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4.1 LAND USE AND ZONING

INTRODUCTION

Land use and zoning are the principles that regulate how land is developed and used within a jurisdiction. Existing land use is the activity for which land is currently being used, for example, residential or commercial uses. Future land use defines the future activities desired for the use of land as envisioned by the communities and as documented in Comprehensive Plans. Zoning is the legal framework for regulating land uses and enforces the Comprehensive Plans. Zoning designations specify the types of land uses that are permitted within a given area and include open space, residential, agricultural, commercial, and industrial. Land use must be consistent with the zoning designation and both may change over time as an area grows or redevelops.

Land use and zoning were evaluated within the Northwest Corridor study area for impacts associated with the alternatives presented in **Chapter 2.0**. Existing and future land uses and zoning are described generally for the study area. The existing land use is then assessed to determine direct impacts related to conversion of land from its existing use to a transportation use and to determine the indirect effects of a new alignment, new interchange access, and increased capacity on inducing growth in the area. In addition, compatibility with area plans and the potential changes to land use associated with the project are addressed.

Public concerns expressed through the public involvement process regarding land use and zoning include conflicts between land use decisions and the alternatives, the accuracy of data, and the inclusion of a beltway in area land use plans and the effects. These concerns are addressed in **Section 4.1.1** and the impacts associated with completion of the beltway are addressed in **Section 4.24.4**.

4.1.1 AFFECTED ENVIRONMENT

This section describes the existing and future land uses, including zoning, for the study area. Relevant comprehensive plans, zoning ordinances, development plans, GIS data, and aerial photographs were used to characterize and evaluate land use and zoning for the counties and cities within the study area. Because local cities and counties have jurisdiction over land use and zoning, the analysis included extensive review of these documents and communication with local and regional planners. Several municipalities within the study area include the improvements analyzed in this document as part of the future roadway network and have made land use and zoning decisions based on that assumption. This section documents the land use and zoning as identified by the jurisdictions in their land use plans. The majority of land identified as undeveloped and which appears vacant has been approved for development which is reflected in area plans. The study team used the most current documents and GIS data available, however, it should be noted that not all jurisdictions had data available and some of the data available is several years old. Every attempt was made to verify the accuracy of the GIS data provided by the local agencies through field visits. In addition to the review of relevant written materials, an expert panel was convened to provide input on where and how future housing and employment growth could occur based on the alternatives identified for analysis in the study (see **Section 4.1.1.3 and Northwest Corridor Supporting Technical Document-Land Use**).

4.1.1.1 EXISTING LAND USE AND ZONING

Several counties and numerous municipalities are located within the study area. The study area includes portions of Boulder County, the City and County of Broomfield, Jefferson County, and eight incorporated municipalities including: Arvada, Golden, Lafayette, Lakewood, Louisville, Superior, Westminster, and Wheat Ridge (see **Figure 4.1-1**).

Since 1990, all of the jurisdictions have experienced an increase in population. The percent change in growth from 1990 to 2000 ranged from 3 percent in unincorporated Boulder County to 3,505 percent in Superior (the population of Superior grew from 250 to 9,000 in the 10 year period). During this period, the largest increases in population (after Superior) occurred in Lafayette (60 percent), Broomfield (55 percent), and Westminster (35 percent). According to the Colorado Division of Local Government, Demography Office,



between 2000 and 2030, population is expected to increase an additional 41 percent in Boulder County, 63 percent in the City and County of Broomfield, and 33 percent in Jefferson County.

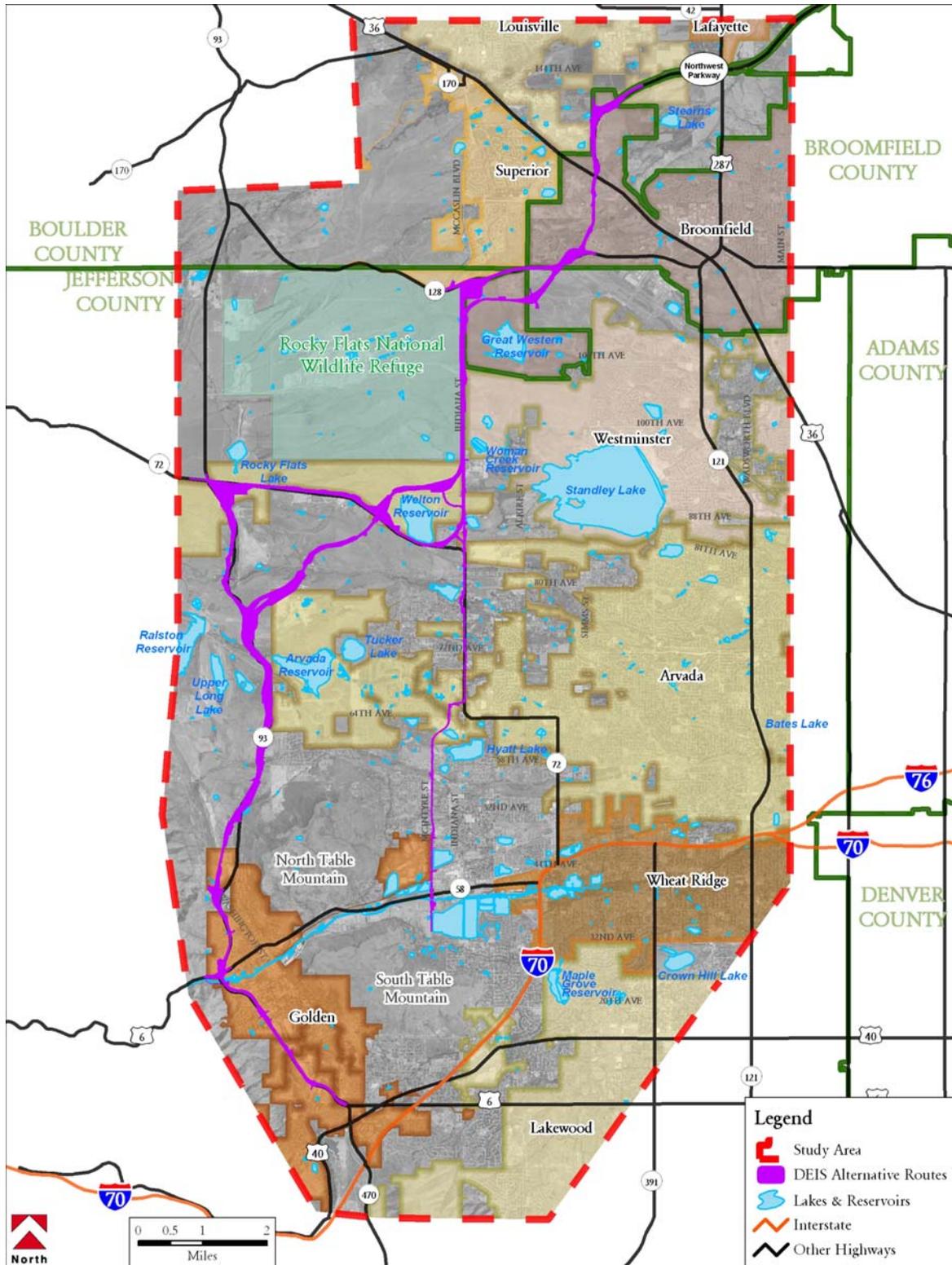
Along with the population growth, there has been tremendous development in all jurisdictions. In general, residential and commercial development has continued replacing vacant agricultural land in much of the study area. Much of the undeveloped land has been identified for future development or has approved development plans in place. While development of the built environment is occurring, jurisdictions are also active in acquiring and preserving open space, parks, and recreation areas. For example, Broomfield estimates that 26 percent of its existing land use is comprised of open lands and plans to have 41 percent by the time of build out (Broomfield Comprehensive Plan, 2005).

Within the 157 square miles of land that make up the Northwest Corridor study area, almost every type of land use and zoning designation is represented. Land uses vary from agriculture and open space to commercial and industrial developments. Approximately 6,200 acres comprise the Rocky Flats National Wildlife Refuge with over 400 acres of wetlands. Because zoning varies among the 11 jurisdictions, there are over 100 distinct zoning categories within the study area. All jurisdictions include zoning designations for residential, mixed use, commercial, industrial, agricultural, public, open space, and planned development. For this section, land use and zoning designations along the proposed roadway alignments were mapped and are described (see **Figure 4.1-2**).

URBANIZATION OF THE STUDY AREA

Over the years, the study area has experienced the conversion of land from traditionally rural uses such as farming and ranching to more suburban and urban uses. Although the area was originally settled by miners, it also emerged as a large agricultural production region. Following World War II, Denver and the surrounding areas saw an increase in population spurring more suburban developments. Since then, new homes, businesses, and infrastructure have been converting vast areas of agriculture and open space land. DRCOG estimates project that in 20 years, an additional two million residents will occupy the Denver metro region. With the increase in population, areas of development have spread continuing to consume agricultural and open space lands. This growth has put a significant strain on the area's natural resources, most notably water supplies. It is also driving up land values, making it increasingly expensive for local and county governments to preserve additional open space, and agricultural landowners to stay in business. Many communities have begun recognizing the importance of open space and are taking steps to preserve open space corridors for residents and wildlife alike.

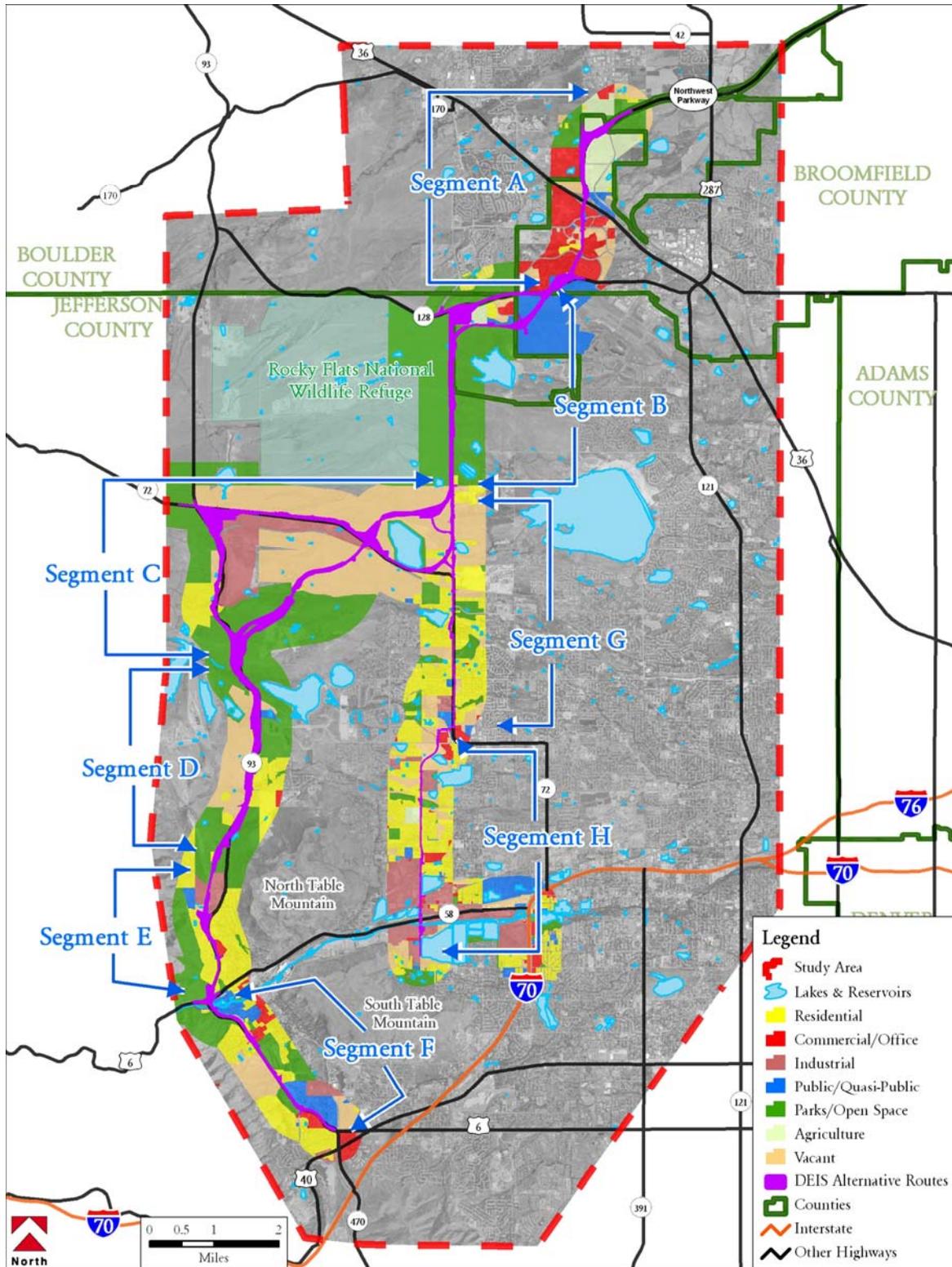
Figure 4.1-1 Communities in the Study Area



Source: Compiled by FHU, 2006.



Figure 4.1-2 Land Use in Study Area



Source: Compiled by FHU, 2006.



SEGMENT A

This segment of roadway passes through Louisville and Broomfield from the Northwest Parkway terminus to approximately SH 128 and is bisected by US 36. All four build alternatives follow the same alignment in this segment. North of US 36, land consists of open space, agricultural, public, and commercial uses with many of the parcels undeveloped. These undeveloped parcels are primarily zoned for planned unit development (PUD) with approved plans in place. PUD is a general zoning classification allowing for land development of any nature (residential, commercial, industrial, etc.) either as a single use or through total integrated project planning. Scattered residential parcels and a commercial center are located just north of Dillon Road. South of US 36 the most prominent land use is the employment/commercial area associated with the Interlocken Technology Park and Flatiron Crossing Mall, a retail center (see **Figure 4.1-3**). Much of the area around Interlocken is mixed use with businesses, light industry, a golf course, and high-density residential developments. Other than these residential developments, there is very little residential development in this portion of the study area. There are several undeveloped parcels within this area planned for development. South of SH 128 there is a large parcel of public land owned by Jefferson County that is used for the Rocky Mountain Metropolitan Airport (formerly the Jefferson County Airport) as well as the future Great Western Business Park (a business/industrial development) to the southeast of the airport.

Figure 4.1-3 Mixed uses associated with Interlocken Technology Park

SEGMENT B



This segment of roadway from SH 128 at Interlocken Loop to Indiana Street and 96th Avenue passes through Broomfield, Superior, unincorporated Jefferson County, and Westminster. In this portion of the study area, the Regional Arterial Alternative follows the existing SH 128 alignment and turns south at Indiana Street. The Regional Arterial Alternative alignment is adjacent to the Coyote Ridge Open Space in Superior on the north side of SH 128. Immediately south of SH 128 there is agricultural, residential, and commercial land in Broomfield that is currently undeveloped and zoned PUD. The Freeway Alternative, Tollway Alternative, and Combined Alternative (Recommended Alternative) follow a proposed alignment just south of SH 128, turning to the south at Indiana Street near the existing intersection with SH 128 and then continuing south parallel to Indiana Street. This new alignment travels through a large area consisting of the Rocky Mountain Metropolitan Airport (formerly the Jefferson County Airport), open space land, and publicly owned land in Broomfield, including a prairie dog relocation area. The public land is currently in use as the Broomfield Police Department, Detention Center, and Training Facility. Further to the southeast there are undeveloped parcels that are zoned open space and PUD by Broomfield.



All four of the build alternatives follow Indiana Street in this portion of the study area. Land use on both sides of Indiana Street consists of parks/open space. Rocky Flats National Wildlife Refuge occupies the west side of Indiana Street, while parks/open space owned by Broomfield and Westminster, including the Great Western Reservoir, occupy the east side of Indiana Street. To the southeast is Standley Lake, which is surrounded by the Standley Lake Regional Park and owned by Westminster. This site is the location of the Woman Creek Reservoir/Standley Lake Protection Project. Generally, this segment of roadway is characterized by open space with some agricultural operations near 96th Avenue (see **Figure 4.1-4**).

Figure 4.1-4 Indiana Street Looking South near 96th Avenue-Open Space Land Use

SEGMENT C



This segment of roadway passes through Arvada and unincorporated Jefferson County. In this portion of the study area, the Regional Arterial Alternative follows the existing roadway alignments of Indiana Street, SH 72 and SH 93. The Freeway Alternative, Tollway Alternative, and Combined Alternative (Recommended Alternative) all follow a proposed alignment that would turn southwest from Indiana Street at 96th Avenue passing through undeveloped land to SH 72 just west of Welton Reservoir. The new alignment would continue to the southwest to SH 93. Land north of SH 72 consists primarily of undeveloped parcels that have recently been approved for residential, commercial, industrial/office, and mixed use development by Arvada. Land along the Freeway Alternative, Tollway Alternative, and Combined Alternative (Recommended Alternative) consists primarily of undeveloped land, the BFI Foothills land fill and parks and open space, including the Partridge Park Open Space. While much of this area is characterized by undeveloped land within unincorporated Jefferson County, the Arvada Comprehensive Plan identifies industrial/office, low density residential, and open space and parks as future land uses in the area south of SH 72 in addition to the development plans already approved north of SH 72. These land uses are compatible with Arvada and Jefferson County zoning. East of Indiana Street, south of SH 72 is a growing suburban residential area within Arvada.

SEGMENTS D, E, & F

These segments are approximately 9 miles in length along SH 93 and pass through unincorporated Jefferson County, Arvada, and Golden. All build alternatives follow this alignment. These segments pass near large areas of open space including the Arvada-Blunn Reservoir Recreation Area, North Table Mountain Park (a classified conservation site by the Colorado Natural Heritage Program), and White Ranch Park (recreational open space). The Pioneer Sand Company has a gravel pit immediately south of the Arvada-Blunn Reservoir. Denver Water Board property lies along the west side of SH 93 from SH 72 to 64th Avenue. Approaching Golden, low density residential developments transition to higher densities with some commercial uses. The Canyon Point Commercial Center marks the transition from a rural landscape to a more urban landscape (see **Figure 4.1-5**). Near C-470, there is a large parcel of public land upon which the Jefferson County Administration Building is located. Zoning along SH 93 includes open space/parks, mixed use, rural/low-density residential, office, retail and industrial.



Figure 4.1-5 Canyon Point Commercial Center in Golden

SEGMENTS G & H



These segments are approximately seven miles in length along Indiana Street and McIntyre Street and pass through unincorporated Jefferson County, Arvada, Golden, and Wheat Ridge. The Combined Alternative (Recommended Alternative) is the only build alternative that follows this alignment. The northern portion, from just north of SH 72 to approximately 72nd Avenue, is primarily undeveloped land and low density residential with a quiet, rural character. Many of the residences in this area are on large lots with land for stables and small agriculturally based businesses (see **Figure 4.1-6**). Open space and park land exists along Leyden Gulch and Ralston Creek, crossing Indiana Street. Limited commercial and industrial/office development exists at roadway intersections along this stretch of roadway. The most substantial commercial development occurs at 64th Avenue. Continuing south the roadway passes through some industrial development near 58th Avenue, new residential development near 52nd Avenue, and scattered open space including Van Bibber and Arapahoe Park. In the vicinity of SH 58, land is primarily used for industrial purposes. The Metal Container Group and 44th Avenue Industrial Park operate at this location. Zoning along these segments includes mixed use, low density residential, commercial, industrial, and open space.

Figure 4.1-6 Traveling North on Indiana Street





4.1.1.2 FUTURE LAND USE

EXPERT PANEL

On June 9, 2005, the study team convened an expert panel to provide input regarding the location of future development in the study area (see **Northwest Corridor Supporting Technical Document-Land Use**). Attendees included representatives from Jefferson County, Broomfield, Arvada, Golden, DRCOG, CDOT, FHWA, and the Sierra Club. One of the tasks the panel was asked to accomplish was to predict the general location and intensity of development that was planned for currently undeveloped lands within the study area (see **Figure 4.1-7**). In general, there were key areas identified for development that would happen whether or not a build alternative was selected. However, the density, variety, and timing would be different between the build alternatives and the No Action Alternative. The general areas of future development described by the panel include:

- Much of the undeveloped land in unincorporated Jefferson County could be developed as commercial, residential, industrial, or community use.
- Regardless of whether the proposed transportation improvements are constructed, the City and County of Broomfield estimates reaching build out by 2030. Consistent with existing trends, currently undeveloped land north of US 36 near the Flatiron Crossing Mall would primarily develop as commercial land use. Land use planning by the City and County of Broomfield, Jefferson County, and the City of Arvada makes the assumption that roadway improvements will be provided regardless of whether that occurs as a result of the construction of a build alternative or as a result of privately funded actions.
- Commercial/employment uses are expected land uses at future Transit Oriented Development (TOD) stations associated with the two FasTracks corridors in the study area (Gold Line and West Corridor). Arvada expects 33,000 new jobs at these and other industrial locations.
- In the vicinity of US 36 and the Northwest Parkway land will likely develop as mixed use, commercial, TOD, and residential.
- Jefferson County estimates 18,000 jobs near the Rocky Mountain Metropolitan Airport and east of Great Western Reservoir, which would likely develop for commercial, office, and industrial uses.
- North of SH 72, the Jefferson Center Area would develop as industrial/commercial and residential.
- South of SH 72 low-density residential development is planned. Water availability may slow growth at this location.
- In the vicinity of SH 72 and SH 93, land would develop as commercial and low-density residential.
- West of SH 93 north and south of 58th Avenue would develop as low-density residential under the No Action Alternative and as suburban density residential, commercial/service, commercial/office, mixed use, and light industrial under the build alternatives.
- Growth and development in Golden has been rapid and is expected to continue. Undeveloped areas in Golden and within its planning boundary could develop as commercial, residential, or community uses. However, this was not discussed at the expert panel meeting, nor identified by Golden.

FUTURE LAND USE PLANNING

All of the incorporated jurisdictions have adopted comprehensive land use plans to guide growth and development in their communities. In accordance with Colorado Revised Statute 30-28-106 (C.R.S. 30-28-106), Jefferson County, Boulder County, and Broomfield have adopted comprehensive plans to guide the physical development of unincorporated areas within their respective counties. Information presented in this section and subsequent sections are based on existing plans and data, which may not all be current. The following documents were referenced to determine land use planning in the study area (see **Northwest Corridor Supporting Technical Document-Land Use**):



- Jefferson County's Central Plains Community Plan, 2003.
- Jefferson County's Northeast Comprehensive Development Plan, 1996.
- Jefferson County's North Plains Community Plan, 1989 (currently being updated).
- Boulder Valley Comprehensive Plan (BVCP), 2000.
- Boulder County Comprehensive Plan (BCCP), 1978 and amended.
- Broomfield Comprehensive Plan, 2005.
- Arvada Comprehensive Plan, 2005.
- City of Golden Comprehensive Plan, 2003.
- City of Lafayette Comprehensive Plan-Land Use Plan, 2003.
- Lakewood Comprehensive Plan, 2003.
- City of Louisville Comprehensive Plan, 2005.
- Town of Superior Comprehensive Plan, 2001.
- Westminster Comprehensive Land Use Plan, 2004.
- Wheat Ridge Comprehensive Plan, 2000.
- DRCOG Metro Vision 2030 Plan, 2005.
- Rocky Flats National Wildlife Refuge Final Comprehensive Conservation Plan and Environmental Impact Statement, 2004.

Growth and development is projected to continue within the study area through 2030. According to the area land use plans, there is very little undeveloped land remaining in the study area. As area plans are updated, the jurisdictions are calculating what amount of land is available for development and determining what types of development they would like to see based on a desired mix by build out. There is also a greater focus on redevelopment and infill and more mixed use and higher density developments. For example, Arvada is currently approaching full build out with approximately 20 percent of the land within its planning area undeveloped to be divided among residential, non-residential and open space land uses. Broomfield's plan also addresses the issue and indicates that of its 34 square miles, the majority of land has been developed or has approved development plans. Broomfield further identifies the amount of land for each type of major land use (residential, open lands, etc.) currently and at projected build out.

Future land use is a major determinant of future transportation needs and vice versa. Several of the more recently updated plans include a future connection from the terminus of the Northwest Parkway to C-470/I-70 and identified future land uses based on this connection. Street network improvements have been identified to accommodate build out of the land use plans. All jurisdictions recognize growth, traffic congestion, and roadway connections as major issues to be addressed. Jurisdictions also indicate a need for a better mix of jobs and housing.

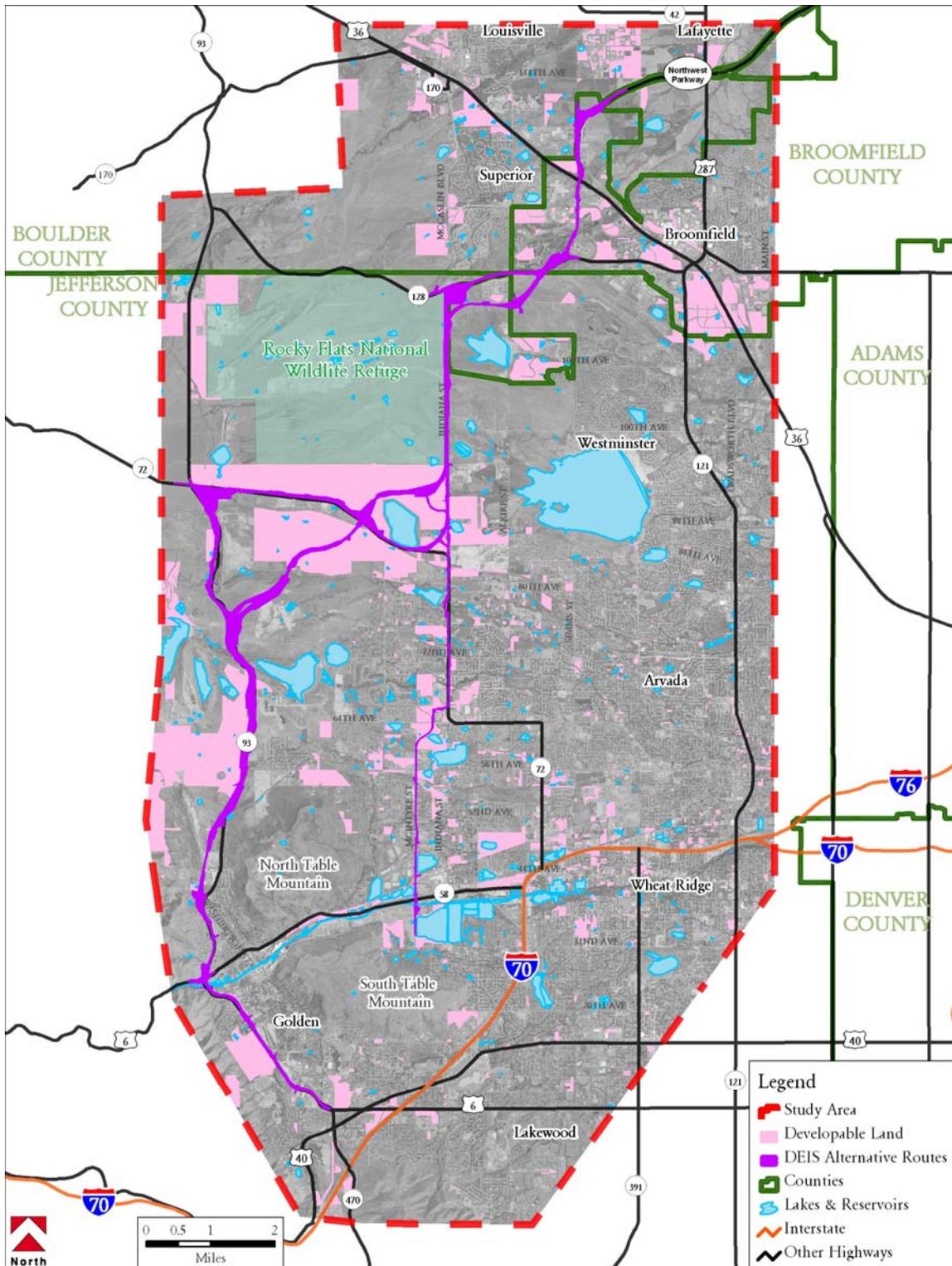
In addition to roadway improvements, jurisdictions have addressed the development needs associated with transit improvements, particularly FasTracks. FasTracks includes 119 miles of rail, 18 miles of Bus Rapid Transit (BRT), and approximately 57 additional rapid transit stations. Within the study area are portions of the Gold Line, West Corridor, and the US 36 Corridor. The Gold Line will extend from Denver Union Station in downtown Denver through Arvada to Wheat Ridge. Arvada's plan identifies four transit stations along the alignment. The majority of these stations falls within existing or future urban renewal areas and are to include mixed use and transit oriented developments. The West Corridor will extend west from Denver Union Station through Lakewood and Jefferson County. The land along this corridor is zoned planned development which allows for a variety of mixed use type developments. The City of Lakewood is currently



in the process of developing plans for the lands near the proposed RTD stations that will have parking associated with them. The US 36 Corridor includes a commuter rail line along the existing railroad right-of-way between Denver Union Station and Longmont, passing through Westminster, Broomfield, and Louisville. In addition to commuter rail, 18 miles of BRT lanes are proposed in the US 36 median. Each of these jurisdictions is working on TOD plans for station areas along the corridor.



Figure 4.1-7 Developable Land in Study Area



Source: Compiled by FHU, 2006.



4.1.2 ENVIRONMENTAL CONSEQUENCES

Both direct impacts and indirect effects are addressed in this section. Direct impacts are those directly attributable to construction of the project and involve a conversion of an existing use to a transportation use. This includes land and property required for roadway right-of-way (see **Section 4.5**). Induced growth was considered as part of the assessment of indirect effects. In general, induced growth can be described as the changes in type, timing, and density of land use resulting from a build alternative. For transportation projects, induced growth is attributed to changes in the accessibility caused by the build alternative, which influences where development occurs. Within the study area, there are several locations where development is expected to occur under the No Action Alternative and all build alternatives (see **Figure 4.1-7**). These locations are identified in area land use plans and were confirmed by members of the expert panel (see **Northwest Corridor Supporting Technical Document-Land Use**). Areas identified include:

- Unincorporated Jefferson County.
- In the vicinity of US 36 and Northwest Parkway.
- North of US 36 near Flatiron Crossing.
- Around the Rocky Mountain Metropolitan Airport (formerly the Jefferson County Airport).
- Along both sides of SH 72 east of SH 93.
- In the vicinity of SH 93 and 58th Avenue.

4.1.2.1 NO ACTION ALTERNATIVE

Projected residential and commercial growth in the northwest quadrant of the Denver metropolitan region would continue under the No Action Alternative. The land use character would continue to change from rural to suburban and urban. Several area plans include a future connection from the terminus of Northwest Parkway to C-470/I-70 and have identified the types of land uses to occur with the connection and related interchanges.

In general, as growth continues, safety, capacity, connectivity, and mobility conditions under the No Action Alternative would remain the same or worsen over the next 25 years given population and employment forecasts. According to DRCOG estimates in the Metro Vision 2030 Plan, the locations indicated above are identified as receiving new households and employment over the next 25 years (DRCOG, 2005).

4.1.2.2 IMPACTS COMMON TO ALL BUILD ALTERNATIVES

All build alternatives would result in the direct conversion of the existing land use to a transportation use for construction of the roadway. Numerous properties in the study area would be impacted for right-of-way purposes (see **Section 4.5**). The widest overall roadway width for any of the build alternatives is 144 feet from edge of outside shoulder to edge of outside shoulder (see **Chapter 2**). Given the diversity of land uses along the alignments, nearly all types of land uses would be affected.

All build alternatives are compatible with land use planning, including future land use, as documented in the Metro Vision 2030 Plan (2005), Central Plains Community Plan (2003), the Northeast Comprehensive Development Plan (1996), the North Plains Community Plan (1989), the Broomfield Comprehensive Plan (2005) and the Arvada Comprehensive Plan (2005). New interchanges associated with the build alternatives are consistent with interchanges identified by the City of Arvada for the proposed Jefferson Center Development Area. Both the Broomfield and Arvada plans show a future extension of the Northwest Parkway.

Development that could occur with all the alternatives, including the No Action Alternative, would differ from some of the existing land uses in the study area changing the visual character of the area, but are compatible with future land uses and zoning (see **Section 4.12**). In some areas, notably north of SH 72



between Indiana Street and SH 93, development plans are consistent with zoning. In the area west of SH 93 between 64th Avenue and 58th Avenue, development is not consistent with current zoning, which is agricultural and mining; however, it is consistent with future land use plans.

None of the build alternatives would conflict with the other relevant land use planning. Many of these plans either do not address the study area specifically or are policy plans that do not identify specific land use planning efforts.

4.1.2.3 IMPACTS COMMON TO THE FREEWAY ALTERNATIVE, TOLLWAY ALTERNATIVE, AND COMBINED ALTERNATIVE

There are five new interchange locations, where no interchange or intersection currently exists, associated with the Freeway Alternative, Tollway Alternative, and Combined Alternative (see **Figure 2.4-2**, **Figure 2.4-9**, and **Figure 2.4-24**). Land around these new interchange locations is a mix of uses including commercial, industrial, public, open space, and undeveloped land. In general, these areas are expected to develop under the No Action Alternative. However, the density, variety, and timing would be different between the Freeway Alternative and the No Action Alternative and slightly different between the Freeway Alternative, Tollway Alternative, and Combined Alternative (Recommended Alternative). These interchange locations are discussed below from north to south.

NEW ALIGNMENT AND SH 128 INTERCHANGE

At this location, which is at the beginning of the new alignment, there are several large parcels of public land owned by Broomfield and the Rocky Mountain Metropolitan Airport Authority (formerly Jefferson County Airport Authority) surrounding much of the proposed interchange. Other adjacent parcels are designated as commercial land uses. The expert panel believed that undeveloped land in this area would most likely develop as commercial land uses for all of the build alternatives (see **Northwest Corridor Supporting Technical Document-Land Use**). While this development is expected to occur with the No Action Alternative, it could occur more quickly under the build alternatives and include more supportive development adjacent to the interchange, such as gas stations and convenience stores.

ELDORADO BOULEVARD EXTENSION INTERCHANGE

This new interchange is located just south of SH 128 and is between Broomfield and unincorporated Jefferson County. Currently the area surrounding the interchange is public land belonging to the Rocky Mountain Metropolitan Airport Authority (formerly the Jefferson County Airport Authority) and Broomfield. Other adjacent land uses include open space, commercial, and agricultural land. A new interchange in this location would result in undeveloped parcels developing as office/commercial uses. This interchange would provide access to parcels east of Great Western Reservoir and facilitate the development of this area, in particular, Great Western Business Park (a business/industrial development) and areas southwest of the Rocky Mountain Metropolitan Airport (formerly the Jefferson County Airport).

TWO INTERCHANGES AT WELTON RESERVOIR (SH 72 AND INDIANA ST. CONNECTION)

The two new interchanges proposed around Welton Reservoir fall within the Jefferson Center Urban Renewal Area and within the City of Arvada boundaries. Currently the land is undeveloped and used for some ranching and agricultural purposes. It is zoned mixed use, industrial, and commercial/office. According to approved development plans, this area would be developed as residential, mixed use, office/industrial, and commercial/retail. Both interchanges and the associated roadway network are included as part of the approved development plans and are consistent with the Arvada Comprehensive Plan (City of Arvada, 2005). For several years, Arvada has wanted an employment center in this location and an associated road network. According to Arvada, this development is not contingent on a new highway access or a build alternative and would occur as proposed whether or not a build alternative is selected as part of this study. However, these new access points may facilitate development causing it to occur more quickly and at a higher density than under the No Action Alternative. It should be noted that there was no consensus among members of the expert panel on the indirect effects at this location.



SH 93 AND NEW ALIGNMENT INTERCHANGE

This southernmost access point (south of 82nd Avenue) is within unincorporated Jefferson County and within the City of Arvada Planning boundary. The surrounding land use is undeveloped, agricultural, and parks/open space. Both Ralston and Arvada-Blunn Reservoirs are located to the south. There is the potential that this area could be rezoned to allow for development and land uses of a different nature, but this is up to the jurisdictions. The undeveloped land to the southwest would likely develop more quickly and at a higher density as service/commercial with some suburban residential compared to the No Action Alternative. It was the opinion of the expert panel that the improved access in this location could result in higher paying and light industrial jobs.

4.1.2.4 FREEWAY ALTERNATIVE

DIRECT IMPACTS

Under the Freeway Alternative, 807 acres of land would be converted from an existing use to a transportation use based on available right-of-way information. Construction of the Freeway Alternative would require acquisition of property from parcels of all land use types for right-of-way purposes, including residences and businesses (see **Section 4.5**), parks/open space (see **Section 4.17**), and farmland (see **Section 4.18**). Portions of this alternative pass through large areas of undeveloped land with most of it identified or approved for future development. This alternative is compatible with future land uses identified in area plans.

INDIRECT EFFECTS

In addition to the five new interchange locations, where no interchange or intersection currently exists, the Freeway Alternative includes upgrading existing at-grade intersections to interchanges at several locations along the alignment (see **Figure 2.4-2**). At one of these locations (SH 93 and Golden Gate Canyon Road), the interchange is on the new alignment, but provides the same access. At existing access points, development is expected to occur as planned, but may be accelerated. For example, at the terminus of Northwest Parkway as it connects to the Freeway Alternative, the planned commercial development may occur at a faster rate under this alternative than with any of the other build alternatives.

Land that is currently undeveloped at these five new interchange locations would have a greater likelihood of being developed sooner under the Freeway Alternative than with any other alternative. Much of this development is already identified in area land use plans. Supportive development near the proposed interchanges could occur soon after completion of the interchanges and would change the current rural character that exists around these new interchange locations. Supportive development could include new or redevelopment of existing land uses to commercial establishments, such as gas stations, convenience stores, hotels/motels, fast food establishments, and other retail businesses located in close proximity to an interchange. Other development that is anticipated to occur includes commercial, mixed use, industrial, and residential. Under the Freeway Alternative, the rate of this development may increase due to access to a higher capacity transportation facility. However, it would occur later in time, farther from the interchange, and upon approval of the appropriate jurisdiction. Any proposed development would require the approval of the local jurisdiction.

4.1.2.5 TOLLWAY ALTERNATIVE

DIRECT IMPACTS

Under the Tollway Alternative, 868 acres of land would be converted from an existing use to a transportation use based on available right-of-way information. Construction of the Tollway Alternative would require acquisition of property from parcels of all land use types for right-of-way purposes, including residences and businesses (see **Section 4.5**), parks/open space (see **Section 4.17**), and farmland (see **Section 4.18**). Portions of this alternative pass through large areas of undeveloped land with most of it identified or approved for future development. This alternative is compatible with future land uses identified in area plans.



INDIRECT EFFECTS

There are five new interchange locations, where no interchange or intersection currently exists (same as the Freeway Alternative), with full access to the Tollway Alternative (see **Figure 2.4-9**). Under the Tollway Alternative, local traffic needing to cross the road is maintained by traveling over or under the tollway. At some locations there would be limited access to and from the tollway.

Land that is currently undeveloped at these five interchange locations would have a greater likelihood of being developed. The timing of development could occur sooner under the Tollway Alternative, but would not occur as quickly as with the Freeway Alternative. To some extent the tollway could slow the rate of development compared to a freeway, with traffic shifting to arterials to avoid the cost of using the tollway.

Near the proposed interchanges, supportive development could occur soon after completion of the interchanges and would change the current rural character that exists around these new interchange locations. However, most of this development is already identified in area plans. Other development that could occur includes commercial, mixed use, industrial, and residential. Under the Tollway Alternative, the rate of this development may increase due to access to a higher capacity transportation facility. Any proposed development would require the approval of the local jurisdiction

4.1.2.6 REGIONAL ARTERIAL ALTERNATIVE

DIRECT IMPACTS

Under the Regional Arterial Alternative, 694 acres of land would be converted from an existing use to transportation uses based on available right-of-way information. Construction of the Regional Arterial Alternative would require acquisition of property from parcels of all land use types for right-of-way purposes, including residences and businesses (see **Section 4.5**), parks/open space (see **Section 4.17**), and farmland (see **Section 4.18**). Portions of this alternative are adjacent to areas of undeveloped land along SH 128, SH 72, and SH 93 with most of it identified or approved for future development. This alternative is compatible with future land uses identified in area plans.

INDIRECT EFFECTS

There are no new interchanges, other than where access currently exists, associated with the Regional Arterial Alternative (see **Figure 2.4-16**). In two locations, Iowa Street at SH 93 and 56th Avenue at SH 93, access would be removed. The Regional Arterial Alternative includes upgrading existing at grade intersections to interchanges at several locations providing improved access (SH 128/Indiana, SH 93/SH 72, SH 93/64th Parkway, SH 58/US 6, US 6/19th Street, and US 6/Heritage Rd). This change from an intersection to an interchange may encourage larger types of development projects like big box retail because of the higher anticipated traffic volumes associated with an interchange. There are also several locations where a new intersection is provided, which may encourage more development around those and may accelerate development where it is already approved.

At SH 72 and SH 93 the proposed interchange would be adjacent to large parcels of undeveloped land. At this location there is the potential for supportive development to occur soon after completion of the interchange changing the visual character of the area (see **Section 4.12**). This area is within the Arvada planning boundary, and the majority is within actual city limits. According the Arvada Comprehensive Plan, the land around the SH 72/SH 93 interchange is zoned mixed-use and commercial/office. Land uses include neighborhood/community commercial, industrial/office, and open space/parks along the creeks (City of Arvada, 2005).

Interchanges in other locations along the Regional Arterial Alternative alignment are not expected to impact current zoning designations or alter existing land uses.



4.1.2.7 COMBINED ALTERNATIVE (RECOMMENDED ALTERNATIVE)

DIRECT IMPACTS

Under the Combined Alternative (Recommended Alternative), 900 acres of land would be converted to transportation uses based on available right-of-way information. Construction of the Combined Alternative (Recommended Alternative) would require acquisition of property from parcels of all land use types for right-of-way purposes, including residences and businesses (see **Section 4.5**), parks/open space (see **Section 4.17**), and farmland (see **Section 4.18**). Portions of this alternative pass through large areas of undeveloped land with most of it identified or approved for future development. This alternative also travels through an established rural residential area along Indiana Street and McIntyre Street. This alternative is compatible with future land uses as identified in area plans.

INDIRECT EFFECTS

Indirect effects are the same as for the Tollway Alternative and the Regional Arterial Alternative in their respective areas (see **Figure 2.4-24**). The Combined Alternative includes the five new interchanges providing new access along the tollway portion of the alternative with the same indirect effects. The principal arterial, which is unique to this alternative, could change the current rural landscape to a more urban landscape along Indiana Street and McIntyre Street. It also could affect the land values promoting redevelopment to more urban and dense land uses changing the visual quality of the area. All existing access points would be maintained, but upgraded, providing improved access.

The Combined Alternative (Recommended Alternative) could encourage development in the area west of Standley Lake within unincorporated Jefferson County. Westminster would like to see the area remain undeveloped or develop at low densities. Westminster's land use and zoning regulations could control land development in this area and does identify low-density residential development (one dwelling unit per acre) in areas adjacent to its city limits.

4.1.2.8 ENVIRONMENTAL IMPACTS ASSOCIATED WITH INDUCED GROWTH

The environmental resources that could potentially be affected by induced growth in the study area include: wildlife, threatened and endangered species, wetlands, farmlands, water resources, floodplains, visual character, and parks and recreational properties (see these individual sections for more detail on impacts and suggested mitigation). As discussed above, the induced growth expert panel indicated that growth would occur whether or not a build alternative is selected (see **Northwest Corridor Supporting Technical Document-Land Use**). The difference between the No Action Alternative and the build alternatives would be in the density, variety, and timing of development. It should be noted that areas that could receive development pressure in the study area are fairly limited since much of the land is acquired open space or already planned for development. Therefore, indirect effects to environmental resources would occur regardless of whether or not a build alternative is selected. However, these effects could occur more quickly, and in some cases be more intense with the selection of a build alternative.

Indirect effects to environmental resources associated with the construction of any of the build alternatives would predominantly occur in the vicinity of new access points because development would tend to be attracted to undeveloped land in locations where new access points are constructed. In locations where existing access is improved, e.g., an intersection is upgraded to an interchange, larger types of development projects like big box retail could occur. Because most existing intersections are already surrounded by development and there is not much developable land available, impacts to environmental resources at these locations would be minor. Indirect effects to environmental resources at locations where new access would be provided or where access would be improved (and is surrounded by undeveloped land) are discussed below.



NEW ALIGNMENT AND SH 128 INTERCHANGE

At this location, there are several large parcels of public land to the south owned by the Rocky Mountain Metropolitan Airport Authority (formerly the Jefferson County Airport Authority). Most of the surrounding parcels are designated as commercial uses and vacant land. A new interchange at this location could result in undeveloped parcels developing as commercial land uses more quickly. Because the majority of the area surrounding this location is developed, impacts to environmental resources would be limited to encroachment upon soils classified as prime farmland if irrigated (see **Section 4.18**). This area would see a conversion of undeveloped land to a developed state both north and south of the proposed interchange. The Freeway Alternative, Tollway Alternative, and Combined Alternative (Recommended Alternative) include an interchange in this location.

The Regional Arterial Alternative includes an intersection at this location, but does not include a new roadway alignment extending to the south. It follows SH 128 to the west from this point. Indirect impacts resulting from an intersection would be less than those associated with an interchange as described above. However, the type of development would be similar.

ELDORADO BOULEVARD EXTENSION INTERCHANGE

Currently a large portion of this area is land belonging to the Rocky Mountain Metropolitan Airport Authority (formerly the Jefferson County Airport Authority). A new interchange in this location could result in undeveloped parcels in this area developing as office/commercial more quickly. Such development could result in a reduction of Bald Eagle winter range habitat and prairie dog habitat (see **Section 4.11**). In addition, development could encroach upon soils classified as prime farmland if irrigated and farmland of statewide importance (see **Section 4.18**). Floodplains associated with Walnut Creek, south of the proposed interchange, could also be affected (see **Section 4.10**). Southwest of the proposed interchange, Great Western Reservoir could be affected by noise, air, and visual impacts associated with the conversion of land to a transportation use and development associated with a new interchange in this location. The Freeway Alternative, Tollway Alternative, and Combined Alternative (Recommended Alternative) include an interchange in this location.

TWO INTERCHANGES AT WELTON RESERVOIR (SH 72 AND INDIANA ST. CONNECTION)

Land surrounding these two new interchange locations is primarily undeveloped, but approved development plans are in place. New interchanges in these locations could result in residential, office/industrial and commercial/retail land uses, including an employment center as identified in Arvada's Comprehensive Plan and the approved development plans to be developed sooner. Such development could result in a reduction of Bald Eagle winter range habitat and prairie dog habitat (see **Section 4.11**). This area is surrounded by soils classified as prime farmland if irrigated and development could encroach upon these soils (see **Section 4.18**). There could also be encroachment upon the floodplain associated with Big Dry Creek, east of the proposed interchanges. Visitors to Welton Reservoir located between the proposed interchanges could be affected by noise, air, and visual impacts associated with development. The Freeway Alternative, Tollway Alternative, and Combined Alternative (Recommended Alternative) include interchanges in this location.

The Regional Arterial Alternative includes upgrading existing at-grade intersections to interchanges near Welton Reservoir. Because land in this location is primarily undeveloped, resultant impacts to environmental resources would be similar to constructing new interchanges in this location.

SH 93 AND NEW ALIGNMENT INTERCHANGE

Land surrounding this proposed interchange consists of undeveloped, agricultural, and parks/open space land uses. As a result of the proposed interchange, undeveloped land to the southwest could develop more quickly and at a higher density, including service/commercial with some light industrial and suburban residential land uses. This development could result in impacts to several small wetland areas adjacent to the roadway south of the interchange (see **Section 4.9**). Development could also result in a reduction in the amount of Bald Eagle winter range habitat (south of the interchange), and prairie dog habitat (east of the interchange) (see **Section 4.11**). In addition, development would likely encroach upon soils classified as prime farmland if irrigated (see **Section 4.18**).



The floodplains associated with Ralston Creek, south of the proposed interchange, would also be affected (see **Section 4.10**). The Freeway Alternative, Tollway Alternative, and Combined Alternative (Recommended Alternative) include an interchange in this location.

In summary, growth is anticipated to occur within the study area whether or not a build alternative is selected. As a result of this growth, impacts to wildlife, threatened and endangered species, wetlands, farmlands, water resources, floodplains, and parks and recreational properties could occur. Impacts would occur more quickly, and in some cases could be more intense with the selection of a build alternative. Because of the costs associated with using the Tollway Alternative, development could occur more slowly at new access points. However, traffic and development would likely shift to local arterials, resulting in similar impacts to environmental resources in these areas.

4.1.3 SUGGESTED MITIGATION

Local planning jurisdictions have the authority to make land use decisions and could therefore mitigate for indirect effects. Mitigation measures that could be implemented by local planning jurisdictions include:

- Control the location of development through the local planning process so that sensitive environmental resources are protected.
- Stipulate in zoning and land use plans that development occurs in designated growth areas or in currently developed areas.
- Coordinate between land use and transportation planners for more integrated approaches to land use, transportation, and environmental planning and review, including implementation of smart growth planning policies to encourage density in development.
- Plan future infrastructure needs to allow higher-density development.
- Use open space set-asides (or acquired open space) as areas develop to preserve sensitive areas such as wetland and wildlife habitat areas.
- Protect agricultural land and wildlife habitat through zoning and/or easements.

Land use jurisdictions could initiate an open space acquisition policy with the expressed purpose of preserving open space along the alignments for wildlife habitat and visual quality purposes, similar to what was done along the Northwest Parkway. Arvada has recently purchased open space in several areas including some around Arvada-Blunn Reservoir. Broomfield has open space around Great Western Reservoir and Westminster has open space around Standley Lake.

In addition to increasing and preserving open space, local agencies could introduce environmentally sensitive development policies into future land use and transportation plans. Future development plans could be designed to retain the rural character and preserve open space and environmentally sensitive lands. Future transportation plans could identify ways in which use of alternate modes of travel can be encouraged.

Implementation of smart growth initiatives can provide economic, social, and environmental benefits to a community. Smart growth development includes compact and mixed-use land types. Compact development and mixed-use development take up less land than conventional development, thereby creating more open space and fewer impacts to wildlife and aquatic habitat. Compact zoning also reduces the amount of impervious surface reducing water quality impacts. Infrastructure requirements are greatly reduced in more densely developed areas resulting in lower costs to build for developers, cities and ultimately the consumer. In mixed-use developments, housing, offices, restaurants, entertainment, and shopping are located close together which can reduce the number of vehicle trips and encourage walking and bicycling.

As the northwest quadrant of the Denver metropolitan region continues to face growth pressures, more complex and long-term strategies focusing on the root of the congestion problem could be incorporated into land use and transportation planning. Environmentally sensitive development strategies could be



incorporated into future land use and transportation plans. These efforts can contribute to the quality of life in a community. Growing communities, such as those within the study area, have an opportunity to implement planning guidelines that encourage smart growth practices. Local jurisdictions in the study area have already identified environmentally sensitive development, preservation of natural resources, preservation of view sheds, and maintenance of community character as important goals in guiding future development.

As urban development encroaches on the natural environment, there is a growing concern about the impacts it would have on ecologically sensitive areas, wildlife habitat, agriculture, open space, and historic/cultural resources. Incorporating this concern for these sensitive lands in the community planning process can help in protecting these areas while preserving air, water, and visual resources.

Rapid growth and development can impact a community’s infrastructure (i.e., roads and schools). Smart growth policies may help alleviate some of the burdens placed on these community facilities by rapid growth by building walkable communities, purchasing and conserving open space, restricting development on sensitive lands, encouraging pedestrian-friendly development and centering housing near commercial/retail centers and transit facilities, and providing other means of transportation. All of these strategies may create a greater sense of community while preserving the natural environment.

4.1.4 SUMMARY

In summary, the direct impacts to land use as a result of a conversion from the existing use to a transportation use are presented (see **Table 4.1-1**).

Table 4.1-1 Acres of Conversion

	No Action Alternative	Freeway Alternative	Tollway Alternative	Regional Arterial Alternative	Combined Alternative (Recommended Alternative)
Acres of conversion	0	807	868	694	900

Source: Compiled by FHU, 2006.

The proposed alternatives are compatible with future land uses as presented in area plans. Several municipalities include a future connection between the Northwest Parkway and I-70/C-470 and have developed the types of land uses surrounding the future roadway network. As all areas continue to experience population and employment growth, development would occur with or without the proposed improvements. It is possible however, that development occurs more quickly with a build alternative as opposed to the No Action Alternative. The build alternatives do not substantially differ in regards to indirect impacts. The alternatives that provide for new access points through new interchanges may cause supportive development to occur around the new interchanges and at a faster rate.



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