Project alternatives would have the potential to induce further development. The effects of second homes have been summarized by NWCCOG (2004) in the quotation below:

> *"Increasing numbers of second homes have begun absorbing large amounts of land in an area where land available for development is limited by terrain and the public domain. The consequence is a growing impact on real estate prices and the cost of living, as well as increasing demands for service from local government."*

Land use and environmental quality. Planned development in the Corridor would affect environmental resources (such as encroachment on wetlands) and may cause conflicts with planning goals (see evaluation in Chapter 4). Project alternatives may cause further impacts (due to induced growth) to environmental resources from development.

Federal lands may also be affected indirectly, including impacts on designated management areas and associated environmental resources. USFS management guidelines have been considered in the evaluation of impacts and discussion of avoidance and mitigation for environmental resources. Indirect impacts on recreation resources are addressed in section 3.14, Recreation Resources. Chapter 4 includes a comprehensive documentation and impact analysis of natural resources (wetlands, water resources features, water quality, and wildlife habitat) using major watershed areas. These watershed areas include federal lands generally categorized as special management areas and active recreation management areas.

Indirect impacts are defined as impacts that are "later in time or farther removed in distance from the project footprint" (CEQ 1986) than might be directly caused by project alternatives. Such indirect impacts may include growth-inducing effects and other effects related to induced changes in the

pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems. This analysis evaluates potential indirect impacts as the longer-run and more widely spread changes to development patterns and comprehensive plans that might be induced by I-70 transportation improvements.

Project alternatives are intended to meet existing and projected transportation needs along the Corridor and are not intended to induce additional growth. However, numerous government and private entities, including EPA (2001, 2002), have expressed concern that potential induced Corridor growth might result from I-70 improvements. The concern is that improved transportation access will bring more recreational users into the Corridor and serve to stimulate the Corridor economy and population growth, which, in turn, will cause adverse environmental impacts on land use.

In a letter to CDOT, EPA (2002b) states the following generally accepted assumptions regarding highway improvements and growth:

> *"New highway construction that improves traffic flow and eliminates congestion increases access and contributes to induced residential, commercial, and industrial growth. In many situations, this growth may be inevitable. However, increased rates of growth, whatever the cause, contribute to indirect effects to the same resources directly affected by a project and should be evaluated."*

An analysis of possible induced growth due to project alternatives is presented in section 3.9, Social and Economic Values. The analysis indicates the following locations/alternatives may be susceptible to induced growth:

- Highway alternatives: slight possibility of induced growth in Eagle County
- Transit alternatives: moderate possibility of induced growth in Eagle County
- Combination alternatives: greatest possibility of induced growth in Eagle County; moderate possibility of induced growth in Summit County

Recent information indicates that highway-induced growth is not necessarily a "given," and that socioeconomic conditions, land use patterns, and other factors also influence growth and have the potential to constrain the amount of induced growth from highway projects. The EPA recommends that the I-70 PEIS follow the Oregon DOT guidance as the most recent and best resource for analysis of indirect impacts on land use. The Oregon Department of Transportation (ODOT) makes the following related statements:

> *"The fact that in the past, in some places, for some type and scale of projects, highways have had impacts on land use, does not provide a basis for assessing the effects of a specific project today . . . so much transportation and land development has occurred that it is difficult to make a clear determination of what is causing what: Is land use responding to the highway network, or are current highway improvements a response to transportation problems that are a result of development and settlement patterns?"* (ODOT 2001)

Socioeconomic conditions and land use patterns are unique to the Corridor and do not follow the more commonly studied pattern of urban development. EPA (2002b) states that "Because of the nature of recreation travel in the Corridor, induced travel demand associated with additional transportation capacity will cause environmental and socioeconomic impacts." This evaluation addresses trends and indicators that have previously influenced and are projected to influence growth in the Corridor in light of the potential for highway improvements to induce additional growth.

Methodology

The forecasted 2025 Baseline socioeconomic projections for population and employment are not based on the No Action (no build) alternative. These forecasts have been developed by DOLA in consultation with local communities and are independent and uncorrelated to any specific alternative of infrastructure improvement. In addition, Corridor community plans and associated transportation studies reviewed during the PEIS do not specifically discuss community development and growth in relation to potential I-70 improvements. There is, however, an implicit assumption (in the projections and by Corridor communities) that transportation and services will be able to keep up with growth and development along the Corridor.

The ODOT *Guidebook for Evaluating the Indirect Land Use and Growth Impacts of Highway Improvements* (2001) was used as a guide for this evaluation. Available information concerning factors most likely to influence future land development patterns is employed to determine whether there are potential constraints or supporting elements to Corridor growth. These factors include:

- Social and economic conditions (population, employment, residential households, second homes, and commuting expectations)
- Land use
- Transportation systems
- Public services (water resources)
- Public policy

This process then evaluates these factors in light of proposed transportation improvements and possible associated induced growth (see predictions and methodology in section 3.9, Social and Economic Values). For example:

> *"If resources (such as a reliable water supply) are available to the area at a reasonable cost, improvements in access are more likely to support land use change… [and] …in most cases, transportation improvements alone do not induce a lot of growth: other public facilities (especially sewer, water, and other utilities) must also be available at a reasonable cost."* (ODOT 2001)

Social and Economic Values

Population growth is a major driver in land development. Projected growth is generally addressed by local planning organizations. However, projected employment growth has the potential to influence commuting patterns (increase existing cross-county commuting) and cause conflicts with land use plans. Expected economic growth and increased tourism and recreational use also influence land use and development patterns.

No direct constraint to recreation and tourism industry growth was indicated based on the PEIS evaluation except in the second home/real estate industry. The second home/real estate industry is directly related to available land for development.

Land Use

Development pressures are anticipated to occur differently on rural versus urban lands. In coordination with Corridor county planners, county zoning classifications were categorized into urban and rural "planned development." This categorization is considered to be generally representative of future conditions. This grouping was to analyze growth pressures on various resources.

Geographical and institutional land use constraints to growth and development have also been identified. The major land use constraints to future growth in the Corridor are future development plans and policies (determined by Corridor counties and communities). In addition, many areas (especially resort areas) are approaching buildout conditions (before or by 2025) according to existing zoning restrictions.

However, quantification of possible "worst-case" increases in development acreage has been documented according to possible induced/suppressed population growth and guidance from Eagle and Summit county planners. According to county planners, the distribution of induced growth is associated with the following patterns:

- Transit alternatives: induced growth concentrated in urban areas surrounding transit centers
- Highway alternatives: induced growth would follow existing development trends
- Combination alternatives: induced growth would follow the above two patterns equally

Section 4.3.1 of Chapter 4, Cumulative Impacts Analysis, describes the methodology for the quantification of land use impacts and provides the impacts in relation to planned development. Table 3.10-6 summarizes the results of the analysis contained in Chapter 4. Because Eagle and Summit counties are the only counties with predicted induced growth, these are the only counties affected by possible induced development. Transit alternatives might induce development of an additional 3,000 acres, while Highway alternatives might induce development of more than 21,000 acres in Eagle County (Highway alternatives are assumed to follow existing development trends—additional rural development acreage—while Transit alternatives are assumed to concentrate growth in existing urban areas). Combination alternatives might induce development of an additional 38,000 and 5,000 acres in Eagle and Summit counties, respectively.

Table 3.10-6. Possible (Worst-Case) Impacts on Land Use

County	Alternatives				
	No Action	Minimal Action	Transit	Highway	Combination Highway/ Transit
Eagle County	0	0	3,248	21,654	37,894
Summit County	0	0	0	0	5,191
Total	0	0	3,248	21,654	43,085

Increased development acreage

Although Table 3.10-6 provides an indication of possible increased development acreage, the likelihood of induced development acreage would be minimal and would be limited by the following factors.

Development

Development trends and indicators include the following issues:

- Summit County expects to reach buildout by 2013.
- Clear Creek County has limited available land for development (much of which is not easily accessible and lacks infrastructure).
- Due to the mountainous terrain in the Corridor, development will be influenced by geographic land use constraints.
- Land use policies are expected to evolve further in the protection of natural resources and "quality-of-life" values. These policies will limit development activities.

Geographic Issues

The geography in the Corridor area is predominantly characterized by steep terrain; geologic hazards; associated access problems; natural barriers such as lakes, wetlands, and streams; and adverse climatic conditions. Community centers are generally located in stream valleys. These factors limit land use in the Corridor area, including use for development.

Property and Land Use Controls

The high degree of recreational use in the Corridor is directly related to the proximity of natural amenities including federal and state protected lands such as national forests and parks. Land use for development is generally limited by these boundaries. Indirect impacts on USFS special use permits and lands might include access road interference, noise impacts, or visual impacts related to designated land uses and classifications.

Community Policy, Land Use Planning, and Ordinances

Corridor communities have created zoning and land use plans, established open space areas, and passed ordinances to protect natural amenities. These actions limit the amount of land available for development. Induced population growth would increase planned densities for residential development. Development as a result of increased population is anticipated to result in the greatest conflicts with rural areas of the Corridor. Potential pressure for increased densities on currently rural lands is anticipated to conflict with community goals, especially within Eagle and Summit counties, whose plans focus on maintaining rural character by clustering development in and around existing communities and transportation corridors.

Transportation System Characteristics

The No Action and Minimal Action alternatives would have the potential to suppress growth due to congestion and increased travel times. The Highway, Transit, and Combination alternatives would have the potential to induce peak seasonal traffic, to differing degrees, due to increased access and decreased travel times. Unlike Highway alternatives, Transit alternatives would require local transit feeder systems for travel to rural locations. The potential for inducement of growth, therefore, would be different between Highway and Transit alternatives. Whereas growth associated with Highway alternatives is anticipated to occur within both rural and urban locations following current trends, growth associated with Transit alternatives is anticipated to be more focused on urban locations.

Public Services (Water Resources)

An analysis of water resources in the Corridor was performed to evaluate the potential of water availability to influence future growth. The full analysis is provided in Appendix K, Overview of Water Availability and Growth, and Forest Service Land Management. Information in the analysis indicates that water resources (including quantity and quality issues) and associated infrastructure (including water treatment and wastewater treatment), are likely to influence future land development patterns in watersheds intersecting the Corridor.

Water resource factors that may influence growth and development in the Corridor include:

- Water rights and appropriations (water available for use)
- Public water infrastructure (including treatment plants and public supply systems)

- Wastewater treatment facility infrastructure
- Water quality issues

These factors are interrelated on many levels and the findings of the analysis are summarized as follows.

Water Shortage Indicators

- The recent Upper Colorado River Basin Study (Hydrosphere Resource Consultants 2003) indicates a need for additional water supplies in Grand and Summit counties for existing and future municipal demands, as well as instream flows, to support the area's recreational uses and maintain low-flow levels used to determine waste load allocations for wastewater treatment plants (WWTPs).
- Under future conditions, nearly 66 percent of Summit and Grand county providers are expected to have demands that exceed their current water rights and/or water availability (Hydrosphere Resource Consultants 2003). The largest shortages are predicted for the Fraser River upstream of Tabernash, Blue River upstream of Dillon Reservoir, Snake River upstream of Dillon Reservoir, and Tenmile Creek upstream of Dillon Reservoir.
- Mountain communities (including Georgetown), as well as rural well users, in Clear Creek County encountered problems meeting existing water needs during the drought of 2002. County assistance was provided during the summer to meet minimum demands. The county is pursuing avenues to obtain water rights and develop new storage facilities to meet future needs (Clear Creek County 2002). Potential locations of new storage facilities are provided in Clear Creek County's *Master Plan* (2003).
- Although existing water storage capacity in the Eagle River watershed is generally adequate to satisfy current water supply augmentation requirements, an additional 7,500 acre-feet of in-basin storage is believed necessary for environmental purposes and for water supply use associated with future growth (Eagle River Assembly 2000).
- Many communities along the Corridor (including Silverthorne, Breckenridge, Minturn, Vail, Fraser, Frisco, Dillon, Empire, Georgetown, and Idaho Springs) indicate they have a sufficient supply for currently planned development according to community and county plans. However, none of these communities indicate they have an abundant supply for any additional (beyond planned development) future development. Water supply planning has not been performed for unlimited growth. In addition, drought conditions, such as those of 2002, were generally not incorporated into these community plan water supply projections.
- Increasing groundwater depletions as a result of residential development may affect stream flow because groundwater discharge generally supplies 25 percent of the surface flow in the Corridor area (NWCCOG 2002b).
- Beginning in the year 1999, the state of Colorado experienced a substantial drought cycle, and water supply is an existing concern for the Corridor area. Most Corridor communities have implemented water conservation measures. The 2002 water year was the driest on record, breaking records set in the 1977 drought.
- Based on an increase in Corridor population from 119,306 (2000) to 216,581 (2025) (Garfield, Eagle, Summit, and Clear Creek counties), and an annual residential per capita water use of 73,000 gallons (Colorado Water Conservation Board [CWCB] 2002a), and accounting for tourism, an additional 27,000 to 30,000 acre-feet of water per year will be required in the Corridor.
- In response to the 2002 drought, CWCB and many other entities are conducting studies (both independently and cooperatively) to determine the status of Colorado's water resources for existing and future demands.
- Streams in the Corridor area are currently over appropriated, and increased water diversions to meet increased demands are unlikely (DWR 2002a).
- Although it is too soon to determine specific impacts, climate change (global warming) could affect Colorado's water supply (see further discussion in Appendix K).

Water Quality Issues

- Low instream flows caused by drought and/or seasonal fluctuations are less capable of diluting pollutants from various sources such as WWTP discharges or historic mining sites. As a result, public water supplies might be affected and wastewater treatment systems might require upgrades to meet more stringent discharge limits. Such upgrades might require costly state-of-the-art treatment technologies.
- Many wastewater treatment facilities operating in Corridor-intersecting watersheds are dealing with capacity and water quality issues (NWCCOG 2002b, c, d, e). To meet regulatory water protection standards, many of these facilities have permitted discharge limits for ammonia and/or phosphorus. Future facility expansions might face more stringent water quality standards, because receiving streams will be affected by increasing nonpoint source pollution, various water protection standards, and instream flow requirements.
- Many water supply sources, both in the Colorado River basin and in the Clear Creek watershed, are adversely affected by historic mining activities. Water supply sources in portions of these basins must address heavy metals contamination and acidic water from mine waste (EPA 1997).
- Drought conditions affect water quality by elevating contaminant concentrations due to low-flow conditions. The increased level of contaminants might affect public water supplies at stream intakes and treatment requirements at wastewater treatment facilities.
- The reduction or alteration of river and stream flows (from agricultural, municipal, hydropower, snowmaking, and golf course use) can result in fish kills (from concentrated pollutants and/or elevated water temperatures or reduced dissolved oxygen), degraded water quality, reduced wildlife habitat, reduced natural scenic value of rivers and streams, and affected recreational opportunities, and have far reaching economic, social, and quality of life impacts (Trout Unlimited 2002).
- Water rights diversions that are senior to instream flow rights have left several miles of the Colorado River in Glenwood Canyon dry for up to 12 weeks a year (Trout Unlimited 2002).
- Diversions for snowmaking and other uses at Snowmass Creek can drop winter flows to 4 cubic feet per second or lower. This is lower than the CWCB instream minimum flow of 7 to 12 cubic feet per second. Biological studies found that these low flows can drop velocity in the stream below levels needed for successful trout spawning (Trout Unlimited 2002).

Water Policy Issues

- Growth in Colorado has resulted in increased competition for limited water supplies among the municipal, agricultural, and environmental sectors. The ability of Western Slope headwater communities to meet future growth needs is affected by Front Range diversions, senior or conditional water rights held by parties outside the local water resource area, and instream flow requirements (NRLC 2001).

- Overlapping water supply and water quality issues are often in conflict, because state law primarily guides water supply while federal law (Clean Water Act and Endangered Species Act) dominates water quality. The assertion that "Colorado…water quality issues are independent of, and therefore properly subservient to, the right to use the waters of the state" is being challenged on several fronts. At the current time, water quality issues such as maintenance of instream flows and water quality protection standards are often of equal prominence (NRLC 2001).
- The Recovery Implementation Program for Endangered Fish Species in the Upper Colorado Basin includes a commitment to manage and protect instream flows needed to recover the endangered fish in accordance with the state laws and property rights. The CWCB makes the conservative assumption that all future water development will likely occur under water rights that will be junior in priority to the endangered fish recovery instream water rights (CWCB 1995).

Public Policy

Corridor counties and communities have created land use policy initiatives. The initiatives generally include plans to limit development, contain growth within community boundaries, and protect quality of life and environmental resources. These policies establish constraints to land use, growth, and development. The land use policies for the Corridor counties, as summarized in section 3.10.2, include goals such as directing future growth to major transportation corridors, controlling sprawl, preserving community character, and protecting environmentally and visually sensitive areas. County and community planning organizations, along with the input "public/political will," are expected to be the ultimate decision-makers (and formulate policies that have the potential to constrain growth) in terms of future land use and development.

State and federal agencies also create land use protection guidelines and land management guidelines. These guidelines establish measures to protect designated land uses including wildlife and fish habitat, riparian areas, streams, and recreational amenities. Indirect effects on state and federal lands from Corridor growth and development are likely to come under close scrutiny by local, state, and federal agency planners and regulators.

3.10.3.4 Conclusions

According to the induced growth analysis (see section 3.9, Social and Economic Values), induced growth is indicated with the Highway, Transit, and Combination alternatives (to different degrees). However, according to the factors assessed in the above section, there are numerous limitations to induced growth in the Corridor. These constraints generally include water supply, geographic, and public policy issues. Other related considerations include local transportation planning, zoning and development codes, and "quality-of-life" concerns. Induced growth is not consistent with existing county and community lands use plans and policies.

However, if induced growth took place (as associated with specific alternatives), environmental resources such as water features (streams and wetlands), wildlife habitat, and community values (for example, noise) might be affected. Chapter 4, Cumulative Impacts Analysis, includes a discussion of indirect impacts on these resources. Discussions with county planners were held to determine where such growth might occur. The following general patterns were agreed to:

- Highway alternatives are associated with the greatest potential for dispersed growth/development. Highway alternatives generally represent existing trend conditions. The most likely development pattern for induced growth associated with Highway alternatives would follow existing urban/rural ratios of growth dissemination.
- Transit alternatives would require transit centers for boarding and off-boarding of passengers. The most likely development pattern for induced growth associated with Transit alternatives would be focused in urban areas surrounding Transit centers. The level of dispersed growth in rural areas is assumed to be limited for the Transit alternatives.
- Combination alternatives are associated with the highest degree of possible induced growth. The most likely development pattern for induced growth associated with Combination alternatives would be divided equally among the two above methods of growth assignment.

Compatibility of Alternatives with Land Use Plans

As stated above, induced growth is not consistent with existing county and community lands use plans and policies.

Transit alternatives may be more compatible with Eagle County's desire to encourage future development in and around existing communities and allow rural areas to retain existing densities. In contrast Highway alternatives, which are considered to be associated with dispersed development, are anticipated to be less compatible with county plans with stated preferences to maintain rural character outside existing urban centers.

3.10.4 Mitigation Measures

3.10.4.1 Direct Impacts

CDOT would attempt to avoid acquiring properties or displacing structures. Where avoidance would not be reasonable or feasible, each alternative alignment would be designed to avoid as much conflict as possible with existing properties and associated land uses. To minimize impacts that could not be avoided, FHWA and CDOT would conform to the requirements set forth in the Uniform Relocation Assistance and Real Property Acquisition Policies Act (1970, referred to as the "Uniform Act," as amended in 1987) to provide a consistent policy for fair and equitable treatment of displaced persons. CDOT also would provide compensation and assistance with finding suitable sites for relocation.

Construction impacts will primarily be mitigated through design refinement at the Tier 2 level of analysis. Conceptual techniques for mitigation of impacts could include the following:

- Alignment shifts
- Design variances
- Cantilever walls
- Compact interchange designs such as Single Point Urban interchanges and Tight Urban Diamond interchanges

PEIS screening steps included initial consideration of alternate routes. However, such routes have been screened from further consideration to avoid and minimize impacts on environmental and community resources. All project alternatives (under current consideration) would use the existing highway alignment. In addition, efforts to avoid and minimize impacts have included close coordination with agencies and other concerned parties. These efforts have included alteration of designs to avoid impacts such as highway realignment and structural adjustments, as well as elevated highway segments in critical areas such as Idaho Springs.

3.10.4.2 Forest Service Land Management

Tier 1 alternative designs include USFS land management avoidance measures:

- Limit roads and other disturbed sites to the minimum feasible number, width, and total length consistent with the purpose of specific operations, local topography, and climate
- Construct roads to minimize sediment discharge into streams, lakes, and wetlands
- Reclaim roads and other disturbed sites when use ends, as needed, to prevent resource damage

ARNF and WRNF resource specialists provided standards and guidelines (based on forest management plans, USFS 1997; USFS 2002) based on their review of existing PEIS issues and project alternatives. A list of these standards and guidelines for the protection of federal lands is categorized by forest and resource in Appendix K, Overview of Water Availability and Growth, and Forest Service Land Management. Standards are used to ensure that individual projects are in compliance with forest plans and are intended to limit project-related activities, not compel or require them. Deviations from standards must be analyzed and documented in a forest plan amendment. A guideline is a preferred or an advisable course of action or level of attainment. Guidelines are designed to achieve desired conditions (goals). Deviation from a guideline and the reasons for doing so are recorded in a project-level NEPA document and a forest plan amendment is not required.

Avoidance and minimization of impacts on forest service special use permits would include efforts to minimize impacts beyond the existing I-70 right-of-way. Tier 2 studies will provide a more definitive determination of impacts on special use permits and will include conceptual mitigation plans. Mitigation planning would include coordination with the USFS and affected permit owners. Mitigation for impacts on special use permits would involve the following general measures:

- Access to permitted areas/uses would be maintained during and after project alternative construction activities. This might include detoured access routes.
- Permitted utility (electric, gas, fiber-optics, water) easements would be relocated, and service interruptions would be minimized.
- Structures (such as communication towers, recreation facilities, and recreation residences) would be relocated.

3.10.4.3 Indirect Impacts

This evaluation of indirect impacts found that numerous potential constraints to growth and land use exist in the Corridor. However, the degree to which these factors would influence future growth, especially in relation to highway improvements, is difficult to define, as is discussed by FHWA (1992):

> *"Unfortunately, well-defined functional relationships between resources and the larger environmental systems upon which society may depend are seldom available to the decisionmaker. Usually, nothing more than general cause and effect relationships are understood… It may be more helpful to view these relationships not as absolutes, but rather in degrees of understanding."*

Correspondence from EPA, dated September 20, 2002, suggests exploration of a "sustainable growth" alternative that would include improvements greater than those of the Minimal Action alternative, but less than those of construction of more extensive alternatives. These concepts would be considered in the evaluation of alternatives and mitigation planning. Mitigation measures for potential indirect impacts on land use and growth would require the efforts and cooperation of Corridor communities and state government, as discussed by FHWA (1992):

> *"Unfortunately, measures that would be appropriate to offset most future developmental impacts in the area of a project often will be beyond the control and funding authority of the highway program. In these situations, the best approach would be to work with local agencies that can influence future growth and promote the benefits of controls that incorporate environmental protection into all planned development."*

The selected Corridor improvement alternative should support transportation access for Corridor socioeconomic interests and avoid the creation of additional development pressure in areas where numerous constraints to growth already exist. Land use planning and controls are key factors in the protection of environmental and community values. Mitigation planning would include coordination with Corridor-area communities. Decision-makers would be faced with tradeoffs during the process because Corridor growth is generally associated with Corridor economic growth, and efforts to limit growth/development might also limit economic growth.

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