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## 5.0 SECTION 4(f) EVALUATION

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### PREFACE

This chapter describes the Section 4(f) evaluation as it took place during the NEPA study process. Though the evaluation was not completed and would only apply to transportation projects receiving federal funds, the data and analysis may provide value to projects in the future and has therefore been left unchanged.

### INTRODUCTION

Section 4(f) of the United States Department of Transportation Act of 1966, as amended, and codified in 49 USC § 303, declares that “it is the policy of the United States Government that special effort should be made to preserve the natural beauty of the countryside and public park and recreation lands, wildlife and waterfowl refuges, and historic sites.” Congress amended Section 4(f) in 2005 when it enacted the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy For Users (SAFETEA-LU) (Public Law 109-59, enacted August 10, 2005). Section 6009 of SAFETEA-LU added a new subsection to Section 4(f), which authorizes the FHWA to approve a project that results in a *de minimis* impact to a Section 4(f) resource without the evaluation of avoidance typically required in a Section 4(f) Evaluation.

Section 4(f) specifies that:

“the Secretary [of Transportation] may approve a transportation program or project . . . requiring the use of publicly-owned land of a public park, recreation area, or wildlife and waterfowl refuge of national, state, or local significance, or land of an historic site of national, state, or local significance (as determined by the federal, state, or local officials having jurisdiction over the park, area, refuge or site) only if:

- (1) There is no prudent and feasible alternative to using that land; and
- (2) The program or project includes all possible planning to minimize harm to the park, recreation area, wildlife and waterfowl refuge, or historic site resulting from the use.”

Section 4(f) further requires consultation with the Department of Interior and, as appropriate, the involved offices of the United States Department of Agriculture and the United States Department of Housing and Urban Development, and relevant state and local officials, in developing transportation projects and programs that use lands protected by Section 4(f).

This Section 4(f) evaluation has been prepared in accordance with the joint FHWA/FTA regulations for Section 4(f) compliance codified at 23 Code of Federal Regulations (CFR) §771.135. Additional guidance has been obtained from the FHWA Technical Advisory T 6640.8A (1987) and the revised FHWA Section 4(f) Policy Paper (2005).

It is important to note that at this stage, approximately 2 to 5 percent design, the Section 4(f) evaluation is preliminary, and serves to help distinguish impacts between alternatives. Consultations with local jurisdictions on parks and wildlife and waterfowl refuges have been initiated and could continue on future projects.

### 5.1 SECTION 4(F) “USE”

As defined in 23 CFR §771.135(p), the “use” of a protected Section 4(f) resource can be classified as a direct use, a temporary use, or a constructive use. These are defined in the following sections.



### 5.1.1 DIRECT USE

A direct use of a Section 4(f) resource takes place when property is permanently incorporated into a proposed project.

### 5.1.2 TEMPORARY USE

A temporary use of a Section 4(f) resource occurs when there is a brief impact to a Section 4(f) resource, considered adverse in terms of the preservationist purposes of the Section 4(f) statute. After the period of impact, the resource must be restored to the condition in which it was originally found.

Under the FHWA/FTA regulations, a temporary occupancy of property *does not* constitute a use of a Section 4(f) resource when the following conditions are satisfied:

- The occupancy must be of temporary duration (i.e., shorter than the period of construction) and not involve a change in ownership of the property;
- The scope of work must be minor, with only minimal changes to the protected resource;
- There are no permanent adverse physical effects to the protected resource, nor will there be temporary or permanent interference with activities or purpose of the resource;
- The property being used must be fully restored to a condition that is at least as good as that which existed prior to the proposed project; and
- There must be documented agreement of the appropriate officials having jurisdiction over the resource regarding the foregoing requirements.

### 5.1.3 CONSTRUCTIVE USE

A constructive use of a Section 4(f) resource happens when a project does not permanently incorporate land from the resource, but the proximity of the project results in impacts (i.e., noise, visual, access, and/or ecological impacts) so severe that the protected activities, features, or attributes that qualify the resource for protection under Section 4(f) are substantially impaired. Substantial impairment occurs only if the protected activities, features, or attributes of the resource are substantially diminished. This determination is made through:

- Identification of the current activities, features, or attributes of the resource that may be sensitive to proximity impacts.
- Analysis of the proximity impacts on the resource.
- Consultation with the appropriate officials having jurisdiction over the resource.

The SAFETEA-LU amendment to the Section 4(f) requirements allows the U.S. Department of Transportation (DOT) to determine that certain uses of Section 4(f) land will have no adverse effect on the protected resource. When this is the case, the use is considered *de minimis*, and compliance with Section 4(f) is greatly simplified. A more thorough discussion of *de minimis* requirements, processes, and resources recommended for *de minimis* findings is outlined in **Section 5.7**.

## 5.2 PRUDENT AND FEASIBLE STANDARD

The prudent and feasible standard states that “the Secretary shall not approve any program or project which requires the use of any publicly owned land from a public park, recreation area, or wildlife or waterfowl refuge.....unless (1) there is no feasible and prudent alternative to the use of such land and (2) such program includes all possible planning to minimize harm to such park, recreation area, wildlife or waterfowl refuge, or historic site resulting from such use.”



SAFETEA-LU in Section 6009 provides that a feasible and prudent alternative avoids using Section 4(f) property and does not cause other severe problems of a magnitude that outweighs the importance of protecting the Section 4(f) property. In assessing the importance of protecting the Section 4(f) property, it is appropriate to consider the relative value of the resource to the preservation goals of the statute. An alternative may be determined not feasible and prudent if:

1. It cannot be built as a matter of sound engineering judgment;
2. It compromises the project to a degree that it is unreasonable to proceed with the project in light of its stated purpose and need;
3. It results in severe safety or operational problems;
4. After reasonable mitigation, it causes:
  - i. Severe social economic or environmental impacts;
  - ii. Severe disruption to established communities;
  - iii. Severe disproportionate impacts to minority or low income populations; or
  - iv. Severe impacts to environmental resources protected under other Federal statutes;
5. It results in additional construction, maintenance, or operational costs of an extraordinary magnitude;
6. It causes other unique problems or unusual factors; or
7. It involves multiple factors in paragraphs (1) through (6) of this definition, that while individually minor, cumulatively cause unique problems or impacts of extraordinary magnitude.

### **5.3 PROJECT PURPOSE AND NEED**

The purpose of transportation improvements in the Northwest Corridor is to enhance the connectivity, functionality, and capacity of the inter-regional and regional system from the vicinity of US 36 and the Northwest Parkway to the vicinity of SH 58, I-70, or C-470. The current ineffective, incomplete roadway system creates the need for better system connectivity, capacity, travel reliability, and modal inter-relationships.

Any proposed transportation alternative must meet the project purpose and need to be advanced for further analysis and be considered reasonable. Purpose and need criteria considered include:

- System connectivity/functionality
- Travel demand/capacity
- Travel reliability
- Modal interrelationships

### **5.4 ALTERNATIVES CONSIDERED**

Alternatives, covering a very wide range of possibilities, were identified based on agency and public scoping. In order to determine which alternatives would be further evaluated considered during a more detailed alternatives development process, the project team applied broad criteria to evaluate these alternatives.

#### **5.4.1 ALTERNATIVE REFINEMENT**

The four build alternatives advanced for detailed analysis: the Freeway Alternative, the Tollway Alternative, the Regional Arterial Alternative, and the Combined Alternative (Recommended Alternative), have gone through several refinement processes during analysis. These refinements include:

- Design refinements to avoid and minimize impacts to wetlands and water resources, wildlife corridors, and adjacent property



- Design refinements to avoid and minimize impacts to Section 4(f) properties
- Value engineering to reduce construction cost
- Input from the public and agencies

#### 5.4.1.1 AVOIDANCE AND MINIMIZATION REFINEMENTS OF ENVIRONMENTAL RESOURCES

An interdisciplinary team of environmental resource specialists and engineering specialists analyzed the potential to refine the four build alternatives to determine if they could avoid or minimize impacts to specific environmental resources. This team used information gathered from local municipalities, state or federal agencies and field measurements to assist in this refinement effort.

Specific changes that were made as a result of the avoidance and minimization refinements included:

- Wetlands and Water Resources—Wetland impacts along the alignments were avoided or minimized to the extent feasible by using bridges at major drainages and shifting roadway alignments to the extent practical. Additionally, some wetland impacts were avoided or minimized through the use of retaining walls in areas north of Sun Microsystems (west of 96<sup>th</sup> Street), along Ralston Creek and in the Van Bibber Creek drainage tributaries.
- Wildlife Corridor Accommodation—Critical wildlife corridors were identified and accommodations made in the highway design to provide wildlife crossings at major bridges (Leyden Gulch, Ralston Creek and North Table Mountain). In addition, smaller mammals would be able to cross the highway at some secondary drainages, through enlarged culverts.
- Adjacent Property Impacts—These impacts were minimized as much as possible, especially at the Heritage Road/10<sup>th</sup> Street area and at 19<sup>th</sup> Street in Golden. In these areas, an interchange configuration called a single point urban interchange (SPUI) was chosen which had less of an impact to adjacent properties (see **Figure 2.3-5**). These interchanges also were refined to incorporate a configuration of the new or widened highway going under the cross streets, which would reduce noise and visual impacts. A visual simulation of this configuration is shown (**Chapter 2**).

#### 5.4.1.2 AVOIDANCE AND MINIMIZATION REFINEMENTS OF SECTION 4(F) RESOURCES

Section 4(f) resources include publicly owned parks or areas used for recreation, wildlife or waterfowl refuges, or any historic or archaeological site that is on the National Register of Historic Places (or eligible to be included on the National Register). Section 4(f) refers to a specific section in the Department of Transportation Act of 1966. Currently this section is found in 49 USC 303 and 23 USC 138. This particular piece of legislation is stringent in its requirements for a federal agency to look very closely at any projects that might require land from a Section 4(f) property and to analyze all alternatives that avoid the property. The approval of such use of land is typically acceptable only if there is no prudent and feasible avoidance alternative. However, approval of such use of land could also be acceptable if impacts to the property are *de minimis*. This strict legislation prompted the study team to extensively refine the alternatives to determine if avoidance of these Section 4(f) properties could be developed in a manner that was prudent and feasible. This refinement work resulted in changes to alternatives, including additional retaining walls as documented

In Broomfield, to the north of the Great Western Reservoir, retaining walls were added along the alignment of the Freeway Alternative, Tollway Alternative, and the Combined Alternative (Recommended Alternative) in order to achieve *de minimis* impacts to a Section 4(f) designated parcel for the Great Western Reservoir Prairie Dog Relocation Area. These walls range in length from 3,000 to 3,400 feet and in height from 15 to 25 feet.

The area adjacent to SH 93 and US 6 contains numerous properties that are known or potential considered Section 4(f) resources. The Freeway Alternative, Regional Arterial Alternative, and Combined Alternative (Recommended Alternative) were modified to avoid impacts to the Section 4(f) resources in the Golden area. Specifically, from Golden Gate Canyon Road to C-470 the typical section of the roadway was narrowed from





144 feet to 122 feet by utilizing a median barrier rather than a depressed grass median. Retaining walls were also added throughout this area to minimize the width of the footprint for the alignment. These walls range in length from 800 to 3,750 feet and height from 6 to 30 feet. Section 4(f) resources avoided are the White Ash Mine Park, Colorado School of Mines property, Parfet, and Eagle Ridge. The Tollway Alternative was not able to be modified in a prudent and feasible manner to avoid the White Ash Mine Park. To avoid the White Ash Mine Park, the profile of the Freeway Alternative, Regional Arterial Alternative, and Combined Alternative (Recommended Alternative) have been raised at Iowa Street and the Freeway Alternative profile has also been raised at Washington Avenue.

Consultations with the municipalities along Indiana Street/McIntyre Street have resulted in the development of features (such as retaining walls and design shifts) that result in *de minimis* use of Section 4(f) resources.

The effect of Section 4(f) refinements is that some additional impacts to noise levels, views, access, and community cohesion may occur. Visual simulations were prepared to illustrate these refinements (see **Figure 2.3-5** and **Figure 2.3-6**). Impacts associated with Section 4(f) refinements are fully documented in **Chapter 4** in the related appropriate subsections.

After completing the various levels of screening and refinements, four build alternatives were identified for detailed analysis. The four include a freeway, a tollway, and a major regional arterial that follow the SH 93 alignment, as well as an alternative that combines features of a tollway, regional arterial, and a principal arterial. The four build alternatives advanced represent a reasonable range of alternatives. Along with the four build alternatives, the No Action Alternative was also carried forward throughout the alternatives development and evaluation process. The No Action Alternative serves as a baseline against which the other alternatives are compared.

## 5.4.2 BUILD ALTERNATIVES

### FREEWAY ALTERNATIVE

The Freeway Alternative is a 20.3 mile high speed facility (55-65 mph posted speed) within the study area that connects the Northwest Parkway in Broomfield with C-470 in Golden. Access to and from the facility is provided exclusively through 11 new or improved interchanges at various locations along the alignment (see **Figure 2.4-2**). The Freeway Alternative consists of four to six through lanes with an overall roadway width ranging from 122 feet to 144 feet as measured from the edge of outside shoulder to the edge of outside shoulder. Retaining walls will be provided in constricted areas to minimize impacts to properties adjacent to the roadway. A regional bike trail will also be provided along the alignment of the Freeway Alternative.

### TOLLWAY ALTERNATIVE

The Tollway Alternative is a 20.3 mile high speed facility (55-65 mph posted speed) within the study area that connects the Northwest Parkway in Broomfield with C-470 in Golden. Access to and from the facility is provided through seven new or improved interchanges at various locations along the alignment and three sets of slip ramps in the Golden area (see **Figure 2.4-9**). The Tollway Alternative consists of four tolled lanes throughout its entire length that will be located to ensure that no general purpose lanes are impacted by the footprint of the tollway. Retaining walls will be provided in constricted areas to minimize impacts to properties adjacent to the roadway. A regional bike trail will also be provided along the alignment of the Tollway Alternative.



### **REGIONAL ARTERIAL ALTERNATIVE**

The Regional Arterial Alternative is a 22.4 mile facility (45-55 mph posted speed) within the study area that connects the Northwest Parkway in Broomfield with C-470 in Golden. Access to and from the facility is provided through six new or improved interchanges at various locations along the alignment and numerous new or improved intersections (see **Figure 2.4-16**). The Regional Arterial Alternative consists of four to six through lanes with an overall roadway width ranging from 122 feet to 144 feet as measured from the edge of outside shoulder to the edge of outside shoulder. Retaining walls will be provided in constricted areas to minimize impacts to properties adjacent to the roadway. A regional bike trail will also be provided along the alignment of the Regional Arterial Alternative.

### **COMBINED ALTERNATIVE (RECOMMENDED ALTERNATIVE)**

The Combined Alternative (Recommended Alternative) is a merged and packaged alternative bringing together three different roadway classifications; tollway, major regional arterial, and principal arterial. From the Northwest Parkway to SH 128, the facility is classified as a major regional arterial. From SH 128 to just south of 64<sup>th</sup> Parkway, the facility is classified as a tollway. From this point south to C-470, the facility is classified as a major regional arterial. The total length of this alignment is 20.1 miles. This alignment is packaged with a 7.5 mile principal arterial alignment on Indiana Street and McIntyre Street.

The alignment between Northwest Parkway and C-470 is a mixture of a high speed tollway facility (55-65 mph posted speed) that is fully access controlled with the use of interchanges and a lower speed major regional arterial facility (45-55 mph posted speed) that is access controlled with the use of interchanges and intersections. The Indiana Street/McIntyre Street alignment is a principal arterial which is a lower speed facility (40-50 mph posted speed) that is access controlled with the use of intersections and driveways (see **Figure 2.4-24**). The alignment between Northwest Parkway and C-470 consists of four to six through lanes with an overall width ranging from 122 feet to 144 feet as measured from edge of outside shoulder to edge of outside shoulder. On the Indiana Street/McIntyre Street alignment, the roadway width varies from 109 to 145 feet as measured from edge of sidewalk to edge of sidewalk. Retaining walls will be provided in constricted areas to minimize impacts to properties adjacent to the roadway. A regional bike trail will also be provided along the alignment of the Combined Alternative (Recommended Alternative).



## 5.5 IDENTIFICATION OF SECTION 4(f) RESOURCES

### 5.5.1 PARKS AND RECREATION AREAS

Identification of publicly owned parks and recreation areas generally followed a four-step process. The process began with an examination of GIS databases, parks and recreation area maps, and local and regional planning documents. These sources were used to prepare a comprehensive set of maps and tables listing potential Section 4(f) resources in the area. Separate maps and parcel description tables were prepared for each jurisdiction (cities and counties) owning land within the project study area.

The second step involved interviews conducted in person or by telephone with each jurisdiction. The jurisdictions contacted were:

Arvada	Jefferson County
City of Boulder	Lakewood
County of Boulder	Louisville
City and County of Broomfield	State Land Board
Colorado State Parks	Superior
Federal Lands	Westminster
Golden	Wheat Ridge

Information gathered or verified during the interviews focused on property ownership, primary and secondary uses for each property (whether existing, planned or proposed), property management plans, access (whether public, private or restricted) and correct parcel names and locations.

During the course of these interviews special recreational districts were identified and later contacted. Recreational districts are specified areas of the county where funds are applied under the district auspices and priorities. The districts contacted were Prospect Recreation and Park District and North Jefferson County Park and Recreation District.

The third step in the process involved updating the parcel descriptions and maps for each jurisdiction to reflect additional information gathered during the interviews. Preliminary recommendations were then made for each identified property about whether the property was eligible for consideration under Section 4(f) based on FHWA Section 4(f) Policy Paper, March 1, 2005. Several of the open space resources within the study area were determined to be multi-use properties, where the primary purpose of the property was not only parks, recreation or wildlife/wildfowl refuge, but for other uses such as water storage, public utilities, or agriculture. Consultation with the local jurisdiction provided delineation of various resources within multi-use properties. Each of the recommendations was reviewed by CDOT and FHWA before a final list of Section 4(f) resources was prepared.

Finally, over 240 eligible properties were then evaluated on an individual basis to identify whether direct or indirect impacts would result from implementation of the proposed build alternatives. Properties eligible for Section 4(f) protection, but not located within the immediate area affected by proposed build alternatives are not included in the listing below. The likelihood of a direct property use by any proposed build alternative is determined by proximity of the property to the anticipated build disturbance zone. These resources are listed below (see **Table 5.5-1**, **Figure 5.5-1**, **Figure 5.5-2**, and **Figure 5.5-3**).

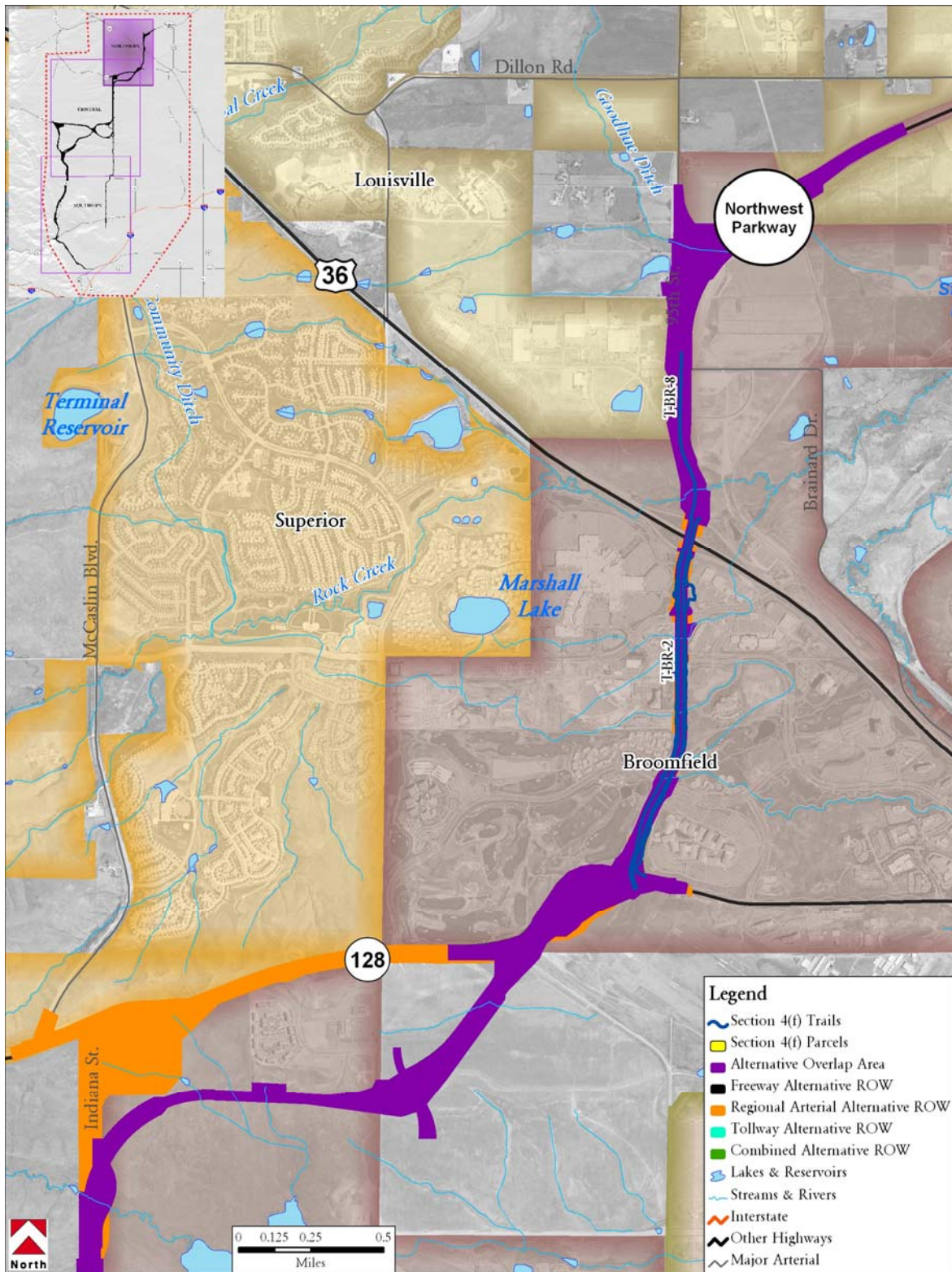
**Table 5.5-1 Section 4(f) Park and Recreational Areas with Direct Effects**

Name	Jurisdiction	Park and/or Recreation Acreage <sup>1</sup>	Direct Use?
Leyden Reservoir Open Space <sup>2</sup>	Arvada	112.97	Yes
Broad Lake Open Space <sup>2</sup>	Arvada	19.78	Yes
White Ash Mine Park	Golden	5.86	Yes

Note: <sup>1</sup>Total site acreage is based on available GIS parcel data as of December 2005.

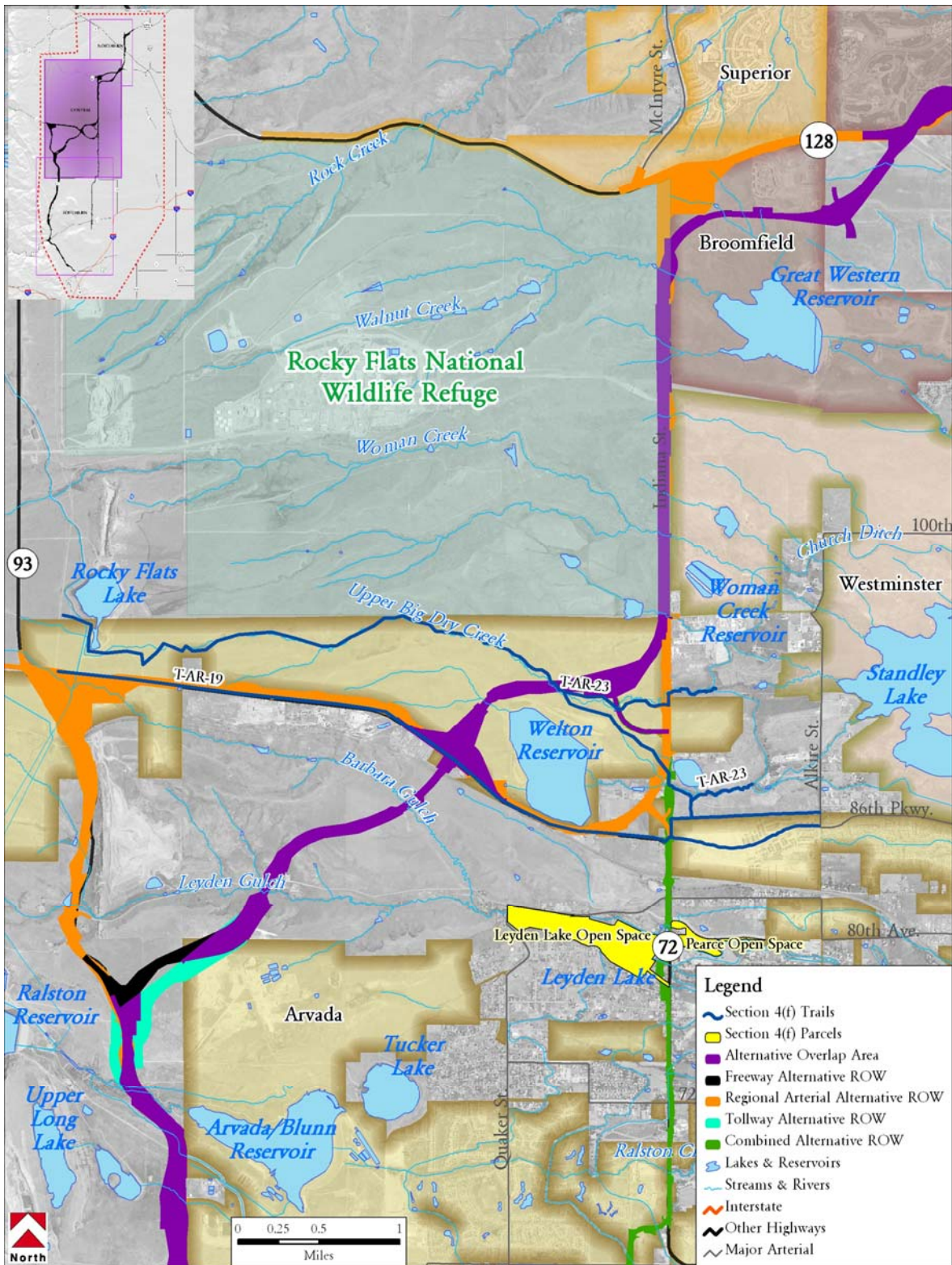
<sup>2</sup>Under consideration for *de minimis* application.

*Figure 5.5-1 Section 4(f) Park and Recreation Resources within Northern Impact Portion*



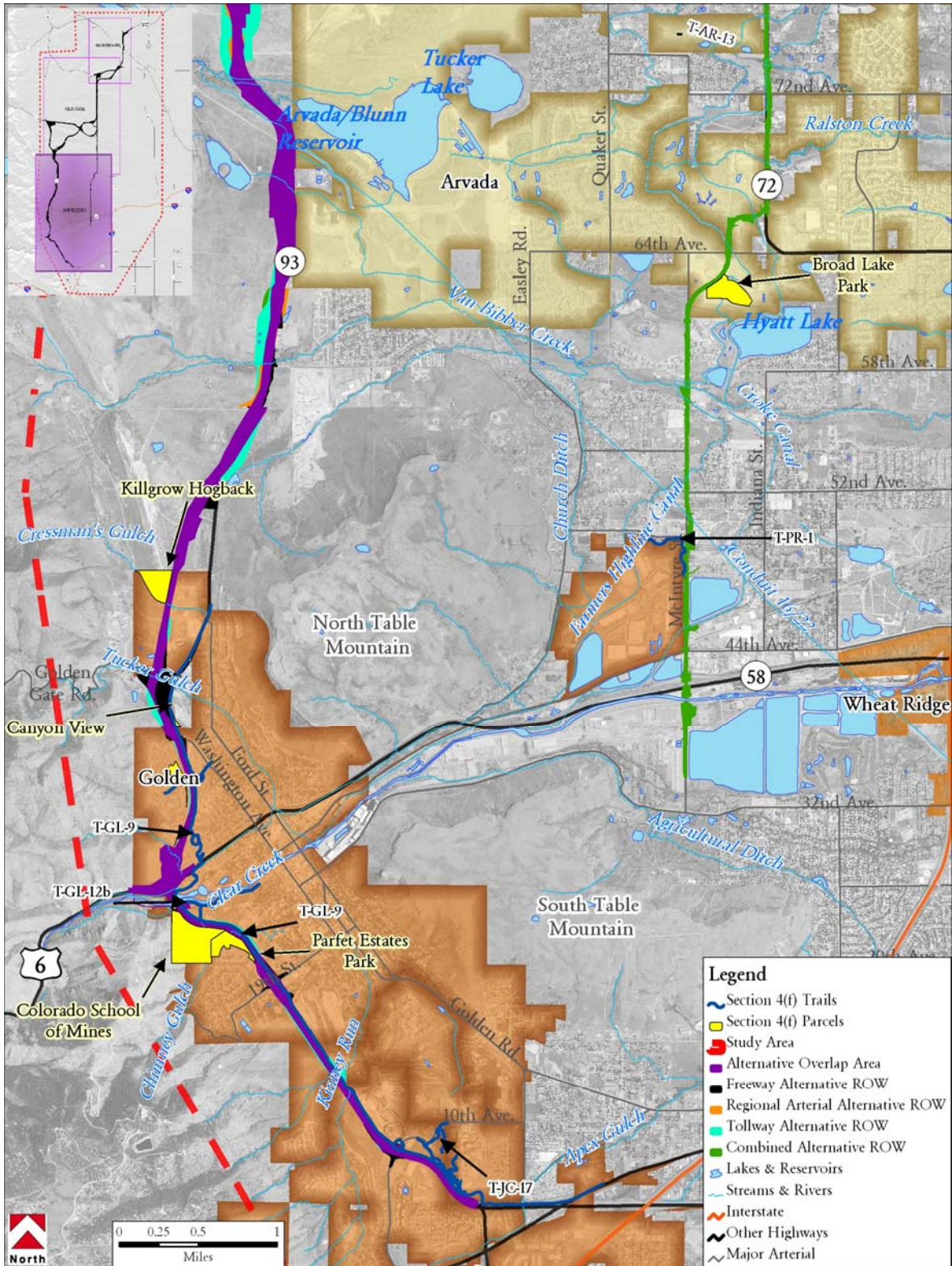
Source: Compiled by Felsburg, Holt & Ullevig, 2006.

*Figure 5.5-2 Section 4(f) Park and Recreation Resources within Central Impact Portion*



Source: Compiled by Felsburg, Holt & Ullevig, 2006.

*Figure 5.5-3 Section 4(f) Park and Recreation Resources within Southern Impact Portion*



Source: Compiled by Felsburg, Holt & Ullerig, 2006.



## 5.5.2 TRAILS

The process followed to identify recreational trails was the same as that described in **Section 5.5.1**. Data gathering and interviews were conducted simultaneously for trails, parks and recreation areas. As a result of this research, over 100 trails and trail segments were initially identified within the potential impact area. Trails located within existing parks and recreational properties were considered facilities within that recreational resource and not evaluated separately. The remaining 64 trails occupying publicly owned land, easements and license agreements were evaluated for Section 4(f) use (see **Table 5.5-2**; **Figure 5.5-1**, **Figure 5.5-2**, and **5.5-3**). Trails eligible for Section 4(f) protection but not located within the immediate area affected by proposed build alternatives are not included in the listing below. Some trails and trail segments lie within transportation right-of-way associated with the existing public roadway network. Trails situated on existing roadways or within highway right-of-ways were included in the initial trail identification process, but were not considered for Section 4(f) protection per FHWA Policy Paper of March 1, 2005, Question 14c and Question 18. All identified existing trails (and planned connections between existing trails) located within highway right-of-ways have been incorporated into the proposed build alternative designs to maintain the intent, continuity and connectivity of the affected trail segment. No further description of these trails is included here. The likelihood of a direct property use by any proposed build alternative is rated by proximity of the property to the anticipated build disturbance zone. The rating is noted as “yes” or “probable” use based on physical distance from the anticipated disturbance envelope around each build alternative (see **Table 5.5-2**, **Figure 5.5-1**, **Figure 5.5-2** and **Figure 5.5-3**).

*Table 5.5-2 Section 4(f) Trails with Direct Effects*

Display ID	Name	Jurisdiction	Trail Status	Direct Use?
T-BR-8	Storage Tek Drive Trail	City and County of Broomfield	Existing	Yes
T-BR-2	Interlocken Loop Bike Trails	City and County of Broomfield	Existing	Yes
T-AR-19	Little Dry Creek – SH 72 Trail	Arvada	Existing/ Planned	Yes
T-AR-23	Big Dry Creek – Upper Twin Lakes Trails	Arvada	Existing/ Planned	Yes
T-AR-34	Leyden Gulch Trail	Arvada	Planned	Yes
T-GL-9	US 6 and SH 93 Trails (T-GL-3,6,9,14,18a,b)	Golden	Existing/ Planned	Yes
T-JC-17	Jefferson County - Golden Municipal Complex Trails	Golden and Jefferson County	Existing	Yes
T-PR-1	Prospect Trail	Prospect Recreation and Park District	Existing	Yes





### 5.5.3 WILDLIFE AND WATERFOWL REFUGES

The process followed to identify potential wildlife and waterfowl refuges was the same as that described in **Section 5.5.1**. Data gathering and interviews were conducted simultaneously for wildlife and waterfowl refuges, trails, and parks and recreation areas. As a result of this research, one wildlife and waterfowl refuge area was identified within the impacted area and evaluated for Section 4(f) use (see **Table 5.5-3** and **Figure 5.5-4**).

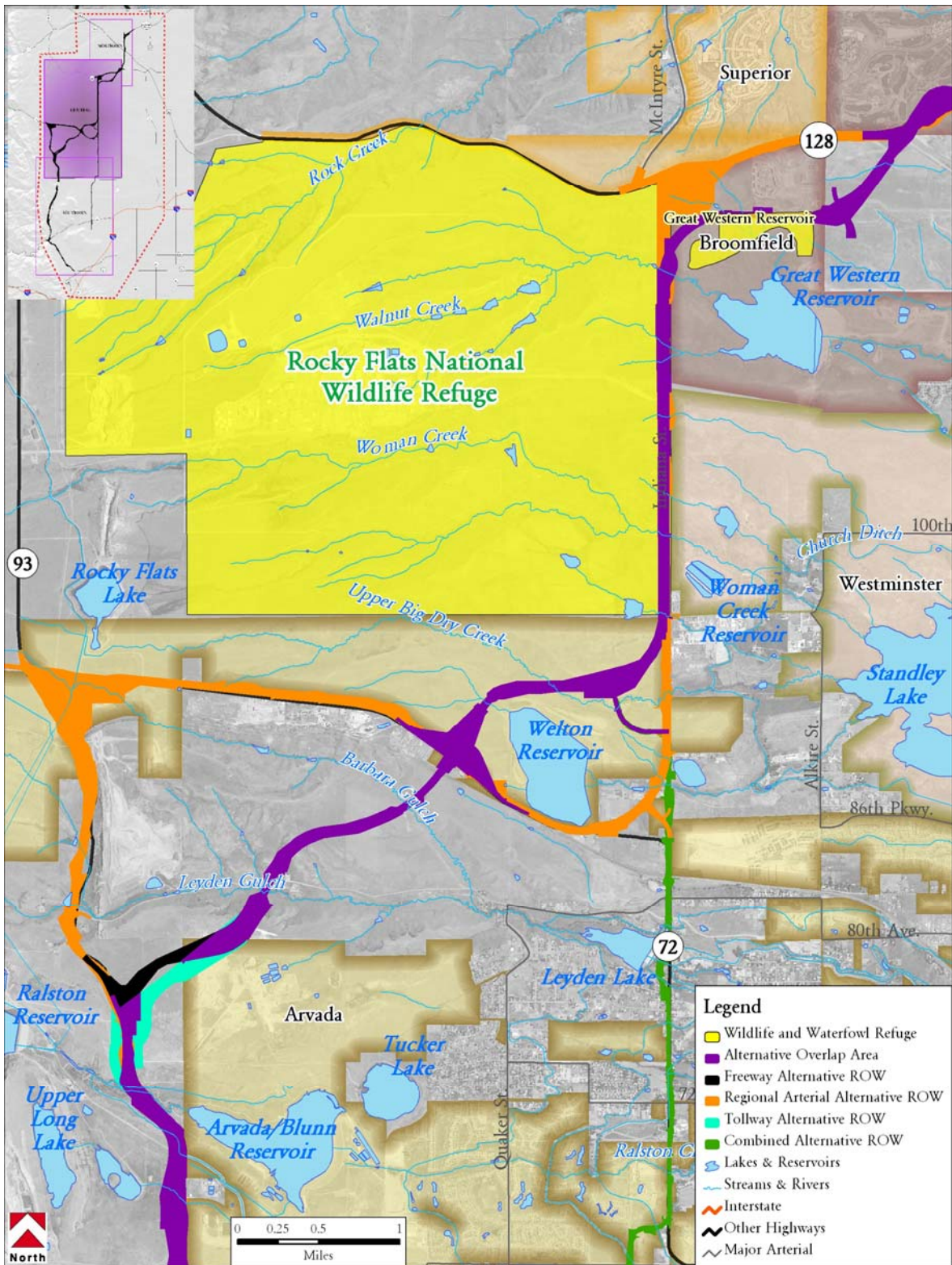
The study area includes the newly formed Rocky Flats National Wildlife Refuge. Joint development of the refuge area with local and state agency planning provided a 300-foot-wide transportation corridor along the eastern refuge boundary, adjacent to Indiana Street. No direct effects to the Rocky Flats National Wildlife Refuge are anticipated from any build alternative and the refuge is discussed more thoroughly in **Section 4.11** Vegetation, Wildlife, and Threatened, Endangered and State Sensitive Species.

*Table 5.5-3 Section 4(f) Wildlife and Waterfowl Refuge with Direct Effects*

Display ID	Name	Jurisdiction	Refuge Acreage*	Direct Use?
BR-10	Great Western Reservoir Prairie Dog Relocation Refuge	Broomfield	88.12	Yes

Note: \*Total site acreage is based on available GIS parcel data as of December, 2005.

*Figure 5.5-4 Section 4(f) Wildlife and Waterfowl Refuges within Northern Portion*



Source: Compiled by Felsburg, Holt & Ullervig, 2006.



### 5.5.4 HISTORIC SITES

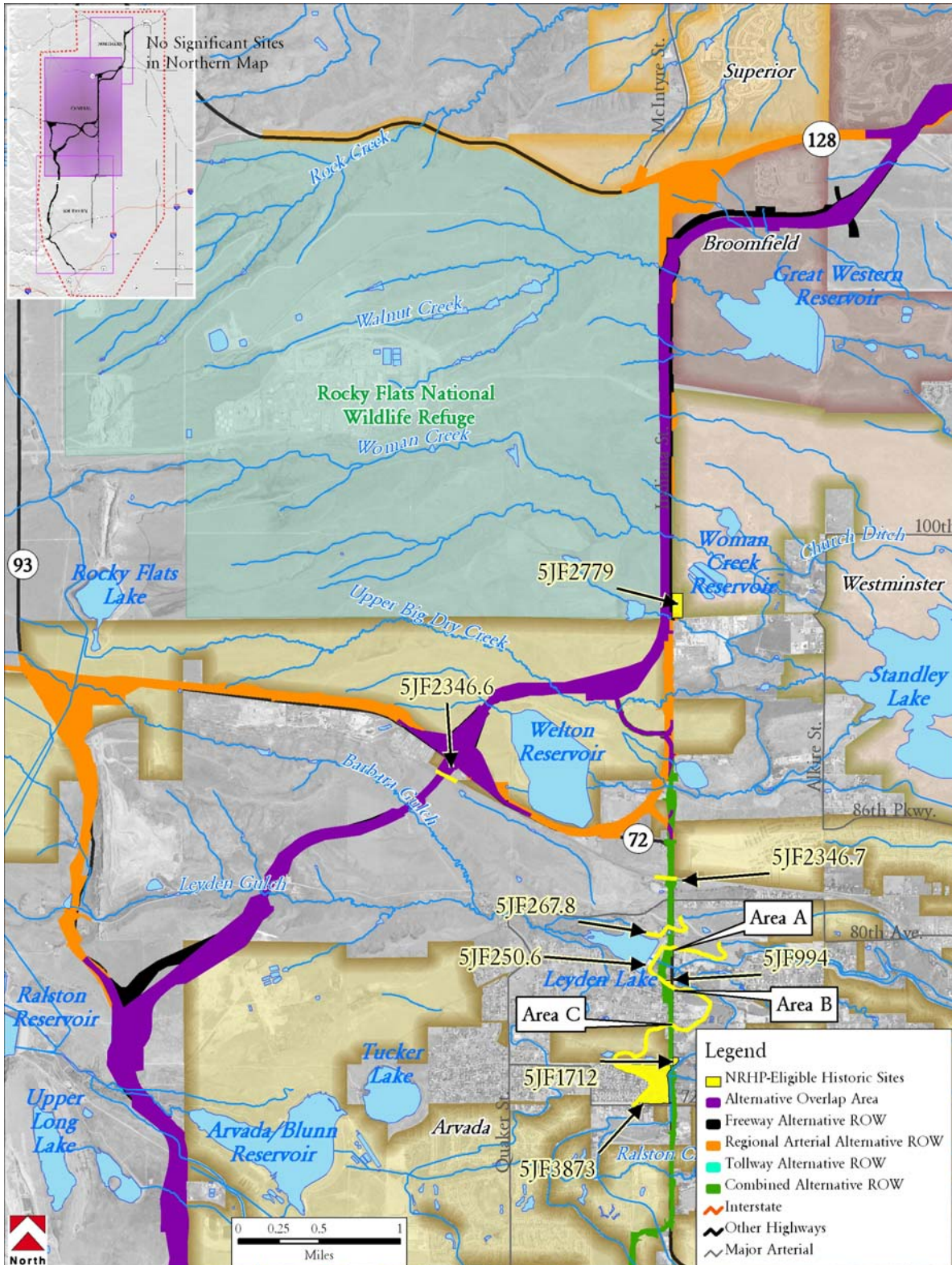
For the purposes of Section 4(f), a historic resource is considered to be important only if it is on or eligible for the National Register of Historic Places (NRHP), unless the FHWA determines that the application of Section 4(f) is otherwise appropriate (FHWA Section 4(f) Policy Paper, March 1, 2005, Question 3A).

Evaluation of historic sites is fully described in **Section 4.13** of this document. As discussed in that section, 12 resources have been identified as either being eligible for, or listed on, the National Register of Historic Places and are directly impacted by the proposed build alternatives (see **Table 5.5-4**, **Figure 5.5-5** and **Figure 5.5-6**). No other historic sites were determined by FHWA to require evaluation under Section 4(f).

*Table 5.5-4 Section 4(f) Historic Resources with Direct Effects*

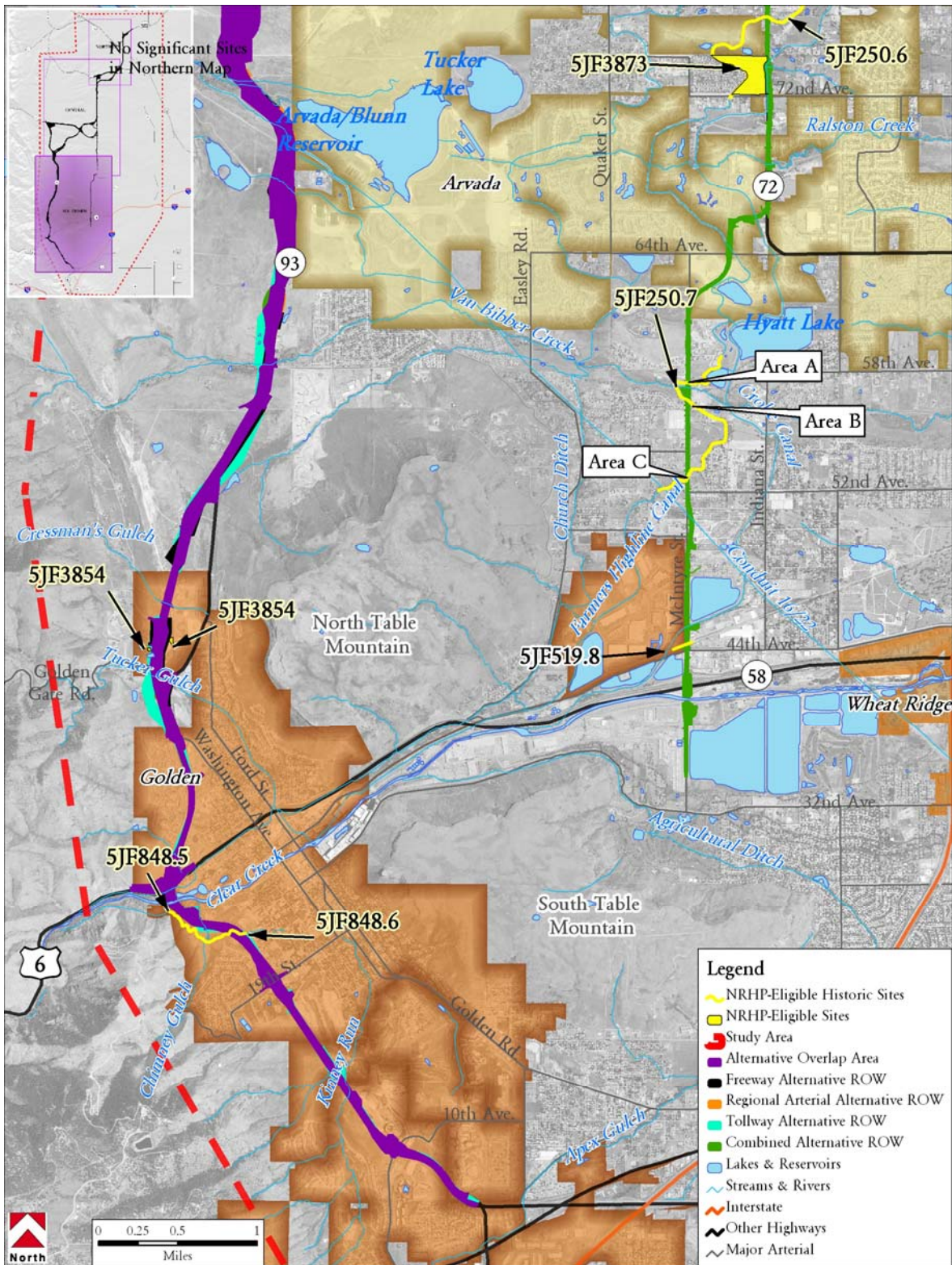
Display ID	Name	NRHP Eligibility	Effect Determination	Direct use?
5JF2346.6	Denver and Rio Grande Western Railroad	A	No Adverse Effect	Yes
5JF2346.7	Denver and Rio Grande Western Railroad	A	No Adverse Effect	Yes
5JF267.8	Church Ditch	A	No Adverse Effect	Yes
5JF3873	14801–14803 West 72 <sup>nd</sup> Avenue	C	No Adverse Effect	Yes
5JF250.7	Farmer’s High Line Canal	A	No Adverse Effect	Yes
5JF250.6	Farmer’s High Line Canal	A	No Adverse Effect	Yes
5JF3877	5675 McIntyre Street	C	No Adverse Effect	Yes
5JF3887	5100 McIntyre Street	C	No Adverse Effect	Yes
5JF519.8	Colorado and Southern Railroad	A	No Adverse Effect	Yes
5JF267.1	Church Ditch	A	No Adverse Effect	Yes
5JF848.5	Welch Ditch Segment	B,C	No Adverse Effect	Yes
5JF848.6	Welch Ditch Segment	B,C	No Adverse Effect	Yes

Figure 5.5-5 Section 4(f) Historic Resources within Central Portion



Source: Compiled by Felsburg, Holt & Ullervig, 2006.

Figure 5.5-6 Section 4(f) Historic Resources within Southern Portion



Source: Compiled by Felsburg, Holt & Ullevig, 2006.



## 5.6 INDIVIDUAL SECTION 4(f) RESOURCES

The following Section 4(f) protection-eligible parks and trails were identified as experiencing direct impacts from project alternatives resulting in a Section 4(f) use. Each park and trail is referenced to the display identification number utilized on maps and indices in **Section 4.17** of this document.

### 5.6.1 WHITE ASH MINE PARK (GL-59)

White Ash Mine Park is a 5.86-acre property located in Golden along the west side of SH 93 near Iowa Street in Jefferson County. It is designated as a public park. The property is partially obligated to transportation use through a license agreement to CDOT. The remainder of the property is a park with basketball courts, picnic facilities, playground with paved trails, including a 2,000-foot-long segment of the SH 93 Trail, which provides access to the local school and nearby parks. This park gets heavy neighborhood use (see **Figure 5.6-1**). Public access to the park is from Iowa Street. A pedestrian bridge over SH 93 services the southern access to the park trails. The park is owned and the recreational areas managed by the City of Golden.

#### DESCRIPTION OF IMPACTS FOR BUILD ALTERNATIVES

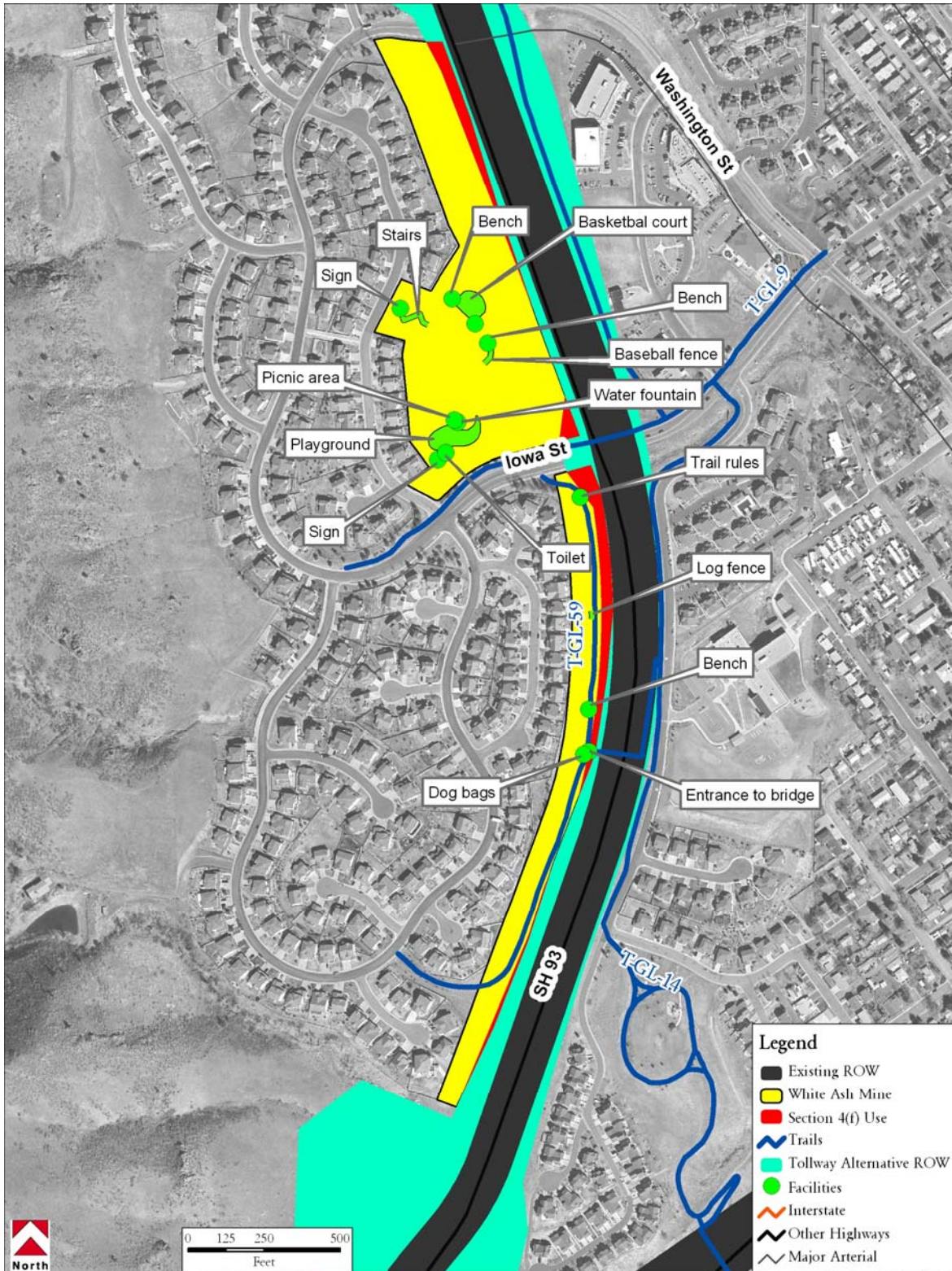
**Freeway Alternative, Regional Arterial Alternative, and Combined Alternative (Recommended Alternative):** There would be no use of White Ash Mine Park.

**Tollway Alternative:** The Tollway Alternative would use 1.53 acres of the property for construction of storm water drainage features and retaining structures along a narrow grassy strip of the property. No existing or planned facilities would be impacted by this use.

#### DISCUSSION OF AVOIDANCE ALTERNATIVE

Narrowing the tollway template by reducing the design speed and shoulder widths on elevated roadways and ramps would not sufficiently narrow the width to completely avoid use of the White Ash Mine Park. While shifting the tollway alignment to the south could avoid use of existing White Ash Mine Park, the previously unaffected Section 4(f) protected Canyon View Open Space and the New Loveland Mine Park and associated trails would then be impacted. A complete avoidance design alternative for the Tollway Alternative would require an approximate 9,000-foot-long elevated viaduct with more complex interchange ramps with SH 58. Such an avoidance measure is not feasible and prudent because such an alternative would sever community cohesion by both visual and physical barriers. The existing suburban community character would be altered by the highly urbanized viaduct element, and local access to recreational facilities, parks and schools would be restricted to the Iowa Street conduit under the Tollway mainline. However, the Freeway Alternative, Regional Arterial Alternative, and Combined Alternative (Recommended Alternative) avoid any Section 4(f) use of this resource, thus providing a reasonable and feasible alternative to the use of the White Ash Mine Park.

*Figure 5.6-1 White Ash Mine Park (GL-59)–Tollway Alternative*



Source: Compiled by Felsburg, Holt & Ullevig, 2006.



### 5.6.2 US 6/SH 93 TRAILS (T-GL-9)

The US 6/SH 93 Trail is a composite trail system providing a regional north-south linkage for Golden and Jefferson County. The US 6 portion of the trail consists of 3.5 miles of existing and proposed detached ten-foot-wide hard surface trail located between C-470 and Clear Creek. The existing trail runs along the east side of US 6 between C-470 and 19<sup>th</sup> Street and is primarily located within a CDOT right-of-way easement. No specific trail alignment or location is cited in the agreement. Portions of this existing trail are located on Jefferson County and private land. The planned segment of the trail continues along the east side of US 6 from 19<sup>th</sup> Street to the south bank of Clear Creek and will be funded by the City of Golden, with construction planned for 2007–2008. An additional proposed segment will run east along US 6 from C-470 but no funding is scheduled. The US 6 portion of the trail is used for both recreation and transportation uses (see **Figure 5.6-2** and **Figure 5.6-3**).

The SH 93 portion of the trail is comprised of an existing and planned 3-mile-long detached hard surface trail network. This trail is owned and managed by the City of Golden and located in Golden. The trail runs from the southern terminus at Golden/Hartmeister Park along the north bank of Clear Creek and weaves through publicly owned land parallel to Church Ditch, at Briarwood Restaurant near SH 58 on a public easement, crossing under SH 58 at New Loveland Mine Park and continuing north along both sides of SH 93 to Iowa Street. North of Iowa Street the trail is planned as a facility of the Canyon View Open Space. The trail network is serviced by a pedestrian bridge that crosses SH 93. The trail is publicly-owned and accessible and is designated as a multi-use, regional trail.

#### DESCRIPTION OF IMPACTS FOR BUILD ALTERNATIVES

**Freeway Alternative, Regional Arterial Alternative, and Combined Alternative (Recommended Alternative):** The existing US 6/SH 93 Trail between C-470 and 19<sup>th</sup> Street will remain in its current alignment with trail connection modifications at the Heritage Road interchange resulting in 700 feet of modifications within the current CDOT right-of-way. The 1.34 mile segment of trail from the Fossil Trace-Splash Trail (T-GL-7) to Clear Creek would be rebuilt as necessary, as a component of each build alternative within current right-of-way. The SH 93 portion of the trail would be unaffected by these alternatives. There is no Section 4(f) use of the resource by these alternatives.

Temporary trail closures and detours may occur during construction, but continuity of trails will be maintained during and after construction.

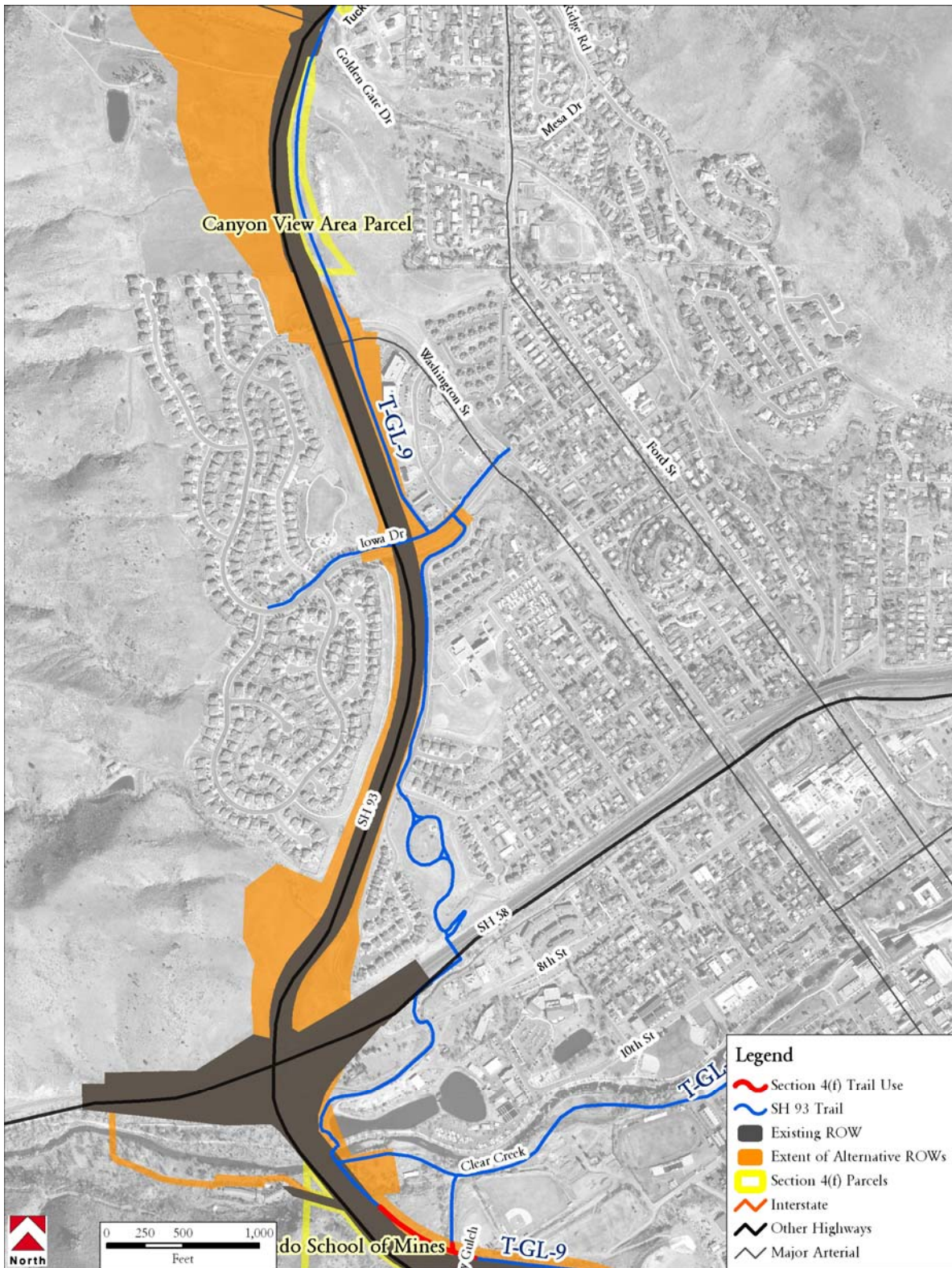
**Tollway Alternative:** The existing US 6/SH 93 Trail between C-470 and 19<sup>th</sup> Street will remain in its current alignment primarily within CDOT right-of-way with trail connection modifications at the Heritage Road interchange resulting in no use. The retaining structures associated with the Tollway Alternative elevated footprint will force a relocation of approximately 800 feet or 0.84 acre of the existing trail off current CDOT right-of-way onto private land to be acquired by CDOT in the vicinity of the Fossil Trace-Splash Trail (T-GL-7) resulting in a Section 4(f) use of this resource. The northern segment of US 6 trail from 19<sup>th</sup> Street to Clear Creek would be built as a component of each build alternative.

#### DISCUSSION OF AVOIDANCE ALTERNATIVE

Shifting the alignment of the Tollway Alternative and US 6 would not provide complete avoidance of Section 4(f) use of the US 6/SH 93 Trail in the vicinity of the Fossil Trace-Splash Trail junction. While shifting the tollway alignment to the south could avoid use of the existing US 6/SH 93 Trail, approximately 3.5 acres of the previously unaffected Eagle Ridge Park and 60 feet of associated trails would then be impacted. However, the Freeway Alternative, Regional Arterial Alternative, and Combined Alternative (Recommended Alternative) avoid any Section 4(f) use of this resource, thus providing a reasonable and feasible alternative to the US6/SH 93 Trail impact.



*Figure 5.6-2 US 6/SH 93 Trails (T-GL-9)—Northern Portion*



Source: Compiled by Felsburg, Holt & Ullevig, 2006.

*Figure 5.6-3 US 6/SH 93 Trails (T-GL-9)—Southern Portion*



Source: Compiled by Felsburg, Holt & Ullevig, 2006.



### 5.6.3 SUMMARY OF IMPACTS: INDIVIDUAL 4(f) USE

The No Action Alternative would not impact any Section 4(f) protected property within the study area. The Freeway Alternative, Regional Arterial Alternative, and Combined Alternative (Recommended Alternative) would have impacts that are likely to be classified as *de minimis* impacts to Section 4(f) protected properties within the study area. These properties are fully described in **Section 5.6** of this evaluation. The Tollway Alternative would require direct use of two protected resources as summarized (see **Table 5.6-1**).

**Table 5.6-1 Summary of Impacts to Section 4(f) Park and Recreational Areas**

Map ID*	Resource name	Alternative Impacts				
		No Action	Freeway	Tollway	Regional Arterial	Combined (Recommended)
102	White Ash Mine Park	None	None	1.53 acre	None	None
T-GL-9	US 6/SH 93 Trail	None	None	0.84 acre	None	None

Note: \*Map ID is coordinated with **Section 4.17** displays.

## 5.7 DE MINIMIS USE

Congress amended Section 4(f) in 2005 when it enacted SAFETEA-LU (Public Law 109-59, enacted August 10, 2005). Section 6009 of SAFETEA-LU added a new subsection to Section 4(f), which authorizes the FHWA to approve a project that result in a *de minimis* impact to a section 4(f) resource without the evaluation of avoidance alternatives typically required in a Section 4(f) Evaluation. Section 6009 amended Title 23 USC Section 138 states:

“The Secretary shall not approve any program or project (other than any project for a park road or parkway under Section 204 of this title) which requires the use of any publicly owned land from a public park, recreation area, or wildlife and waterfowl refuge or national, State, or local significance as determined by the Federal, State, or local officials having jurisdiction thereof, or any land from an historic site of national, State, or local significance as so determined by such officials unless (1) there is no feasible and prudent alternative to the use of such land, and (2) such program includes all possible planning to minimize harm to such park, recreational area, wildlife and waterfowl refuge, or historic site resulting from such use. The requirements of this section shall be considered to be satisfied and an alternatives analysis not required if the Secretary determines that a transportation program or project will have a *de minimis* impact on the historic site, parks, recreation areas, and wildlife or waterfowl refuges. In making any determination, the Secretary shall consider to be a part of a transportation program or project any avoidance, minimization, mitigation, or enhancement measures that are required to be implemented as a condition of approval of the transportation program or project.”

As discussed below, there are different processes for evaluating *de minimis* sites for recreational and wildlife resources and for historic resources.

### 5.7.1.1 DE MINIMIS FOR RECREATIONAL AND WILDLIFE RESOURCES

In order to be protected under Section 4(f), public parks and recreation facilities must be considered “significant,” as determined by the federal, state, or local officials having jurisdiction over them. Section 6009 amended Title 23 USC Section 138 states:



“With respect to parks, recreation areas, or wildlife or waterfowl refuges, the Secretary may make a finding of *de minimis* impact only if the Secretary has determined, after public notice and opportunity for public review and comment, that the transportation or project will not adversely affect the activities, features, and attributes of the park, recreation area, or wildlife or water refuge eligible for protection under this section and the finding of the Secretary has received concurrence from the officials with jurisdiction over the park, recreation area, or wildlife or waterfowl refuge.”

#### 5.7.1.2 *DE MINIMIS* PROCESS FOR PARKS, RECREATIONAL AND WILDLIFE RESOURCES

The Section 4(f) recreational and wildlife resources were identified based on the processes outlined in **Section 5.5**. A *de minimis* use is recommended when the use of the resource is minimal or “trivial,” and does not adversely affect the activities, features, and attributes that qualify the resource for protection under Section 4(f).

The finding of a *de minimis* impact on recreational and wildlife resources can be made when:

- The transportation use of the Section 4(f) resource, together with any impact avoidance, minimization, and mitigation or enhancement measures incorporated into the project, does not adversely affect the activities, features, and attributes that qualify the resource for protection under Section 4(f);
- The official(s) with jurisdiction over the property are informed of FHWA’s and FTA’s intent to make the *de minimis* impact finding based on their written concurrence that the project will not adversely affect the activities, features, and attributes that qualify the property for protection under Section 4(f); and
- The public has been afforded an opportunity to review and comment on the effects of the project on the protected activities, features, and attributes of the Section 4(f) resource.

Initial agency coordination has begun with the officials having jurisdiction over the property and could continue where required during the process of future projects FHWA will make a *de minimis* determination only after the public has been provided an opportunity to comment and the official with jurisdiction has submitted its written concurrence.

#### 5.7.1.3 *DE MINIMIS* FOR HISTORIC RESOURCES

Historic sites qualifying for Section 4(f) protection must be officially listed on, or eligible for inclusion in the NRHP, or contribute to a historic district that is eligible for or listed on the NRHP. The NRHP eligibility is established through the Section 106 process. Section 6009 amended Title 23 USC Section 138 states:

“With respect to historic sites, the Secretary may make a finding of *de minimis* impact only if the Secretary has determined in accordance with the consultation process required under Section 106 of the National Historic Preservation Act that the transportation program or project will have no adverse effect on the historic site or there will be no historic properties affected by the transportation program or project; the finding has received written concurrence from the State Historic Preservation Officer (SHPO); and the finding was developed in consultation with the parties consulted under the Section 106 process.”

#### 5.7.1.4 *DE MINIMIS* PROCESS FOR HISTORIC RESOURCES

The finding of a *de minimis* impact on a historic site can be made when:

- The Section 106 process results in the determination of “no adverse effect” or “no historic properties affected” with the concurrence of SHPO;
- The SHPO is informed of FHWA’s and FTA’s intent to make a *de minimis* impact finding based on their written concurrence in the Section 106 determination; and
- FHWA and FTA have considered the views of any consulting parties participating in the Section 106 consultation.



Section 4(f) under 49 USC 303(d)(2) requires that the SHPO or THPO, and ACHP if participating, must concur in writing on the Section 106 determination of “no adverse effect” or “no historic property affected”. The request for concurrence in the Section 106 determination should include a statement informing the SHPO or THPO, and ACHP if participating, that the FHWA intends to make a *de minimis* finding based upon their concurrence in the Section 106 determination.

### 5.7.2 DE MINIMIS COORDINATION

The identified 241 eligible parks, recreational, and refuge properties and 12 eligible historic properties were evaluated on an individual basis to identify whether impacts resulting from implementation of the proposed build alternatives could be considered *de minimis* in nature.

The jurisdictional agency having authority over each park, recreational resource and the wildlife refuge was consulted to review expected alternative impacts, discuss and modify measures to minimize those impacts, and develop acceptable mitigation strategies to assure that no build alternative would result in an adverse affect to the activities, features and attributes that qualify the resource for protection under Section 4(f).

Minimization of park, recreation, wildlife refuge, and historic resources impacts was addressed by reduction of roadway footprint concepts and by localized alignment shifts for each alternative. The roadway footprint was reduced by using minimum barrier separated medians combined with extensive use of retaining walls and long span structures to contain the physical elements of the roadway from the edge-of-shoulders to edge-of-shoulders within an existing CDOT right-of-way limits or on non-Section 4(f) protected properties. These reduced roadway geometrics and design changes were applied to logical lengths of the alternatives, consistent with accepted design standards and driver expectancy. Design modifications were reviewed and potential mitigation strategies were discussed with the jurisdictional authorities and parks, open space and trail department staff to assure that changes were acceptable and appropriate for the resource activities, features and attributes.

The Colorado SHPO has consulted on historic properties through the Section 106 process. Impacted historic properties were identified and descriptions of all direct and indirect impacts submitted to SHPO for an eligibility and effects determinations. As a part of the effects determination, the SHPO was informed that affected historic properties rendered with a No Adverse Effect or No Historic Property Affected determination would be considered as a *de minimis* impact. A January 18, 2007 SHPO Determination of Effects letter (see **Appendix C**) identified eligible properties and resource effects determinations. Those properties receiving No Adverse Effect and No Historic Properties Affected determinations have fulfilled requirements for a *de minimis* impact finding as outlined in Section 1514(b) of Section 6009(a) of SAFETEA-LU. Properties requiring more information prior to eligibility or effects determination underwent further investigation and minimization of harm analysis to refine the impact limits. These remaining properties are identified as pending results in **Section 5.8**.

## 5.8 LIKELY DE MINIMIS USE SECTION 4(F) RESOURCES

### 5.8.1 PARKS AND RECREATIONAL DE MINIMIS USE

The following parks and recreational resources were identified as being directly impacted by build alternatives within the study area. Where an existing or planned trail is part of a larger resource such as a park or open space, it has been described as a facility of that recreational property and is not duplicated here. Trail segments located within transportation right-of-way are not typically considered for Section 4(f) protection unless they are relocated outside of the original right-of-way boundaries onto non-recreational property, however; trail segments expected to be modified or relocated substantially from their current form, and are included in the discussion below.



### 5.8.1.1 LEYDEN LAKE OPEN SPACE

The Leyden Lake Open Space is a recently converted water storage facility consisting of 112.97 acres under the jurisdiction of the City of Arvada, located in Jefferson County. The primary purpose of this property is recreation. The Leyden Creek Trail (T-AR-34) traverses the open space and an equestrian trail and park amenities such as picnic facilities are planned in the future. The Leyden Creek Trail is one segment of a regional east-west trail linkage connecting at Indiana Street with the recreational trail complex at the Indiana Equestrian Center. The Leyden Creek Trail is planned to extend west to SH 93 in the future. Public access to the area is from Indiana Street. The Leyden Lake Open Space is open to the public and is owned and managed by the City of Arvada (see **Figure 5.8-1**).

#### DESCRIPTION OF IMPACTS FOR BUILD ALTERNATIVES

**Freeway Alternative, Tollway Alternative, and Regional Arterial Alternative:** There would be no use of Leyden Lake Open Space as a result of these alternatives.

**Combined Alternative (Recommended Alternative):** The Combined Alternative (Recommended Alternative) will use a 1.75 acre strip of open land and access road located adjacent to Indiana Street.

#### MINIMIZATION OF HARM

The realignment of the widened 4-lane Indiana Street through non-recreational activity areas of the Leyden Lake Open Space avoids direct impact to recreational areas of the Section 4(f) protected Pearce Open Space, Arvada Equestrian Center and Croke Canal Trail, and avoids direct impact to the historic Pearce Grocery Store (5JF994). Minimization of impacts would be achieved through this section of Leyden Lake Open Space with a combination of reduced roadway footprint width combined with extensive use of retaining walls located at the edge of the roadway shoulder.

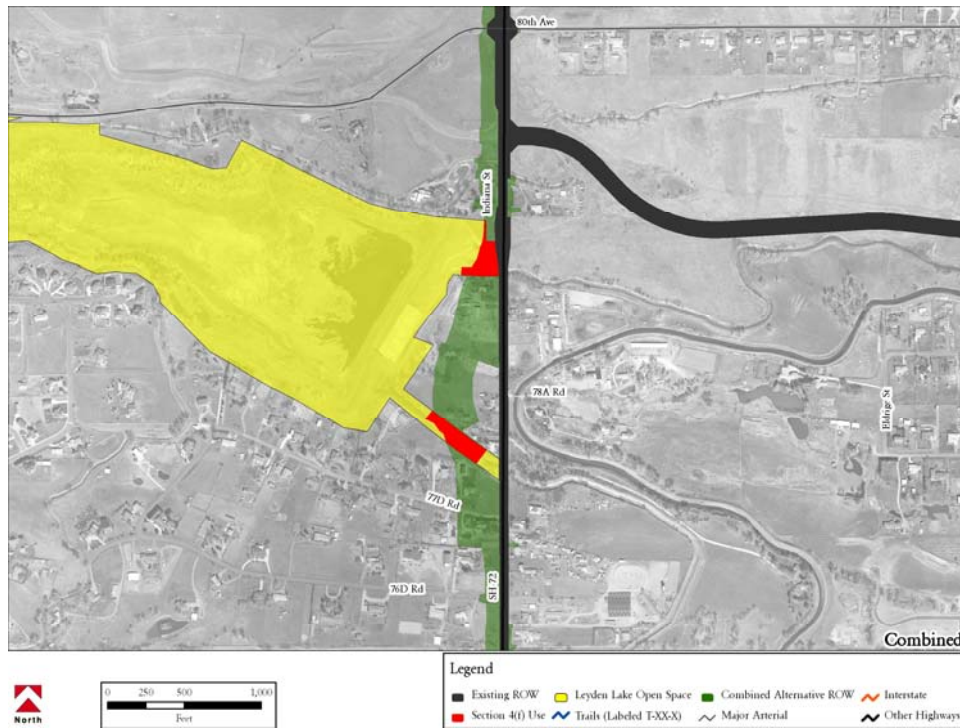
#### *DE MINIMIS USE*

A potential *de minimis* impact finding could be pursued for the Leyden Lake Open Space as a result of the Combined Alternative (Recommended Alternative).

Possible mitigation measures to offset any adverse affects to the activities, features and attributes of this resource have been discussed with the City of Arvada and are outlined below:

- Preserve the existing culvert currently used for pedestrian access under Indiana Street for the Arvada Equestrian Center and Pearce Open Space or provide a new grade-separated pedestrian crossing at Indiana Street.

*Figure 5.8-1 Leyden Lake Open Space (AR-36)–Combined Alternative (Recommended Alternative)*



Source: Compiled by Felsburg, Holt & Ullevig, 2006.

### 5.8.1.2 BROAD LAKE OPEN SPACE

The Broad Lake Open Space is a 19.78-acre park owned by the city of Arvada and is located in Jefferson County. The Broad Lake Trail (T-AR-50) circles the park and has been recently constructed by a private developer. The developer is under obligation to complete the trail and transfer ownership to the City of Arvada as a part of its planning and permitting agreement (by city ordinance). Arvada plans this to be a neighborhood park with amenities including the Broad Lake Trail and picnic facilities. A trail connection to Arvada’s regional “Heritage Trail” system via the Farmers High Line Canal Trail (T-AR-32) is planned for summer 2007 construction (see **Figure 5.8-2**). Public access is from Joyce Drive and McIntyre Street and will be open to the public. The property will be owned and managed by the City of Arvada.

#### DESCRIPTION OF IMPACTS FOR BUILD ALTERNATIVES

**Freeway Alternative, Tollway Alternative, and Regional Arterial Alternative:** There would be no use of Broad Lake Open Space as a result of these alternatives.

**Combined Alternative (Recommended Alternative):** This alternative will use a 0.25 acre narrow strip of grassy buffer located adjacent to McIntyre Street.

#### MINIMIZATION OF HARM

This portion of the roadway template will be comprised of four through lanes with a reduced median. Impacts to the property caused by the Combined Alternative (Recommended Alternative) have been slightly reduced by pulling planned sidewalk and bike paths to the curb and gutter line of McIntyre Street.

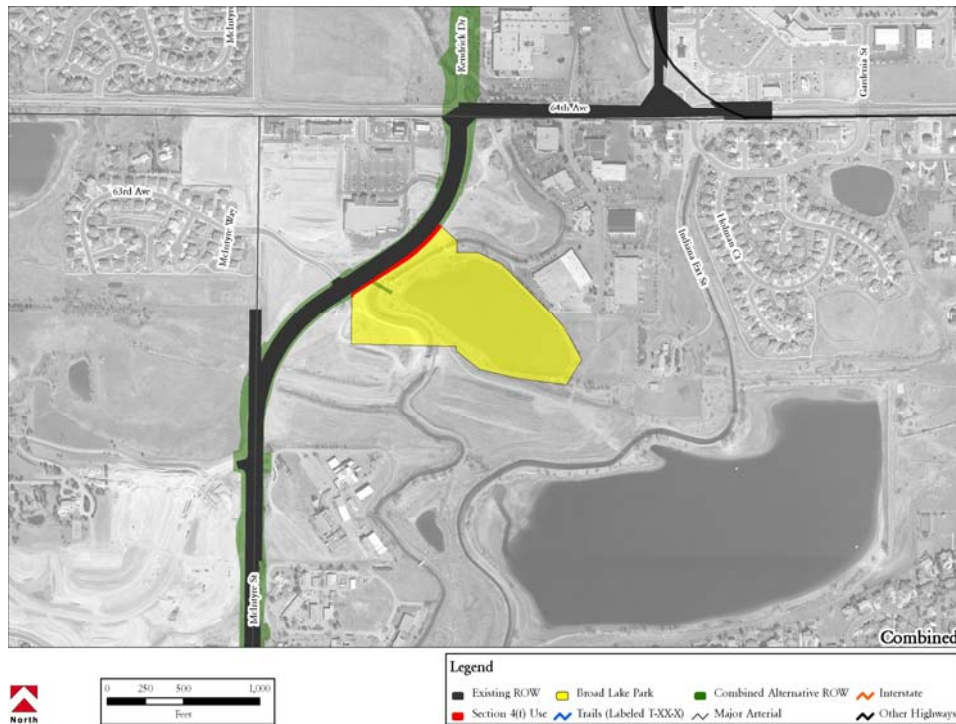
#### DE MINIMIS USE

A potential *de minimis* impact finding could be pursued for the Broad Lake Open Space as a result of the Combined Alternative (Recommended Alternative).

Possible mitigation measures to offset any adverse affects to the activities, features and attributes of this resource have been discussed with the City of Arvada and are outlined below:

- Return the affected landscaping to its original character and general contour.
- Repair or replace any irrigation and/or lighting system affected by construction associated with the build alternative.

**Figure 5.8-2 Broad Lake Open Space (AR-17)–Combined Alternative (Recommended Alternative)**



Source: Compiled by Felsburg, Holt & Ullevig, 2006.

### 5.8.1.3 STORAGE TEK DRIVE TRAIL (T-BR-8)

The Storage Tek Drive Trail is an existing 0.6-mile long, off-street soft and hard surface trail. The trail runs along the west side of Storage Tek Drive from US 36 to 96th Street & Carbon Roads on the north. The trail occupies a public easement owned and maintained by the City and County of Broomfield and located in Broomfield. The trail is primarily used for recreation (see **Figure 5.8-3**).

#### DESCRIPTION OF IMPACTS FOR BUILD ALTERNATIVES

**Freeway Alternative, Tollway Alternative:** The entire 2,940-foot length or an estimated 1.34 acres of the Storage Tek Drive Trail would be impacted by these alternatives. A detour will provide trail continuity during construction.

**Regional Arterial Alternative and Combined Alternative (Recommended Alternative):** The Regional Arterial Alternative impacts 1,250 feet or an estimated 0.57 acre of the Storage Tek Drive Trail between the Parkway Circle Open Space and Tape Drive. Continuity of the trail will be maintained during and after construction.

#### MINIMIZATION OF HARM

This portion of the Northwest Corridor roadway template will be comprised of 6 travel lanes with an urbanized center median from US 36, north to the terminus of the Northwest Parkway. Impacts to the trail





caused by the Freeway Alternative, and Tollway Alternative results from the US 36 to Carbon Drive portion of the new roadway and improvements made to 96<sup>th</sup> Street. No amount of roadway footprint reduction from narrowing of the median or consolidating slopes by using retaining walls would minimize impacts to the trail. Realignment of the new roadway to the east would preserve the trail, but would cause direct impacts to the Section 4(f) protected Parkway Center Open Space and trails.

The Regional Arterial Alternative and Combined Alternative (Recommended Alternative) do not modify 96<sup>th</sup> Street, thus the impacts to the trail are restricted to the segment of trail between US 36 and Tape Drive. No amount of roadway footprint reduction from narrowing of the median or consolidating slopes by using retaining walls would minimize impacts to the trail. Realignment of the new roadway to the east would preserve the trail, but would cause direct impacts to the Section 4(f) protected Parkway Center Open Space and trails.

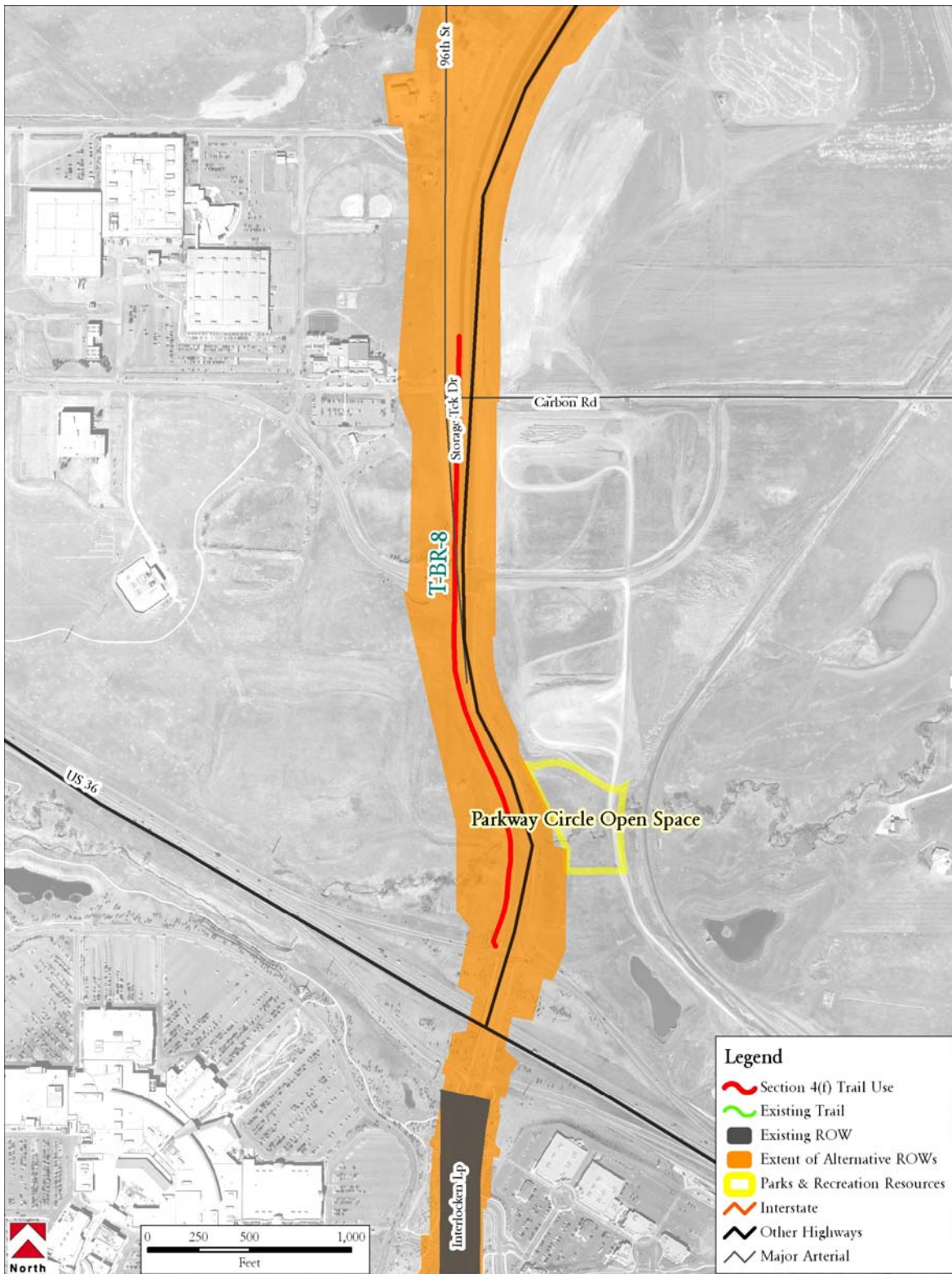
### ***DE MINIMIS USE***

A potential *de minimis* impact finding could be pursued for the Storage Tek Drive Trail as a result of the proposed build alternatives.

Possible mitigation measures to offset any adverse affects to the activities, features and attributes of this resource have been discussed with the City and County of Broomfield and are outlined below:

- Relocate all affected segments of the paved trail as close to the original alignment as possible to preserve comparable recreational function and trail attributes. The new trail could be paved.
- Provide alternate, safe and continuous detour trail routes during construction of any build alternative.
- Maintain pedestrian crossing with the existing cross culvert or a new grade-separated crossing under Storage Tek Drive.

*Figure 5.8-3 Storage Tek Drive Trail (T-BR-8)*



Source: Compiled by Felsburg, Holt & Ullevig, 2006.



#### 5.8.1.4 INTERLOCKEN LOOP BIKE TRAILS (T-BR-2)

The Interlocken Loop Bike Trails are existing 1.4-mile long, on-street commuter bike lanes and detached hard surface recreational trails. These trails are owned and managed by the City and County of Broomfield and run north/south along both sides of Interlocken Loop, starting at US 36 on the north and terminating at SH 128 on the south. The Zip Shuttle Trail (T-BR-3), the Coalton Road Zip Shuttle Trail (T-BR-4), the Interlocken Boulevard Trail (T-BR-5), the Varra Park Trail (T-BR-7), an un-named trail (T-BR-10), and the Eldorado Boulevard Trail (T-BR-12) are other boulevard-style recreational trails that intersect the Interlocken Loop Bike Trails to provide recreational linkages. Only the existing intersection connections of these other trails will be directly affected by the proposed build alternatives. The detached trails are primarily used for recreation and the on-street bike lanes are primarily used for transportation purposes (see **Figure 5.8-4**).

#### DESCRIPTION OF IMPACTS FOR BUILD ALTERNATIVES

**Freeway Alternative and Tollway Alternative:** An elevated roadway is included in the Freeway Alternative and Tollway Alternative through the Broomfield portion of the study area between US 36 and SH 128. The elevated roadways would be supported by piers next to the existing roadway between US 36 and Eldorado Boulevard. The existing recreational trails in this area would remain at ground level and would be relocated as necessary to circumnavigate the new piers while maintaining existing trail connections with other cross street trail systems. The actual impact to these trails is dependent on the final design location of piers. The resultant impacts to the Interlocken Loop Trails are minimal to the overall function of the bike trails, and are estimated to be 2,000 feet impacts (1.24 acre) of the 8500 total feet of trail adjacent to the pier supported roadways. Continuity of trails will be maintained during and after construction.

The elevated roadways from Eldorado Boulevard to the interchange with SH 128 would be supported with retaining walls, forcing the relocation of 700 feet of the Interlocken Loop Trails outboard of the new walls. Most of the existing trail remains unaffected by this portion of the alternative.

The total estimated direct use to the Interlocken Loop Trails resulting from construction of any of these alternatives is 2,700 feet. Temporary trail closures and/or detours may occur during construction.

**Regional Arterial Alternative and Combined Alternative (Recommended Alternative):** The Regional Arterial Alternative and Combined Alternative (Recommended Alternative) widen Interlocken Loop Boulevard at existing grade between US 36 and the SH 128 interchange. The trails would be relocated slightly away from the roadway or parallel to the roadway on retaining structures where necessary, creating a direct use of approximately 5,800 feet or an estimated 2.66 acres of the trail. The trail would maintain existing connections with other cross street trail systems. Temporary trail detours may occur during construction, but continuity of trails will be maintained during and after construction.

#### MINIMIZATION OF HARM

The elevated Freeway Alternative and Tollway Alternative would impact only those portions of the trail system where viaduct supporting piers would be placed. All trail relocations would be placed as close to the original alignment as possible. The elevated roadway placed on retaining walls and at the proposed SH 128 interchange, have been designed to minimize where trail segments would be directly impacted by shifting roadway or ramp alignments, using urbanized roadway footprints with curb and gutter and narrow medians, placement of grade separated trail crossings, and by employing reduced paved shoulders and replacing some fill slopes with retaining walls.

The Regional Arterial Alternative and the Combined Alternative (Recommended Alternative) would widen the roadway to 6 lanes at the current grade with less urban median treatments resulting in more direct impacts to existing trails. Efforts to minimize those impacts include the reduction of the roadway footprint by utilizing curb and gutter. All trail relocations would be placed as close to the original alignment as possible.



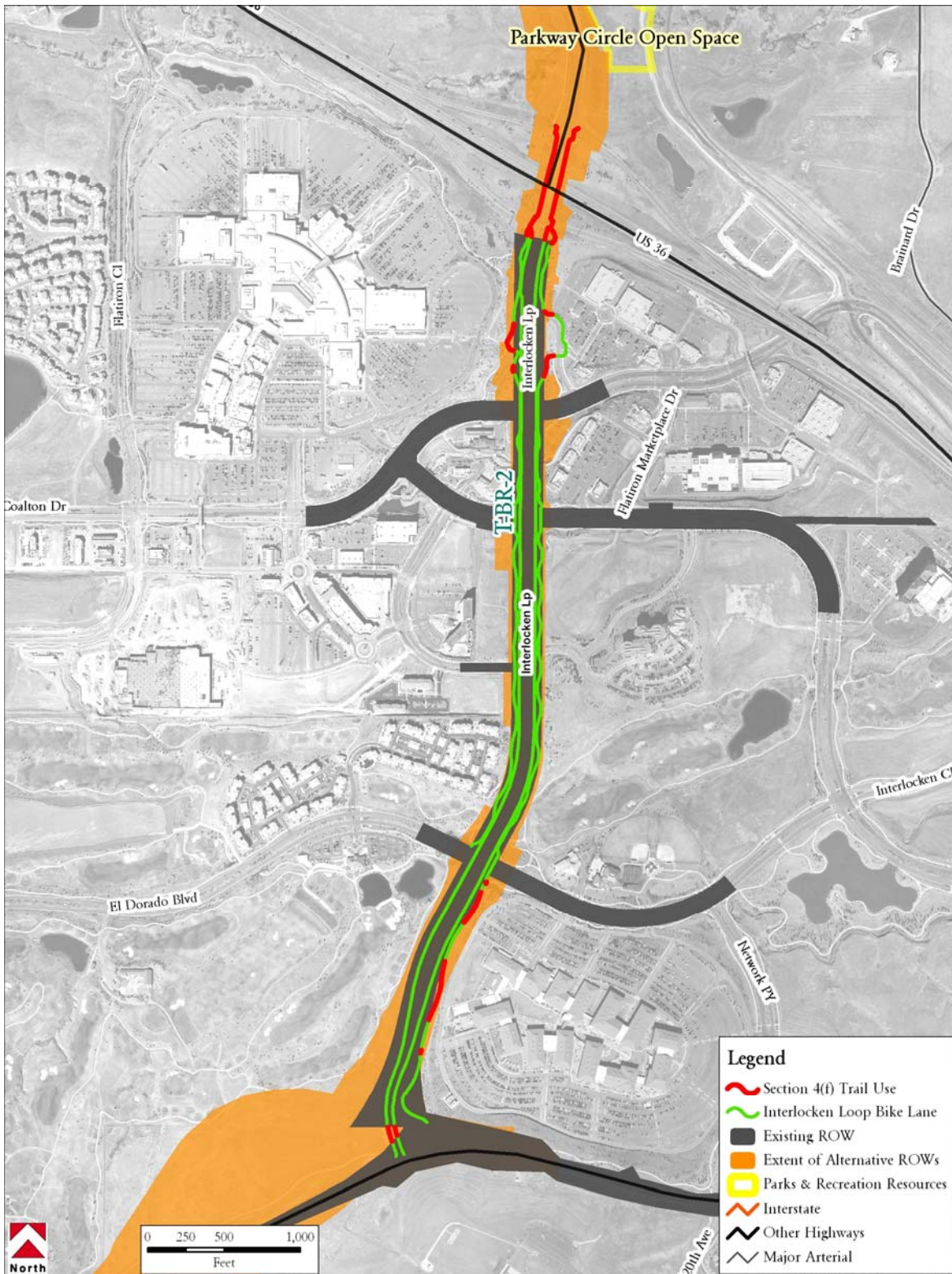
***DE MINIMIS USE***

A potential *de minimis* impact finding could be pursued for the Interlocken Loop Trails as a result of the build alternatives.

Possible mitigation measures to offset any adverse affects to the activities, features and attributes of this resource have been discussed with the City and County of Broomfield and are outlined below:

- Relocate all affected segments of the paved trails as close to the original alignment as possible to preserve comparable recreational function and trail attributes.
- Provide alternate, safe and continuous detour trail routes during construction of any build alternative.

*Figure 5.8-4 Interlocken Loop Bike Trails (T-BR-2)*



Source: Compiled by Felsburg, Holt & Ullevig, 2006.



### 5.8.1.5 LITTLE DRY CREEK -SH 72 TRAIL (T-AR-19)

Little Dry Creek-SH 72 Trail (T-AR-19) is a 6-mile long, existing and planned off-street, hard surface trail. This trail is owned and managed by the City of Arvada and is located in Arvada, where it will follow along the Little Dry Creek drainage and SH 72 from near SH 93 east to Indiana Street. Portions of this trail have already been constructed between Indiana Street and Alkire Street as a detached hard surface trail parallel to 86th Parkway. The planned trail west of Indiana follows the SH 72 alignment. There is also a proposed (by others) underpass at Indiana Street to accommodate pedestrian and bicyclist traffic between the east and west segments of the Upper Twin Lake Trail, Little Dry Creek Trail and other local trails (T-AR-26, T-AR-27). This trail network is cited in the Arvada Parks, Open Space and Trails Master Plan (2001) as one of four important east-west trail system linkages providing regional connections for the purpose of recreation. This publicly-owned trail would be designated for recreational use (see **Figure 5.8-5**).

#### DESCRIPTION OF IMPACTS FOR BUILD ALTERNATIVES

##### **Freeway Alternative, Tollway Alternative, and Combined Alternative (Recommended Alternative):**

All crossings of the Freeway Alternative, Tollway Alternative, and Combined Alternative (Recommended Alternative) alignments between SH 93 and the intersection of SH 72 incorporate new parallel bike trails in the roadway designs. The relocation and new ramps of SH 72 at the intersection of the proposed alternatives would provide for short segments of new bike trail to connect to the existing trails. The remainder of the planned Little Dry Creek-SH 72 Trail not incorporated into this construction would not be impeded by the new alternatives. The trail crossings at the Indiana Connector alignments would be located under new bridges. There would be no disturbance of the existing or proposed trails by these alternatives, however; CDOT right-of-way requirements for underneath new bridge spans would result in acquisition of 0.30 acres of existing or proposed trail. Temporary trail detours may occur during construction, but continuity of trails will be maintained during construction.

**Regional Arterial Alternative:** The existing Little Dry Creek Trail located entirely east of Indiana Street would connect to the new bikeway systems. Approximately 60 feet or an estimated 0.02 acre of existing Little Dry Creek Trail would be impacted by widening and intersection modifications at Indiana Street and SH 72. Temporary trail detours may occur during construction, but continuity of trails will be maintained during and after construction.

#### MINIMIZATION OF HARM

The Little Dry Creek Trail would be crossed by the Freeway Alternative, Tollway Alternative, and Combined Alternative (Recommended Alternative) at multiple locations. The trail alignment is closely tied to drainages and will be accommodated under bridge structures with adequate clearance.

Impacts to the Little Dry Creek-SH 72 Trail in the Combined Alternative (Recommended Alternative) were due to expanded pavement and attached sidewalks/bikeways resulting from the 4-lane widening of Indiana Street. The proposed roadway footprint consists of four through lanes with a reduced median. Curb and gutter minimize the overall roadway footprint, thus reducing the impact to the existing trail.

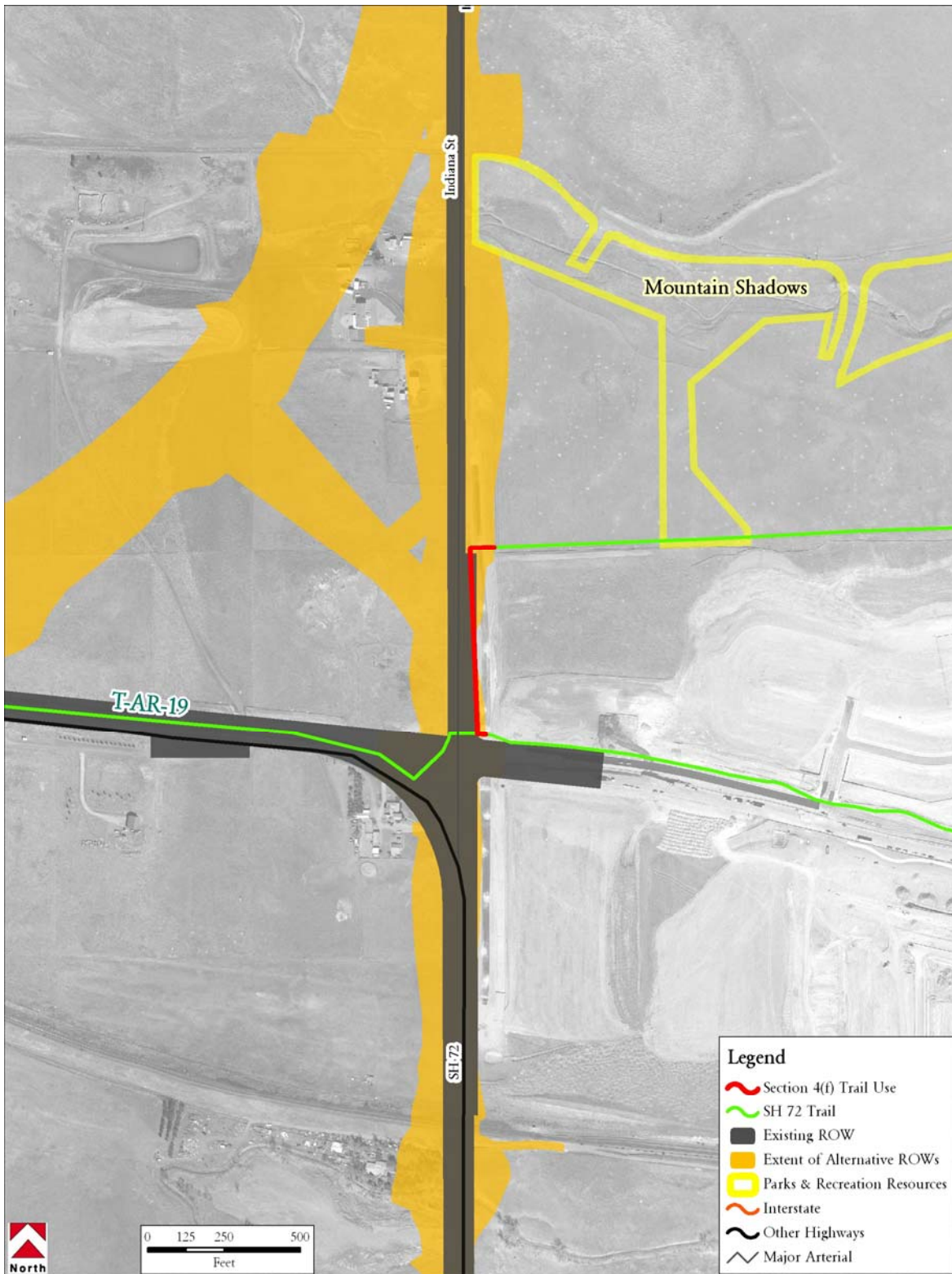
#### **DE MINIMIS USE**

A potential *de minimis* impact finding could be pursued for the Little Dry Creek-SH 72 Trails as a result of the proposed build alternatives.

Possible mitigation measures to offset any adverse affects to the activities, features and attributes of this resource have been discussed with the City of Arvada and are outlined below:

- Relocate all affected segments of the paved trails as close to the original alignment as possible to preserve comparable recreational function and trail attributes. The new trail could be paved.
- Provide alternate, safe and continuous detour trail routes during construction of any build alternative.
- Provide future trail continuity and connectivity.

Figure 5.8-5 Little Dry Creek – SH 72 Trail (T-AR-19)



Source: Compiled by Felsburg, Holt & Ullevig, 2006.



#### 5.8.1.6 BIG DRY CREEK–UPPER TWIN LAKES TRAIL (T-AR-23)

The Big Dry Creek–Upper Twin Lakes Trail is a 4-mile long complex of off-street trails. These trails are currently unpaved but Arvada has plans to pave these trails in the future. The trails are owned and managed by the City of Arvada, and are located north of SH 72, connecting SH 93 and Indiana Street. Only the portion of the trail currently located on public property or easement is under consideration for Section 4(f) protection. The planned trail generally follows the Big Dry Creek drainage across the City of Arvada and splits into 2 spurs near Indiana Street. The Big Dry Creek spur continues east to Indiana Street and a southern spur, Upper Twin Lake Trail tracks southeast connecting to the Shadow Mountain Open Space trail system at Indiana Street. The city has proposed an underpass at Indiana Street to accommodate pedestrian and bicyclist traffic between the east and west segments of the Upper Twin Lake Trail, Little Dry Creek Trail and other local trails (T-AR-26, T-AR-27). This trail network is cited in the Arvada Parks, Open Space and Trails Master Plan (2001) as one of four important east-west trail system linkages providing regional connections for the purpose of recreation. These publicly-owned trails are designated for recreational use (see **Figure 5.8-6**).

#### DESCRIPTION OF IMPACTS FOR BUILD ALTERNATIVES

**Freeway Alternative and Tollway Alternative:** All crossings of the Freeway Alternative and Tollway Alternative would be located under new bridges. There would be no disturbance of the existing trails by these alternatives, however; CDOT right-of-way requirements for underneath bridge spans would result in acquisition of 0.71 acres of existing or proposed trail. Temporary trail detours would occur during construction, but continuity of trails will be maintained during and after construction.

**Regional Arterial Alternative:** The Regional Arterial Alternative follows the existing SH 72 alignment in the vicinity of the Big Dry Creek–Upper Twin Lakes Trail and only intersects these trails north of the junction with Indiana Street. The trails would intersect the new bikeways proposed with the Regional Arterial Alternative and would allow travel to a safe crossing area at the Indiana Connector road and to the underpass (proposed by others) at Indiana. There would be no direct use of the trail. There would be no disturbance of the existing trails by these alternatives, however; CDOT right-of-way requirements for underneath bridge spans would result in acquisition of 0.40 acres of existing or proposed trail. Temporary trail detours would occur during construction, but continuity of trails will be maintained during and after construction.

**Combined Alternative (Recommended Alternative):** All crossings of the Combined Alternative (Recommended Alternative) would be located under new bridges. There would be no disturbance of the existing trails by this alternative, however; CDOT right-of-way requirements for under bridge spans would result in acquisition of 0.68 acres of existing or proposed trail. Additionally, approximately 120 feet or an estimated 0.05 acre of planned trail would be impacted by the widening and new walkways at Indiana Street and Shadow Mountain Open Space. The Combined Alternative (Recommended Alternative) results in a total use of 0.73 acres of the Big Dry Creek–Upper Twin Lakes Trails. Continuity of trails will be maintained during and after construction.

#### MINIMIZATION OF HARM

The Big Dry Creek Trail would be crossed by the Freeway Alternative, Tollway Alternative, Regional Arterial Alternative, and Combined Alternative (Recommended Alternative) at multiple locations. The trail alignment is closely tied to drainages and will be accommodated under bridge structures with adequate clearance.

Additional impacts to the Big Dry Creek–Upper Twin Lakes Trail in the Combined Alternative (Recommended Alternative) occur at two locations at the intersection with Indiana Street due to expanded pavement and attached sidewalks/bikeways resulting from the 4-lane widening. The proposed roadway footprint consists of four through lanes with a reduced median. Curb and gutter minimize the overall roadway footprint, thus reducing the impact to the existing trail.





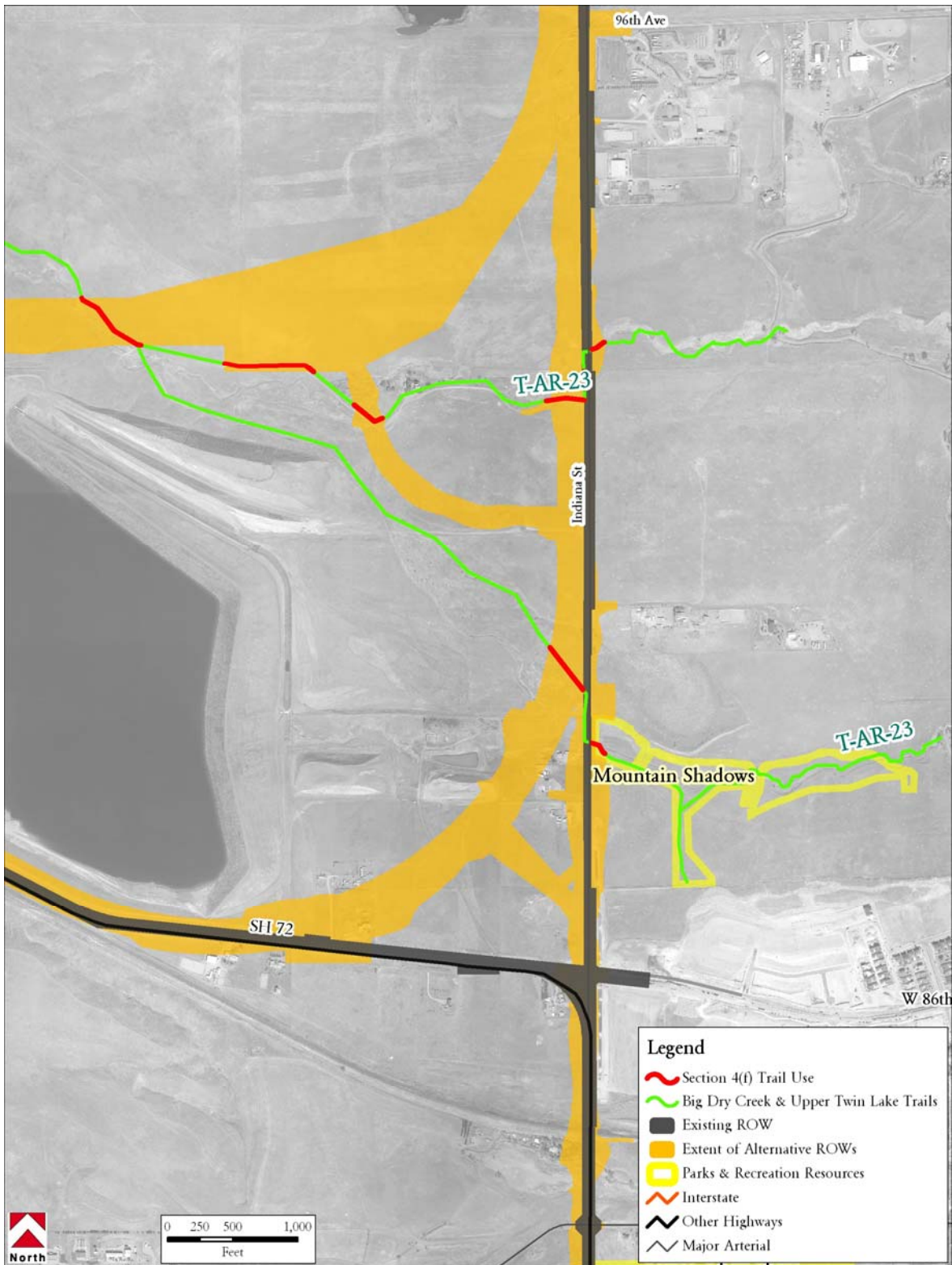
***DE MINIMIS USE***

A potential *de minimis* impact finding could be pursued for the Big Dry Creek–Upper Twin Lakes Trails as a result of the proposed build alternatives.

Possible mitigation measures to offset any adverse affects to the activities, features and attributes of this resource have been discussed with the City of Arvada and are outlined below:

- Relocate all affected segments of the paved trails as close to the original alignment as possible to preserve comparable recreational function and trail attributes. The new trail could be paved.
- Provide alternate, safe and continuous detour trail routes during construction of any build alternative.
- Provide future trail continuity and connectivity.
- Provide a grade-separated pedestrian crossing under Indiana Street near Mountain Shadows.

*Figure 5.8-6 Big Dry Creek-Upper Twin Lakes Trail (T-AR-23)*



Source: Compiled by Felsburg, Holt & Ullevig, 2006.



### 5.8.1.7 LEYDEN GULCH TRAIL (T-AR-34)

The Leyden Gulch Trail is a planned and existing 8-mile long, off-street, soft surface trail. The existing trail is owned and managed by the City of Arvada and located on the Leyden Lake Open Space in Arvada. The proposed trail runs east/west, starting west of SH 93 on the west and running east to connect with trails within the Leyden Lake Open Space. A fork of the trail at SH 93 runs south along the SH 93 alignment to just north of Arvada Blunn Reservoir, where it turns northwest and runs northwest up to the north side of Ralston Reservoir, terminating just west of Ralston Reservoir. This publicly-owned trail is designated for recreation and is primarily used by equestrians. A trailhead and parking lot are in place, and Arvada proposes to replace the soft surface with a hard surface (see **Figure 5.8-7**).

This trail network is cited in the Arvada Parks, Open Space and Trails Master Plan (2001), designated for recreational use.

#### DESCRIPTION OF IMPACTS FOR BUILD ALTERNATIVES

##### **Freeway Alternative, Tollway Alternative, and Combined Alternative (Recommended Alternative):**

All crossings of the Freeway Alternative, Tollway Alternative, and Combined Alternative (Recommended Alternative) would be located under new bridges. There would be no disturbance of the existing trails by these alternatives, however; CDOT right-of-way requirements for underneath bridge spans would result in acquisition of 0.21 acres of proposed trail. Temporary trail detours would occur during construction, but continuity of the trail will be maintained during and after construction.

**Regional Arterial Alternative:** The Regional Arterial Alternative follows the existing SH 128 and SH 72 alignments in the vicinity of the Leyden Gulch Trail and only intersects these trails north of the junction with Indiana Street. There would be no direct use of the trail.

#### MINIMIZATION OF HARM

The planned extension of the Leyden Gulch Trail would pass under the proposed structure over Leyden Road and Leyden Creek. The Leyden Gulch area incorporated a 1,100 foot mainline structure with lengthened spans to ensure clearance and avoidance for the roadway, drainage, and the proposed trail. Similarly, trails having alignments closely tied to drainages will be accommodated under bridge structures with adequate clearance. These include Barbara Ann, Big Dry Gulch, Upper Twin Lakes, and Little Dry Creek Trails.

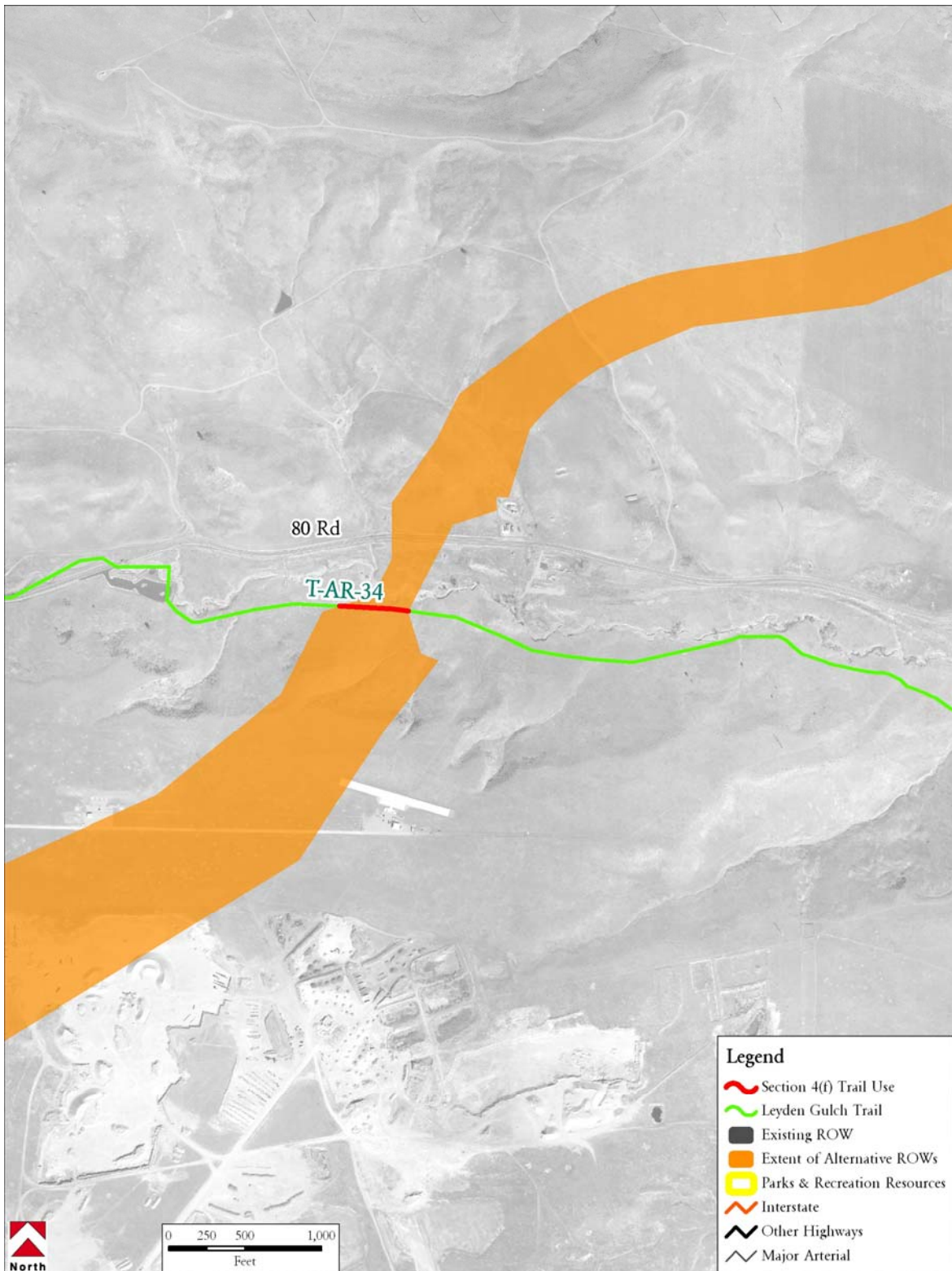
#### **DE MINIMIS USE**

A potential *de minimis* impact finding could be pursued for the Leyden Gulch Trail as a result of the proposed build alternatives.

Possible mitigation measures to offset any adverse affects to the activities, features and attributes of this resource have been discussed with the City of Arvada and are outlined below:

- Provide future trail continuity and connectivity.
- Maintain a natural state under the bridge.

*Figure 5.8-7 Leyden Gulch Trail (T-AR-34)*



Source: Compiled by Felsburg, Holt & Ullevig, 2006



### 5.8.1.8 JEFFERSON COUNTY– GOLDEN MUNICIPAL COMPLEX TRAILS (T-JC-17)

The Jefferson County-Golden Municipal Complex Trails consists of approximately 1.5 miles of sidewalk and trails connecting city and county buildings within the Municipal Complex located between Jefferson County Parkway and Johnson Road in Golden. These trails are owned and managed by Jefferson County and Golden. The publicly owned trails are used for both transportation and recreation (see **Figure 5.8-8**).

#### DESCRIPTION OF IMPACTS FOR BUILD ALTERNATIVES

**No Action Alternative:** The No Action Alternative includes relocation of approximately 500 feet of this trail system as a result of construction of the FasTracks West Corridor transit facility. All effected portions of this trail are located east of the alternative impacts described for the build alternatives.

#### **Freeway Alternative, Tollway Alternative, and Combined Alternative (Recommended Alternative):**

These alternatives would require the Heritage Road intersection with US 6 to be converted to a single point urban interchange that would result in approximately 300 feet or an estimated 0.13 acre impact to existing walkway use.

**Tollway Alternative:** The Tollway Alternative would add new toll lanes adjacent to the existing roadway template. At the intersection of Heritage Road and US 6 the existing roads and bikeways would remain at their current grade and the toll lanes would tunnel under the existing facilities, using approximately 200 feet or an estimated 0.09 acre of walkway section.

#### MINIMIZATION OF HARM

Impacts to the trail system caused by the Freeway Alternative, Regional Arterial Alternative, and Combined Alternative (Recommended Alternative) were reduced by combining a 26-foot barrier separated median with the extensive use of retaining walls located at the edge of the shoulder. Remaining impacts are a result of the new wider roadway template necessary for the US 6 and Heritage Road interchange ramps. The impact to the trail system from Heritage Road to 19<sup>th</sup> Street is minimized with the additional shift of the alternatives to the west where the retaining walls are located in proximity to the west side of the CDOT ROW.

The south portion of the Tollway Alternative maintains the existing general purpose lanes of US 6. The Colorado Tolling Enterprise statute requires any new toll facility not toll existing general purpose lanes. Therefore, the Tollway Alternative is configured by placing the toll lanes on the outside of the general purpose lanes. The general purpose lanes on US 6 are reconstructed to accommodate slip ramps between the toll lanes and the existing facility for access. This footprint has the greatest width of the alternatives as it requires providing for a combination of four toll lanes and four general purpose lanes along the same alignment. The section from C-470 to 19<sup>th</sup> Street minimizes the footprint within the existing CDOT ROW with extensive retaining walls to maintain the separation of the toll lanes from the general purpose lanes. To avoid encroachment on the trail system at Heritage Road, the alignment is shifted west to provide additional room along the east side of US 6. The difference in affected trail length results from the difference in overall ramp configurations between the more streamlined Tollway Alternative slip ramps and Freeway Alternative, Regional Arterial Alternative, and Combined Alternative (Recommended Alternative) standard interchange ramps.

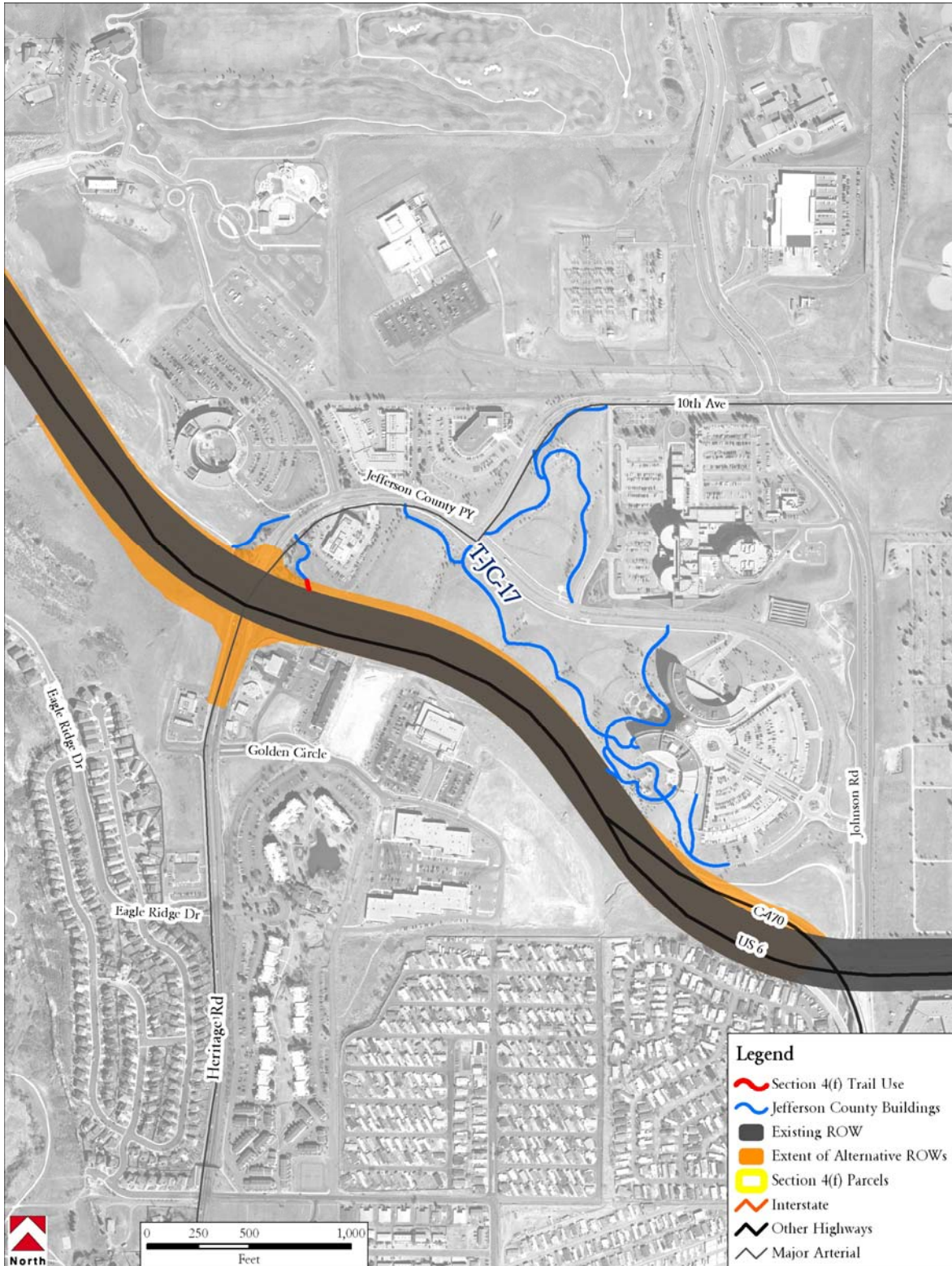
#### **DE MINIMIS USE**

A potential *de minimis* impact finding could be pursued for the Jefferson County–Golden Municipal Complex Trails as a result of the proposed build alternatives.

Possible mitigation measures to offset any adverse affects to the activities, features and attributes of this resource have been discussed with the Jefferson County and the City of Golden and are outlined below:

- Relocate all affected segments of the paved trails as close to the original alignment as possible to preserve comparable recreational function and trail attributes. The new trail could be paved.
- Provide alternate, safe and continuous detour trail routes during construction of any build alternative.
- Provide future trail continuity and connectivity.

*Figure 5.8-8 Jefferson County– Golden Municipal Complex Trails (JC-17)*



Source: Compiled by Felsburg, Holt & Ullevig, 2006.



### 5.8.1.9 PROSPECT TRAIL (T-PR-1)

Prospect Trail is an existing 0.5-mile long, off-street trail with a soft surface. This trail is located on an easement owned and managed by Prospect Recreation and Park District and located in Jefferson County. The trail occupies a public easement across private land along the west side of McIntyre Street between 49<sup>th</sup> and 50<sup>th</sup> Avenues. The primary purpose of this trail is for equestrian use (**Figure 5.8-9**).

#### DESCRIPTION OF IMPACTS FOR BUILD ALTERNATIVES

**Freeway Alternative, Tollway Alternative, and Regional Arterial Alternative:** There would be no use of this recreational resource resulting from these alternatives.

**Combined Alternative (Recommended Alternative):** Approximately 200 feet or an estimated 0.09 acre of the trail would be impacted by the widening of McIntyre Street. Continuity of trails will be maintained during and after construction.

#### MINIMIZATION OF HARM

The southern McIntyre Street roadway template will be comprised of four through lanes with a reduced center median. Impacts to the Prospect Trail caused by the Combined Alternative (Recommended Alternative) have been slightly reduced by pulling planned sidewalk and bike paths to the curb and gutter line of McIntyre Street between SH 58 and 52<sup>nd</sup> Avenue.

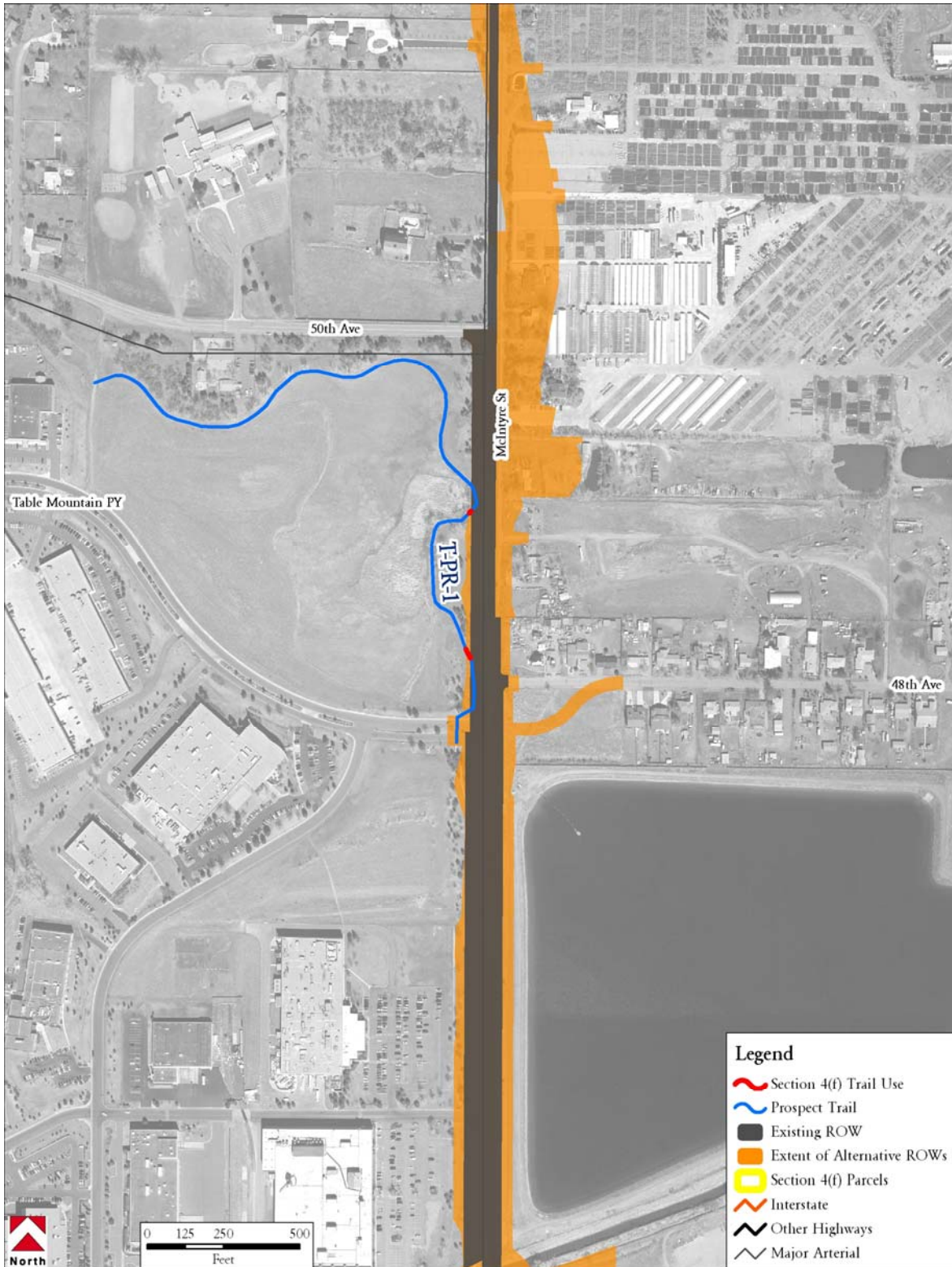
#### *DE MINIMIS USE*

A potential *de minimis* impact finding could be pursued for the Prospect Trail as a result of the proposed build alternatives.

Possible mitigation measures to offset any adverse affects to the activities, features and attributes of this resource have been discussed with the Prospect Recreation and Park District and are outlined below:

- Acquire a new easement from the private land owner for the purpose of replacing the affected segments of the existing equestrian trail.
- Rebuild the segments of the unpaved trail on the new easement to preserve trail continuity and provide a new trail with comparable recreational function and attributes.

*Figure 5.8-9 Prospect Trail (T-PR-1)–Combined Alternative (Recommended Alternative)*



Source: Compiled by Felsburg, Holt & Ullervig, 2006.





**5.8.1.10 SUMMARY OF IMPACTS: PARKS AND RECREATIONAL RESOURCES**

The majority of parks and recreational resources impacted within the study area are anticipated to require *de minimis* use. Several consultation meetings have been held with Arvada, Jefferson County, Prospect Park, and Broomfield to discuss the basis of determining a *de minimis* finding to address the Section 4(f) impacts listed in their jurisdictions. Only the Tollway Alternative would have impacts that are not considered *de minimis*. A summary of *de minimis* impacts to parks and recreational resources in the study area is provided (see **Table 5.8-1**).

**Table 5-8.1 Summaries of Anticipated De Minimis Impacts to Parks and Recreational Resources**

Map ID*	Name	Alternative <i>De Minimis</i> Impacts				
		No Action	Freeway	Tollway	Regional Arterial	Combined (Recommended)
11	Leyden Reservoir Open Space	None	None	None	None	1.75 acre
64	Broad Lake Open Space	None	None	None	None	0.25 acre
T-BR-8	Storage Tek Drive Trail	None	1.34 acre	1.34 acre	0.57 acre	1.34 acre
T-BR-2	Interlocken Loop Bike Trails	None	1.24 acre	1.24 acre	2.66 acre	2.66 acre
T-AR-19	Little Dry Creek – SH 72 Trails	None	0.30 acre	0.30 acre	0.02 acre	0.30 acre
T-AR-23	Big Dry Creek – Upper Twin Lakes Trails	None	0.71 acre	0.71 acre	0.71 acre	0.05 acre
T-AR-34	Leyden Gulch Trail	None	0.21 acre	0.21 acre	None	0.21 acre
T-JC-17	Jefferson County - Golden Municipal Complex Trails	None	0.13 acre	0.09 acre	0.13 acre	0.13 acre
T-PR-1	Prospect Trail	None	None	None	None	0.09 acre
<b>Anticipated <i>De Minimis</i> Impact Total</b>		<b>None</b>	<b>3.93 acres</b>	<b>3.89 acres</b>	<b>4.09 acres</b>	<b>6.78 acres</b>

Note: \*Property Map ID is coordinated with **Section 4.17** displays.

Trail length measured from design plans. Acreage is estimated based upon an average 20-foot wide trail corridor.



## 5.8.2 WILDLIFE AND WATERFOWL REFUGE

### 5.8.2.1 GREAT WESTERN RESERVOIR OPEN SPACE

The Great Western Reservoir Open Space is a 737.65-acre multiple-use open space property under the jurisdiction of the City and County of Broomfield, located in the County of Broomfield. The primary uses of the property are for water storage, storm water management, and for a wildlife refuge. The highlighted portion of the property designated as a prairie dog refuge comprises 88.12 acres and actively managed as prairie dog relocation habitat by the City and County of Broomfield. The refuge has a prairie dog relocation management plan adopted and funded by the City and County of Broomfield. The refuge is currently at capacity for effective colony relocations (see **Figure 5.8-10** and **Figure 5.8-11**). This property is not open to the public.

#### DESCRIPTION OF IMPACTS FOR BUILD ALTERNATIVES

##### **Freeway Alternative, Tollway Alternative, and Combined Alternative (Recommended Alternative):**

These alternatives will use 12.68 acres of the property for new roadway, bikeways, retaining walls, and associated cut and fill slopes. The viability of the prairie dog colonies present on the refuge is anticipated to be sustained after construction of the build alternative. A wildlife based assessment of the effect of a 12.68 acre reduction in refuge size was undertaken to confirm that no adverse effect to the activities, features, and attributes of this refuge would result from any of the build alternatives. The natural prairie dog population and distribution is variable with time due to disease outbreaks, the quality of coterie vitality and inter-coterie competition. Discussion of these factors can be found in **Section 4.11**.

**Regional Arterial Alternative:** The Regional Arterial Alternative would not require a use of this property.

#### MINIMIZATION OF HARM

To minimize impacts to the prairie dog refuge at the Great Western Reservoir Open Space, the Combined Alternative (Recommended Alternative) alignment is shifted to the north towards SH 128. Retaining walls are incorporated into the design to further minimize impacts to the refuge. The 6-lane roadway footprint has been reduced by placing the planned bike path off the Section 4(f) protected property.

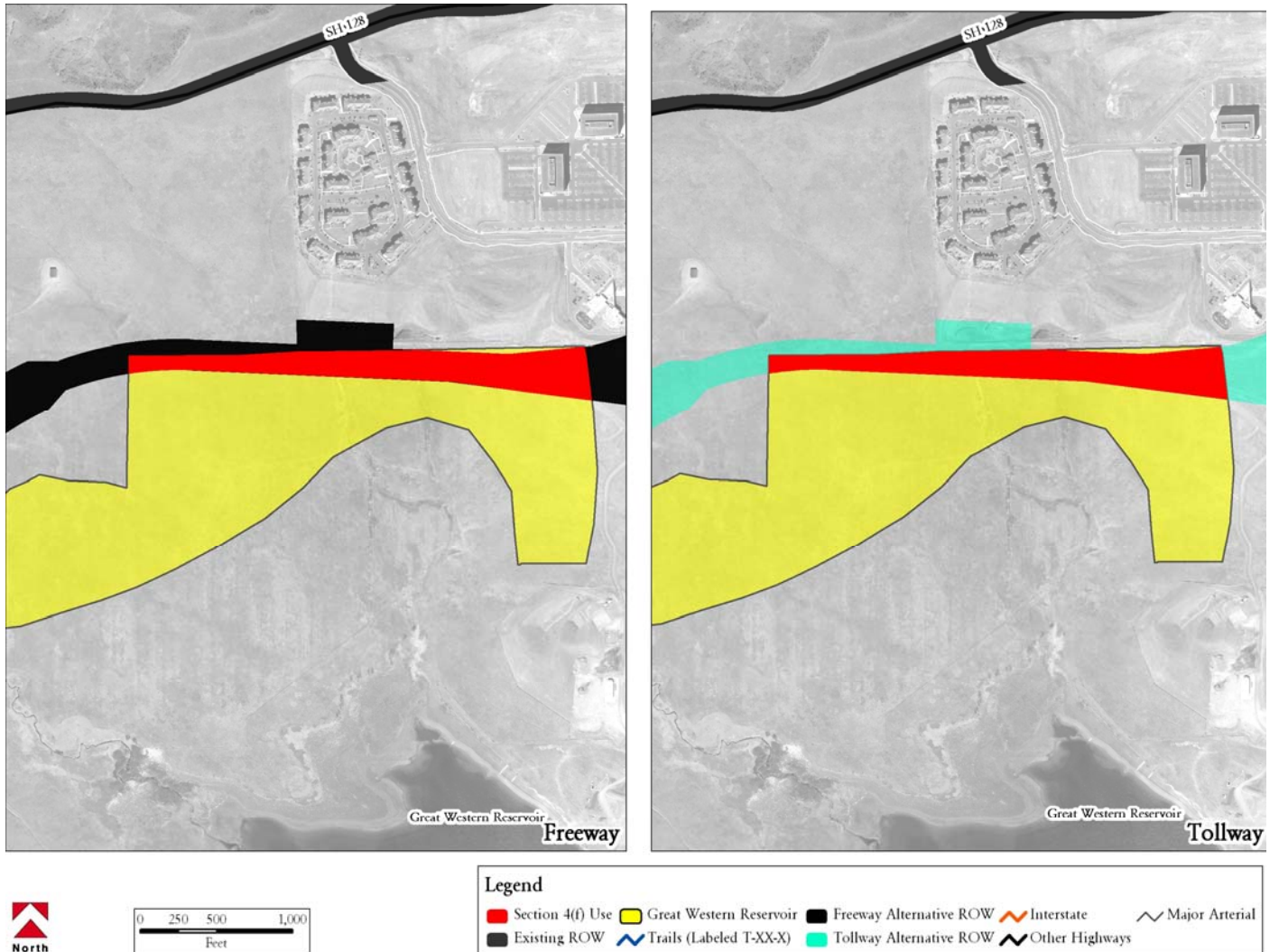
#### *DE MINIMIS USE*

A potential *de minimis* impact finding could be pursued for the Great Western Reservoir Open Space Prairie Dog Relocation Refuge as a result of the proposed build alternatives.

Possible mitigation measures to offset any adverse affects to the activities, features and attributes of this resource have been discussed with the City and County of Broomfield and are outlined below:

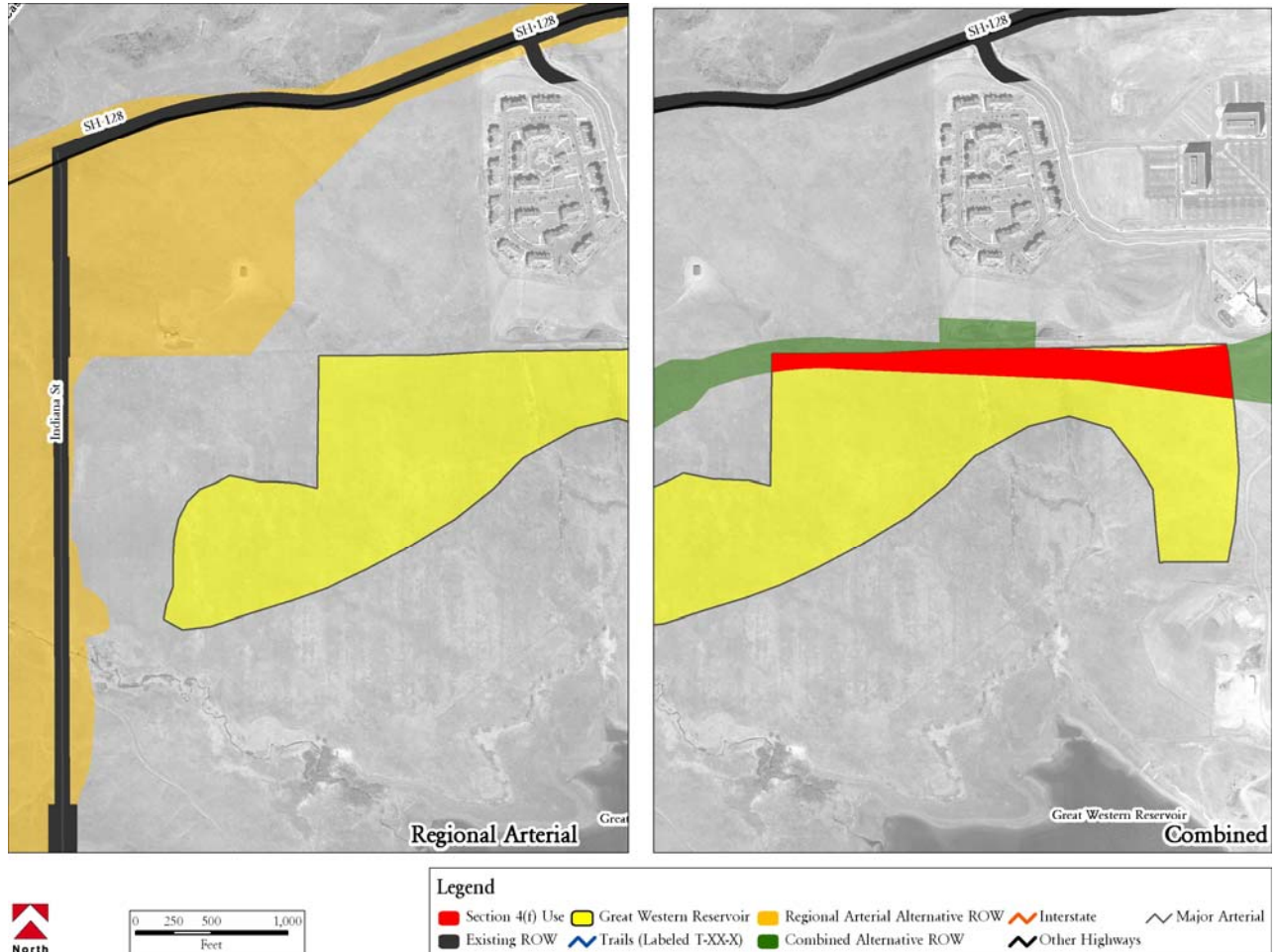
- Replace affected refuge land with land of comparable size containing suitable prairie dog habitat within the County.
- Construct a new soft surface trail south of any new alignment to provide safe, seamless connectivity to the planned Rocky Flats Wildlife Refuge Trail.

*Figure 5.8-10 Great Western Reservoir (BR-9)–Freeway Alternative and Tollway Alternative*



*Source: Compiled by Felsburg, Holt & Ullevig, 2006.*

*Figure 5.8-11 Great Western Reservoir (BR-9)–Regional Arterial Alternative and Combined Alternative (Recommended Alternative)*



Source: Compiled by Felsburg, Holt & Ullevig, 2006.



### 5.8.2.2 SUMMARY OF IMPACTS: WILDLIFE AND WATERFOWL REFUGE

The Freeway Alternative, Tollway Alternative, and Combined Alternative (Recommended Alternative) have an identical (anticipated) *de minimis* impact to the wildlife refuge. The No Action Alternative and Regional Arterial Alternative have no impact to wildlife and waterfowl refuges within the study area. A summary of impacts to wildlife and waterfowl refuge in the study area is provided (see **Table 5.8-2**).

*Table 5.8-2 Summary of Impacts to Wildlife and Waterfowl Refuges*

Map ID	Name	Alternative Impacts (acres)				
		No-Action	Freeway Alternative	Tollway Alternative	Regional Arterial Alternative	Combined Alternative (Recommended Alternative)
BR-9	Great Western Reservoir Open Space	None	12.68 acres <i>de minimis</i>	12.68 acres <i>de minimis</i>	None	12.68 acres <i>de minimis</i>

### 5.8.3 HISTORIC RESOURCES

The following historic sites and properties are located in the study area and would be directly impacted by one or more proposed build alternatives. Resources in the study area include railroads, canals, ditches, and other historically important sites. A summary of impacts to historic resources in the study area is provided (see **Table 5.8-3**).

#### 5.8.3.1 DENVER & RIO GRANDE WESTERN RAILROAD SEGMENT (5JF2346.6)

The historic Denver & Rio Grande Western Railroad (5JF2346.6), currently belonging to the Union Pacific Railroad (UPRR), is a 600-foot long historic segment of standard gauge railroad line. The recorded resource is 66 feet wide comprised of the ballasted roadbed supporting the tracks and the borrow swale adjacent to the railroad embankment. The active railroad runs roughly east - west across the study area parallel to SH 72 in northern Jefferson County. The railroad was originally part of the Denver, Northwestern and Pacific Railway built in 1903. The railroad later became the Denver and Salt Lake Railroad and in 1947 merged into the Denver & Rio Grande Western Railroad. This railroad is directly associated with the early growth and commercial development of the state. Its historic alignment is intact and traverses an area where the original design, setting and feeling remain strong. The entire Denver & Rio Grande Western Railroad resource is eligible for the NRHP under Criterion A, and the segment retains sufficient integrity to support the eligibility of the entire linear resource (see **Figure 5.8-12**).

#### DESCRIPTION OF IMPACTS FOR BUILD ALTERNATIVES

##### **Freeway Alternative, Tollway Alternative and Combined Alternative (Recommended Alternative):**

These alternatives provide for relocation of a segment of SH 72 in the vicinity of commercial development to provide local access to businesses. The new interchange would be built north of SH 72; however, the new roadway would cross the current railroad alignment. The alternative alignments are planned to be excavated under the existing railroad and would require a new bridge for the railroad. The railroad would essentially remain at grade. Approximately 1000 feet of the railroad would be temporarily realigned south of the existing railroad alignment to allow construction of the underpass structure while maintaining the operability of the rail line. Once the construction is completed, the temporary realignment would be removed and the historic railroad alignment would be maintained. Although there would be no change of railroad alignment, a 280-foot long by 150-foot wide swath (0.96 acres) of railroad right-of-way would be purchased to be occupied by the new 4-lane roadway and at-grade railroad bridge structure.

**Regional Arterial Alternative:** The Regional Arterial Alternative would not require a use of this property.



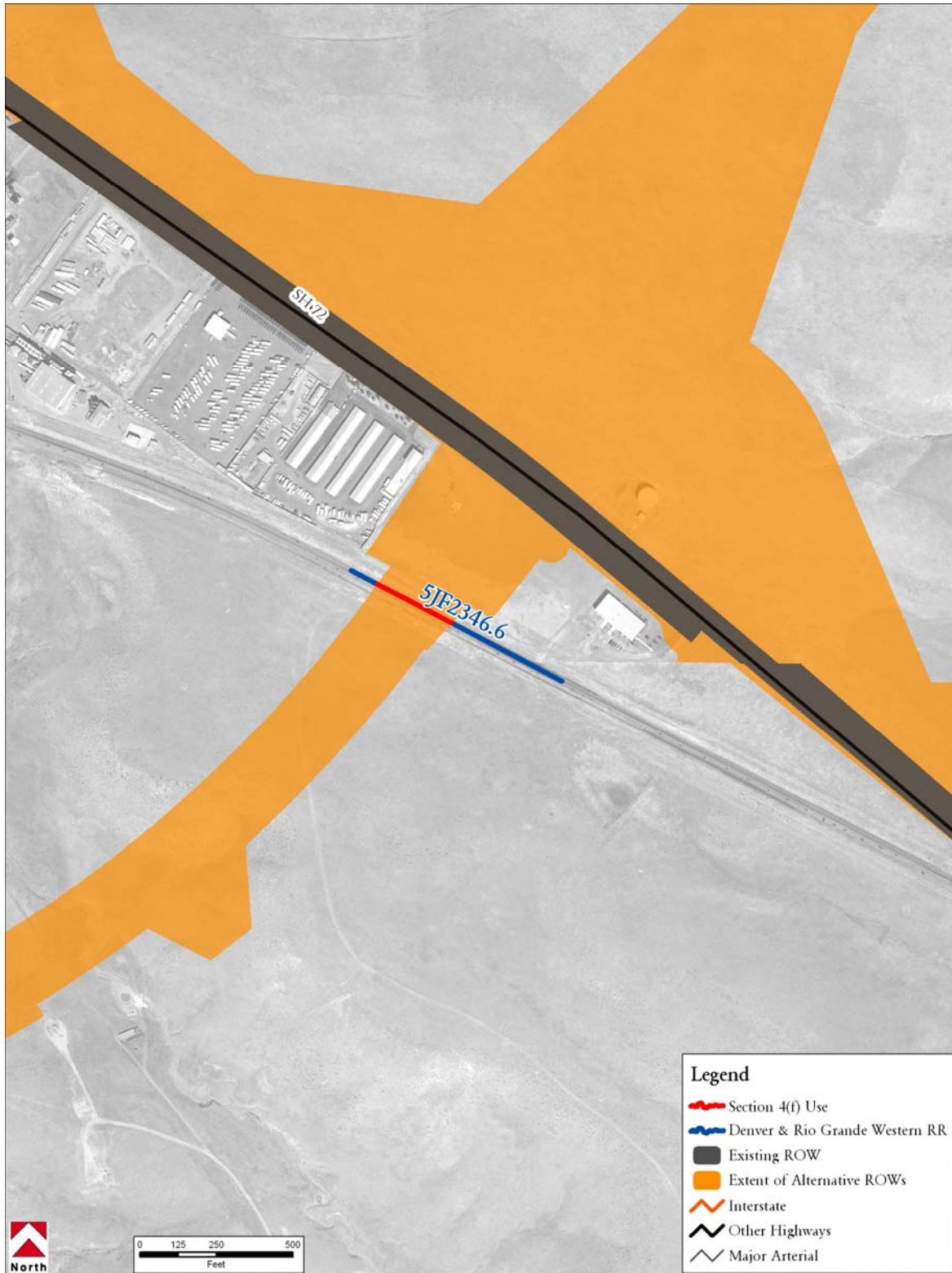
### **MINIMIZATION OF HARM**

The railroad underpass will be constructed with retaining walls and a new bridge structure that would be designed to maintain the current railroad grade. This portion of the roadway template will be comprised of 4 striped travel lanes. Impacts to the existing railroad bridge, track and alignment caused by the Freeway Alternative, Tollway Alternative and the Combined Alternative (Recommended Alternative) have been reduced by pulling planned sidewalk and bike paths to the edge of pavement and eliminating any center median, thereby reducing the replacement bridge span length.

### ***DE MINIMIS USE***

The SHPO, as the jurisdictional authority for this property, has provided a written determination that it is eligible for the NRHP and that No Adverse Effect to the historic resource would be created by the Freeway Alternative, the Tollway Alternative, or the Combined Alternative (Recommended Alternative). A potential *de minimis* impact finding for this segment of the Denver & Rio Grande Western Railroad (5JF2346.6) could be pursued.

*Figure 5.8-12 Denver & Rio Grande Western Railroad Segment (5JF2346.6)*



*Source: Compiled by Felsburg, Holt & Ullevig, 2006.*



### 5.8.3.2 DENVER & RIO GRANDE WESTERN RAILROAD SEGMENT (5JF2346.7)

The historic Denver & Rio Grande Western Railroad (5JF2346.7), currently belonging to the UPRR, is a 600-foot long historic segment of standard gauge rail line. The resource includes the bed, grade and historic railroad right-of-way. The active railroad runs east–west across the study area. This segment of the railroad grade is carried over Indiana Street (SH 72) by a previously recorded railroad bridge (5JF2247) that was reevaluated for the Northwest Corridor study as NRHP-ineligible. The railroad was originally part of the Denver, Northwestern and Pacific Railway built in 1903. The railroad later became the Denver and Salt Lake Railroad and in 1947 merged into the Denver & Rio Grande Western Railroad. This railroad is directly associated with the early growth and commercial development of the state. Its historic alignment is intact and traverses an area where the original design, setting and feeling remain strong. The entire Denver & Rio Grande Western Railroad is eligible for the NRHP under Criterion A, and this segment retains sufficient integrity to support the eligibility of the entire linear resource (see **Figure 5.8-13**)

#### DESCRIPTION OF IMPACTS FOR BUILD ALTERNATIVES

**Freeway Alternative, Tollway Alternative, and Regional Arterial Alternative:** There would be no use of this historic resource resulting from these alternatives.

**Combined Alternative (Recommended Alternative):** The existing bridge over Indiana Street would be inadequate to span the proposed Combined Alternative (Recommended Alternative) 4-lane configuration. A new 4-span bridge of approximately 230-foot length would replace the existing 60-foot, single span bridge. This action would permanently use a 120-foot wide by 200-foot-long swath or 0.55 acre of railroad right-of-way and impact 300 feet of track to accommodate a possible realignment of the existing railroad crossing.

#### MINIMIZATION OF HARM

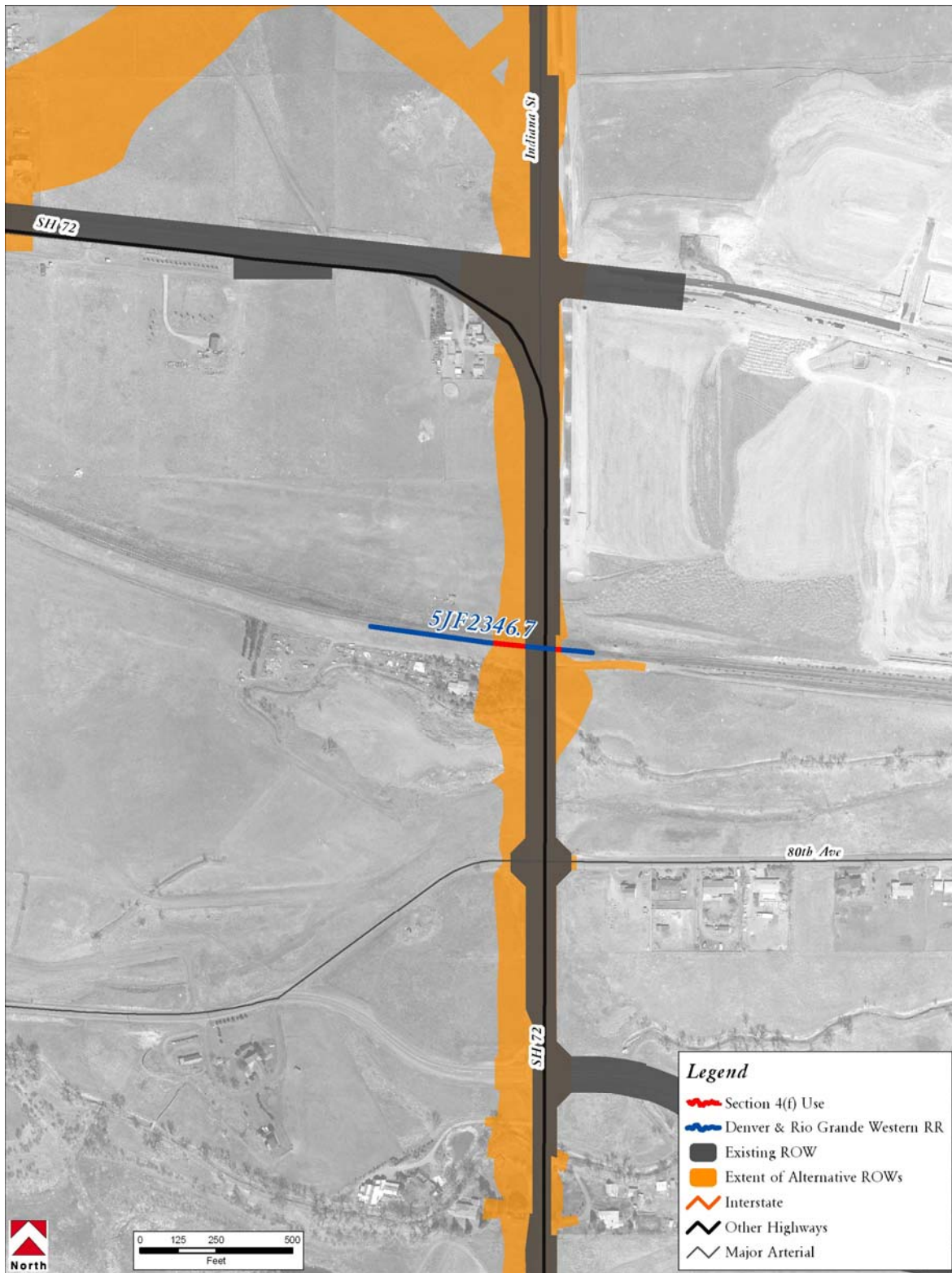
This portion of the roadway template will be comprised of four through lanes with a reduced median. Impacts to the existing railroad bridge, track and alignment caused by the Combined Alternative (Recommended Alternative) have been slightly reduced by pulling planned sidewalk and bike paths to the edge of pavement of Indiana Street and reducing the width of the median, thereby reducing the replacement bridge span length.

#### DE MINIMIS USE

The SHPO, as the jurisdictional authority for this property, has provided a written determination that it is eligible for the NRHP and that No Adverse Effect to the historic resource would be created by the Combined Alternative (Recommended Alternative). A potential *de minimis* impact finding for this segment of the Denver & Rio Grande Western Railroad (5JF2346.7) could be pursued.



*Figure 5.8-13 Denver & Rio Grande Western Railroad Segment (5JF2346.7)*



*Source: Compiled by Felsburg, Holt & Ullevig, 2006.*



### 5.8.3.3 CHURCH DITCH SEGMENT (5JF267.8)

This historic segment of Church Ditch (5JF267.8) is a 700-foot long, water carrying ditch located in Arvada. The ditch crosses under Indiana Street near West 80<sup>th</sup> Drive in twin corrugated steel pipe culverts with concrete end section walls. The culvert and unlined ditch are in excellent condition. The ditch remains located in a relatively rural setting and retains the original integrity. Church Ditch first appropriated water from Clear Creek in 1860 and supported historic agricultural development in the surrounding region. This resource is eligible for the NRHP under Criterion A (see **Figure 5.8-14**).

#### **DESCRIPTION OF IMPACTS FOR BUILD ALTERNATIVES**

**Freeway Alternative, Tollway Alternative, and Regional Arterial Alternative:** There would be no use of this historic resource by these alternatives.

**Combined Alternative (Recommended Alternative):** Widening of Indiana Street at this location would impact 105 feet of ditch or approximately 0.05 acres. The western half of the existing culvert would be extended as a box culvert to accommodate new roadway.

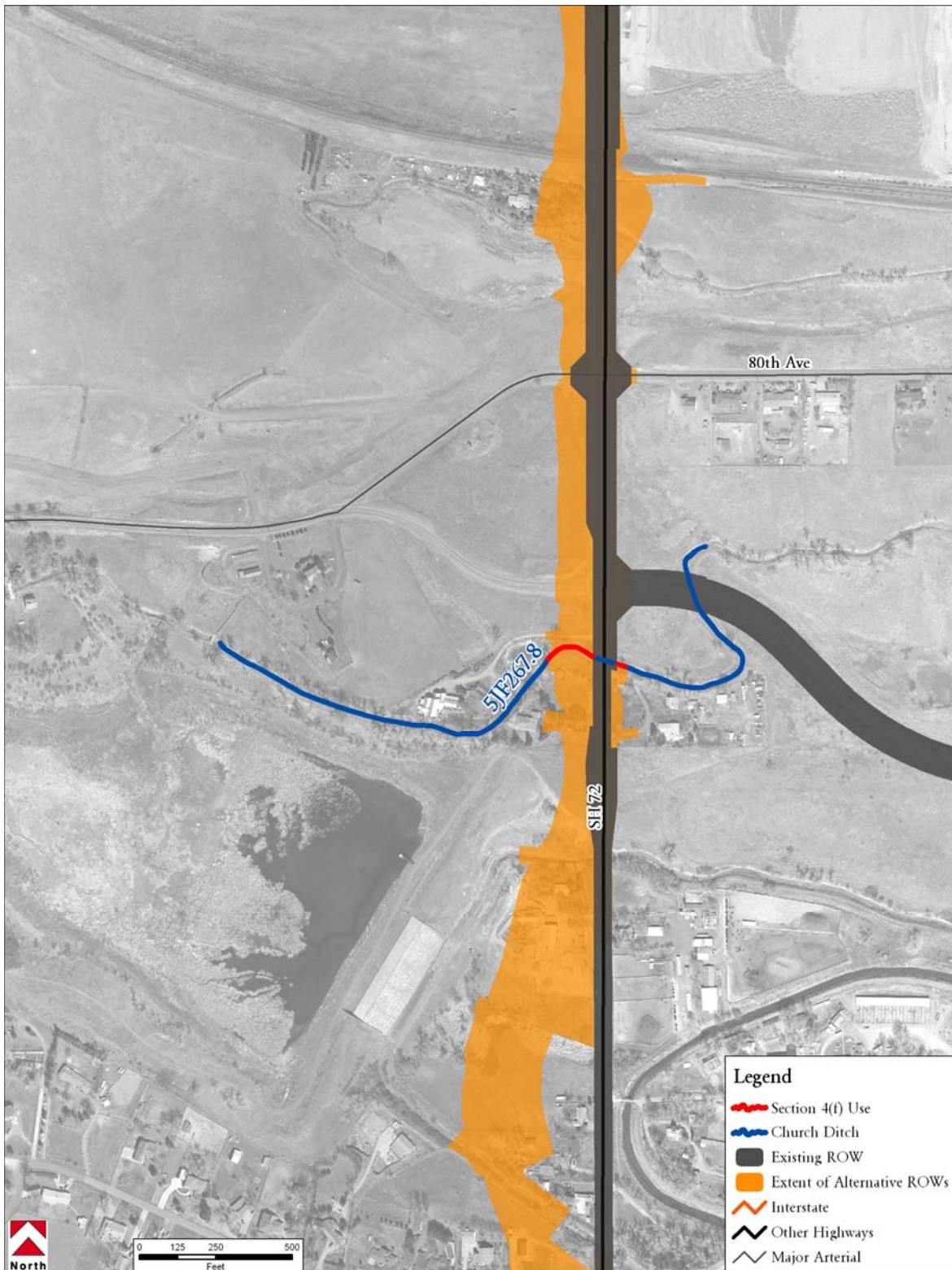
#### **MINIMIZATION OF HARM**

This portion of the roadway template will be comprised of four through lanes with a reduced median. Impacts to the open ditch caused by the Combined Alternative (Recommended Alternative) have been slightly reduced by pulling planned sidewalk and bike paths to the edge of pavement of Indiana Street.

#### ***DE MINIMIS USE***

The SHPO, as the jurisdictional authority for this property, has provided a written determination that it is eligible for the NRHP and that No Adverse Effect to the historic resource would be created by the Combined Alternative (Recommended Alternative). A potential *de minimis* impact finding for this segment of the Church Ditch (5JF267.8) could be pursued.

*Figure 5.8-14 Church Ditch Segment (5JF267.8)*



*Source: Compiled by Felsburg, Holt & Ullevig, 2006.*



#### 5.8.3.4 14801–14803 WEST 72<sup>ND</sup> AVENUE (5JF3873)

The site is a 26-acre livestock ranch situated on the northeast side of Indiana Street and West 72<sup>nd</sup> Avenue, containing a historic farmhouse and approximately 10 other historic and modern agricultural buildings and structures associated with animal husbandry, as well as corrals and pastures. The earliest house was built in 1930. The second residence was built in 1967. The property is associated with the agricultural and ranching history of Jefferson County and qualifies for the NRHP under Criterion C. Contributing features include the well-preserved and unaltered Minimal Traditional-style farmhouse, a gambrel-roofed barn, an equipment shed, possible chicken coop, well house, and pasture lands. Modern structures including the ranch-style brick house, a large modern L-shaped hay storage structure, and two small modern sheds placed at the edge of a corral are considered non-contributing features (see **Figure 5.8-15**.)

#### **DESCRIPTION OF IMPACTS FOR BUILD ALTERNATIVES**

**Freeway Alternative, Tollway Alternative, and Regional Arterial Alternative:** There would be no use of this historic resource by these alternatives.

**Combined Alternative (Recommended Alternative):** Widening of Indiana Street at this location would impact a 0.4-acre confined piece of undeveloped property frontage along Indiana Street for retaining wall construction and drainage modifications.

#### **MINIMIZATION OF HARM**

This portion of the roadway template will be comprised of four through lanes with a reduced median. Impacts to the property caused by the Combined Alternative (Recommended Alternative) have been slightly reduced by pulling planned sidewalk and bike paths to the edge of pavement of Indiana Street. Further compression of the roadway template would be achieved by utilizing retaining walls instead of the wider fill slopes along a portion of the Indiana property frontage.

#### ***DE MINIMIS* USE**

The SHPO, as the jurisdictional authority for this property, provided a written determination that it is eligible for the NRHP and that No Adverse Effect to the historic resource would be created by the Combined Alternative (Recommended Alternative). A potential *de minimis* impact finding for the livestock ranch at 14801-14803 West 72<sup>nd</sup> Avenue (5JF3873) could be pursued.

*Figure 5.8-15 14801–14803 West 72<sup>nd</sup> Avenue (5JF3873)*



*Source: Compiled by Felsburg, Holt & Ullerig, 2006.*



### 5.8.3.5 THE FARMER'S HIGH LINE CANAL SEGMENT (5JF250.6)

The Farmer's High Line Canal (5JF250.6) has been in existence for over 100 years and was developed in response to agricultural settlement of the High Plains of Colorado and the west. The Farmer's High Line Canal and Reservoir Company constructed the canal in the late 1880's to bring irrigation water to be distributed among western Front Range farmers and ranchers. The total length of the canal is 40 miles but only two miles of canal winds across the potentially affected area. Several existing street crossings and modifications have affected the historic character of the canal. The canal continues to serve a water delivery system that is maintained in excellent working condition. Its direct association with the historic era of High Plains farming, ranching, and irrigation thus qualifies the entire irrigation ditch as eligible for the NRHP under Criterion A (see **Figure 5.8-16**).

#### DESCRIPTION OF IMPACTS FOR BUILD ALTERNATIVES

**Freeway Alternative, Tollway Alternative, and Regional Arterial Alternative:** There would be no use of this resource resulting from these alternatives.

**Combined Alternative (Recommended Alternative):** This segment of the canal is carried under McIntyre Street at two localities in a two 60-foot long concrete box culverts. This alternative would require a 180-foot culvert at each location, resulting in a new concrete box culvert extension of 240 feet or 0.11 acre of irrigation canal.

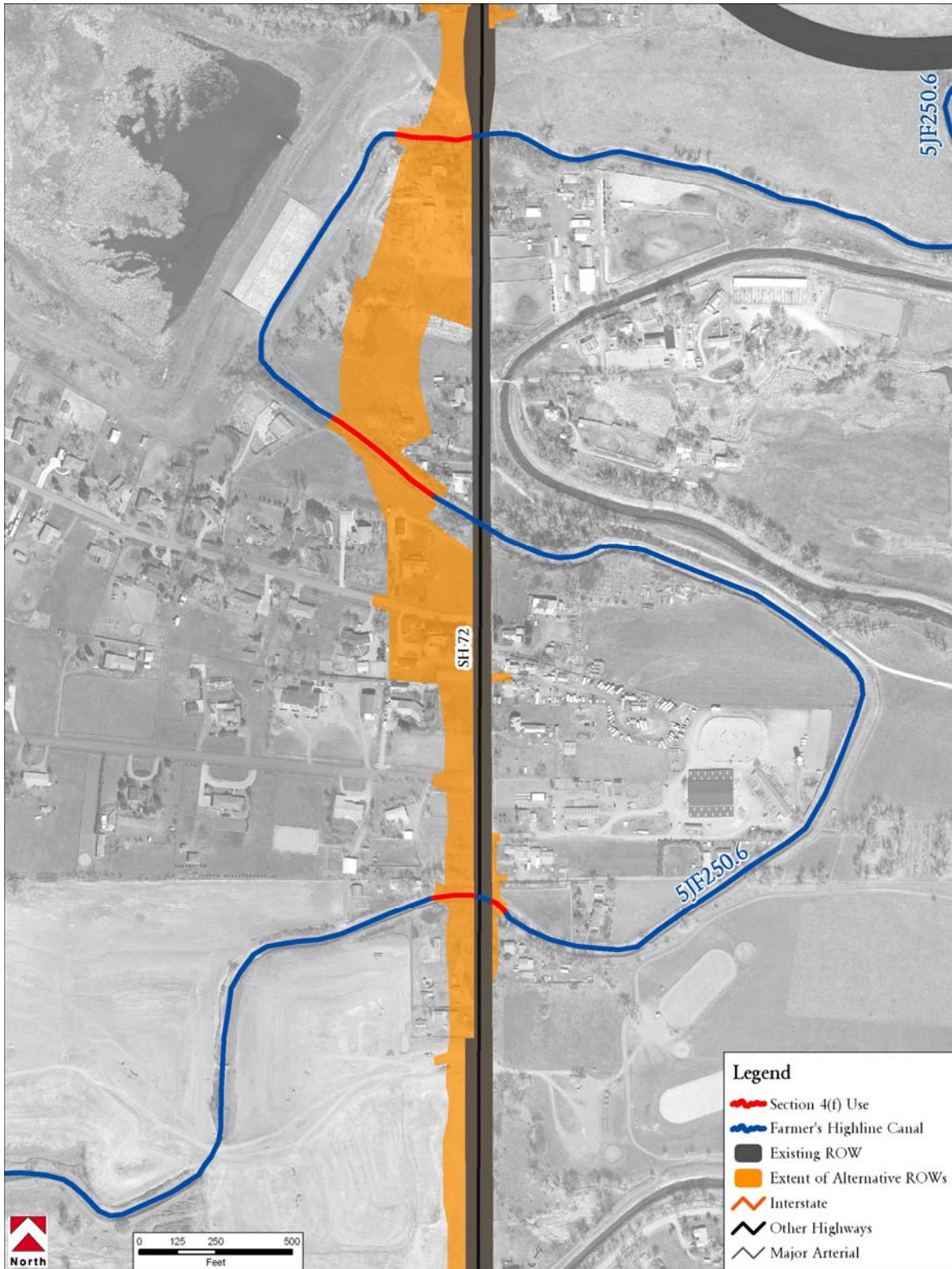
#### MINIMIZATION OF HARM

This portion of the roadway template will be comprised of four through lanes with a reduced median. Impacts to the property caused by the Combined Alternative (Recommended Alternative) have been slightly reduced by pulling planned sidewalk and bike paths to the edge of pavement of Indiana Street.

#### *DE MINIMIS* USE

The SHPO, as the jurisdictional authority for this property, has provided a written determination that it is eligible for the NRHP and that No Adverse Effect to the historic resource would be created by the Combined Alternative (Recommended Alternative). A potential *de minimis* impact finding for this segment of the Farmer's High Line Canal (5JF250.6) could be pursued.

Figure 5.8-16 Farmer's High Line Canal Segment (5JF250.6)



Source: Compiled by Felsburg, Holt & Ullevig, 2006.



### 5.8.3.6 THE FARMERS' HIGH LINE CANAL SEGMENT (5JF250.7)

The Farmers' High Line Canal (5JF250.7) has been in existence for over 100 years and was developed in response to agricultural settlement of the High Plains of Colorado and the west. The Farmers' High Line Canal and Reservoir Company constructed the canal in the late 1880's to bring irrigation water to be distributed among western Front Range farmers and ranchers. The total length of the canal is 40 miles but only 2 miles of canal winds across the potentially affected area. Several existing street crossings and modifications have affected the historic character of the canal. The canal continues to serve a water delivery system that is maintained in excellent working condition. Its direct association with the historic era of High Plains farming, ranching, and irrigation thus qualifies the entire irrigation ditch as eligible for the NRHP under Criterion A (see **Figure 5.8-17**).

#### DESCRIPTION OF IMPACTS FOR BUILD ALTERNATIVES

**Freeway Alternative, Tollway Alternative, and Regional Arterial Alternative:** There would be no use of this resource resulting from these alternatives.

**Combined Alternative (Recommended Alternative):** This segment of the canal is carried under McIntyre Street at in a 200-foot long concrete box culvert. This alternative would require a 370 foot culvert, resulting in a new concrete box culvert extension of 170 feet or approximately 0.08 acre of irrigation canal.

#### MINIMIZATION OF HARM

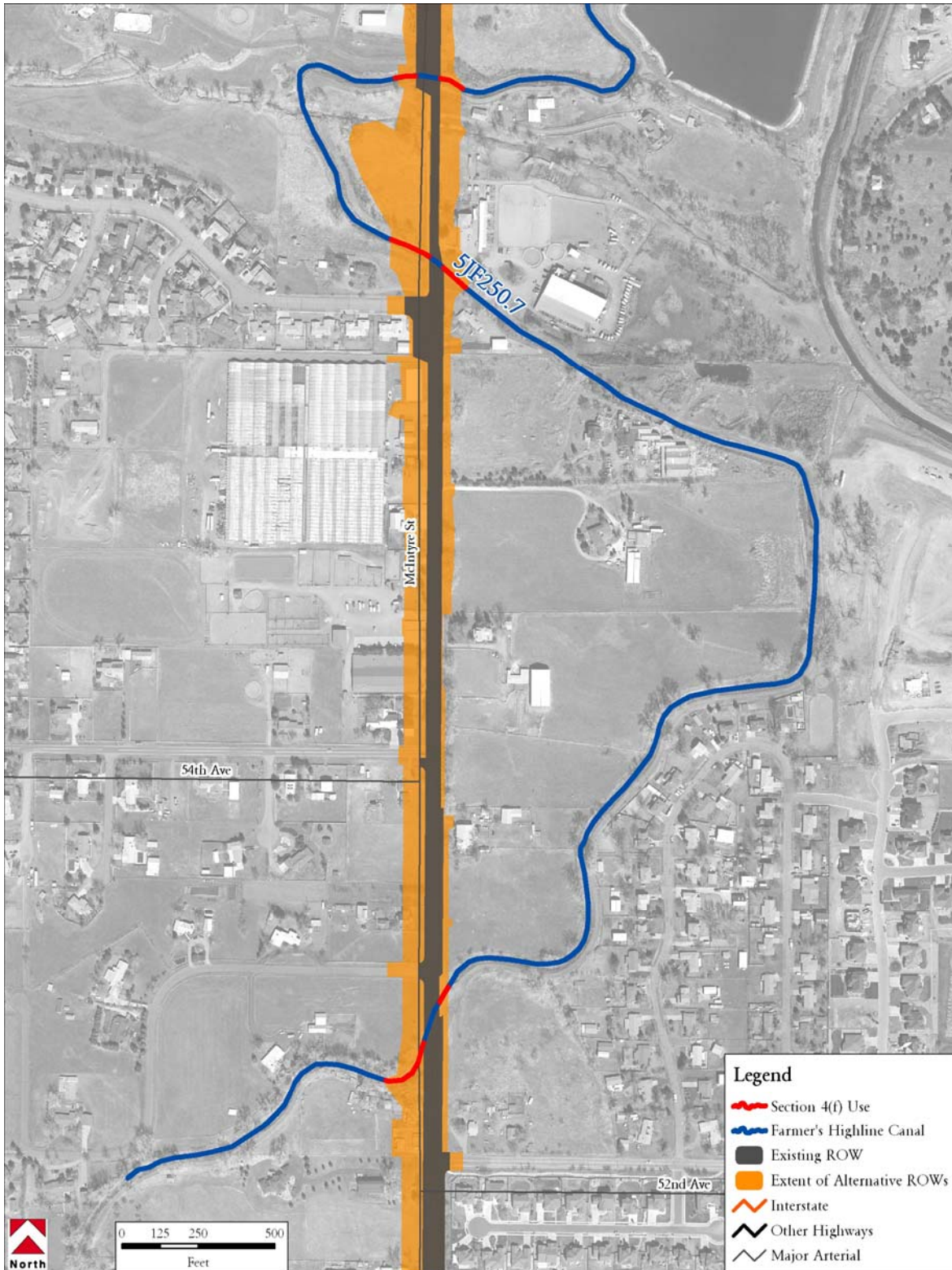
This portion of the roadway template will be comprised of four through lanes with a reduced median. Impacts to the open ditch caused by the Combined Alternative (Recommended Alternative) have been slightly reduced by pulling planned sidewalk and bike paths to the edge of pavement of Indiana Street.

#### *DE MINIMIS USE*

The SHPO, as the jurisdictional authority for this property, has provided a written determination that it is eligible for the NRHP and that No Adverse Effect to the historic resource would result from the Combined Alternative (Recommended Alternative). A potential *de minimis* impact finding for this segment of the Farmer's High Line Canal (5JF250.7) could be pursued.



*Figure 5.8-17 Farmer's High Line Canal Segment (5JF250.7)*



Source: Compiled by Felsburg, Holt & Ullerig, 2006.



### 5.8.3.7 5675 MCINTYRE STREET (5JF3877)

This site, located on the northwest side of McIntyre Street and W. 56<sup>th</sup> Place, is a rectangular, 0.675-acre portion of a historic 6.5-acre farm property, containing a historic one-story Craftsman-style farmhouse with Rustic elements, open land, and an unpaved driveway (see **Figure 5.8-18**).

The brick farmhouse appears unmodified and exhibits many characteristic traits of the Craftsman style of residential architecture, including a full-width open front porch with massive piers and closed rail; very low-pitched roof with wide, overhanging eaves; an exterior chimney, and sash-and-transom windows with multi-light sashes. The dwelling also features Rustic-style elements occasionally used on Craftsman bungalows, including river cobbles covering the porch piers, closed porch rail, and exposed basement wall. As an excellent example of a Craftsman bungalow built during the style's heyday (late 1910s), the farmhouse is eligible for the NRHP under Criterion C. The site is limited to the farmhouse itself and a small portion of the agricultural setting extending to McIntyre Street. Since the site is evaluated as NRHP-eligible only under Criterion C, the western and northern portions of the larger farm property are excluded since they contain non-contributing structures or open land that do not reflect the architectural significance of the site.

#### DESCRIPTION OF IMPACTS FOR BUILD ALTERNATIVES

**Freeway Alternative, Tollway Alternative, and Regional Arterial Alternative:** There would be no use of this historic resource by these alternatives.

**Combined Alternative (Recommended Alternative):** Expansion of the right-of-way along McIntyre Street will require acquisition of a 17 foot wide, 115-foot long strip of roadway frontage (0.046 acre) from the east side of the historic property. The right-of-way expansion on the west side of McIntyre Street, including a proposed bicycle path, will be bounded by a retaining wall adjacent to the historic property.

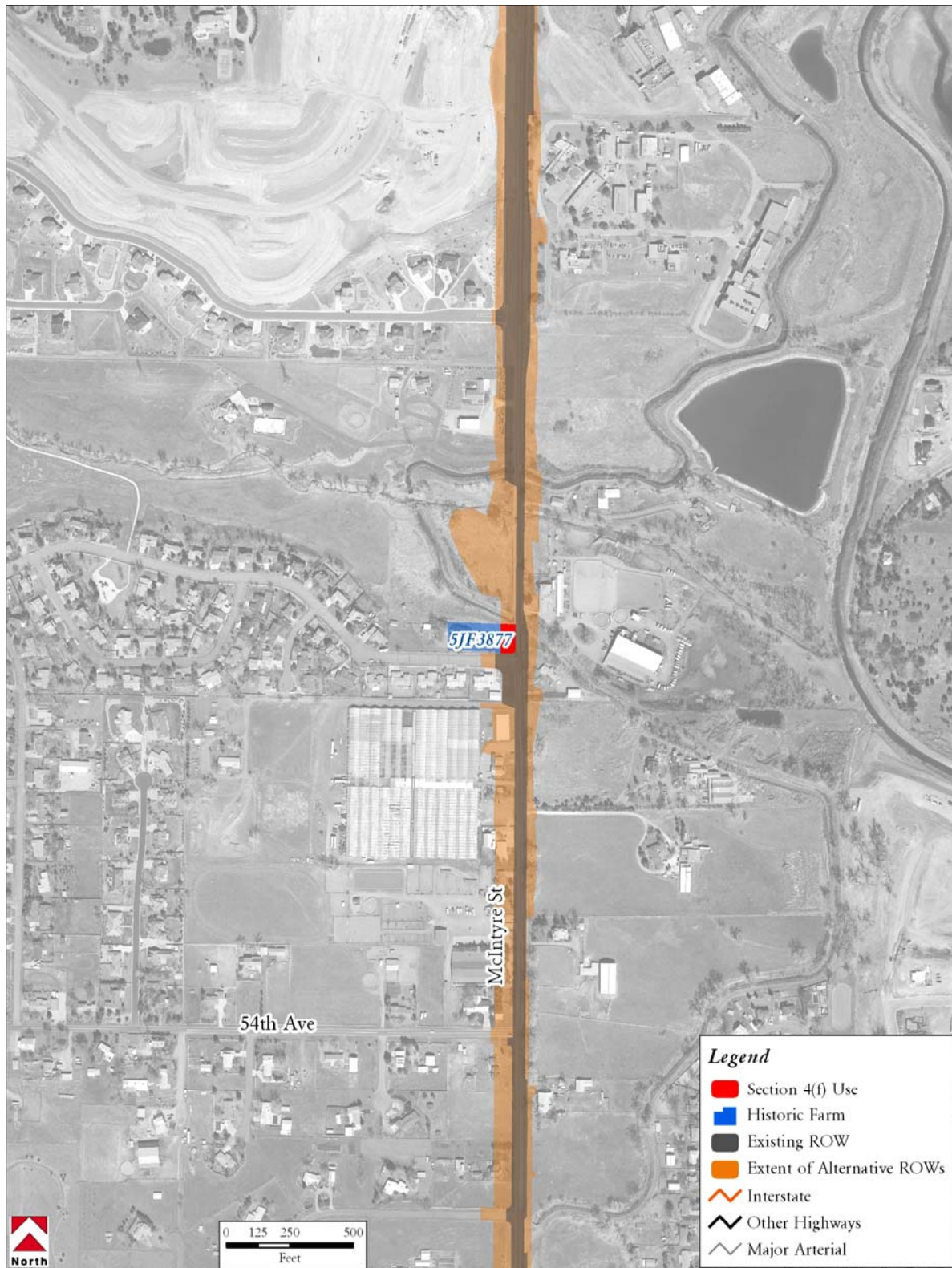
#### MINIMIZATION OF HARM

This portion of the roadway template will be comprised of four through lanes with a reduced median. Impacts to the property caused by the Combined Alternative (Recommended Alternative) have been slightly reduced by pulling planned sidewalk and bike paths to the curb and gutter line of McIntyre Street. Further compression of the roadway template would be achieved by utilizing retaining walls instead of the wider fill slopes along most of the property frontage. Driveway access would be maintained.

#### *DE MINIMIS* USE

The SHPO, as the jurisdictional authority for this property, has provided a written determination that it is eligible for the NRHP and that No Adverse Effect to the historic resource would be created by the Combined Alternative (Recommended Alternative). A potential *de minimis* impact finding for the farmhouse at 5675 McIntyre Street (5JF3877) could be pursued.

*Figure 5.8-18 5675 McIntyre Street (5JF3877)*



Source: Compiled by Felsburg, Holt & Ullervig, 2006.



### 5.8.3.8 5100 MCINTYRE STREET (5JF3887)

The farm property at 5100 McIntyre Street contains a well-preserved “hipped box” farmhouse, a small, square plan, 1-story wood frame farmhouse with a pyramidal hipped roof and centrally-placed fireplace/chimney. This is a very good example of the distinct form of simple small scale vernacular domestic architecture built in large numbers throughout Colorado in the very early 20<sup>th</sup> Century (see **Figure 5.8-19**).

The property qualifies for inclusion on the NRHP under Criterion C. The dwelling was reportedly built in 1906, two years after the creation of the New Hampshire Gardens subdivision. New Hampshire Gardens was platted in February 1904 by James McKean and John Austin Snodgrass, and contained fifteen agricultural lots, each encompassing ten to fifteen acres. This property is now part of a large commercial tree nursery (Green Acres Nursery), which surrounds it on the south and east sides.

#### **MINIMIZATION OF HARM**

This portion of the roadway template will be comprised of four through lanes with a reduced median. Impacts to the property caused by the Combined Alternative (Recommended Alternative) have been slightly reduced by pulling planned sidewalk and bike paths to the curb and gutter line of McIntyre Street. Further compression of the roadway template would be achieved by utilizing retaining walls instead of the wider fill slopes along most of the property frontage. Driveway access would be maintained.

#### **DESCRIPTION OF IMPACTS FOR BUILD ALTERNATIVES**

**Freeway Alternative, Tollway Alternative, and Regional Arterial Alternative:** There would be no use of this historic resource by these alternatives.

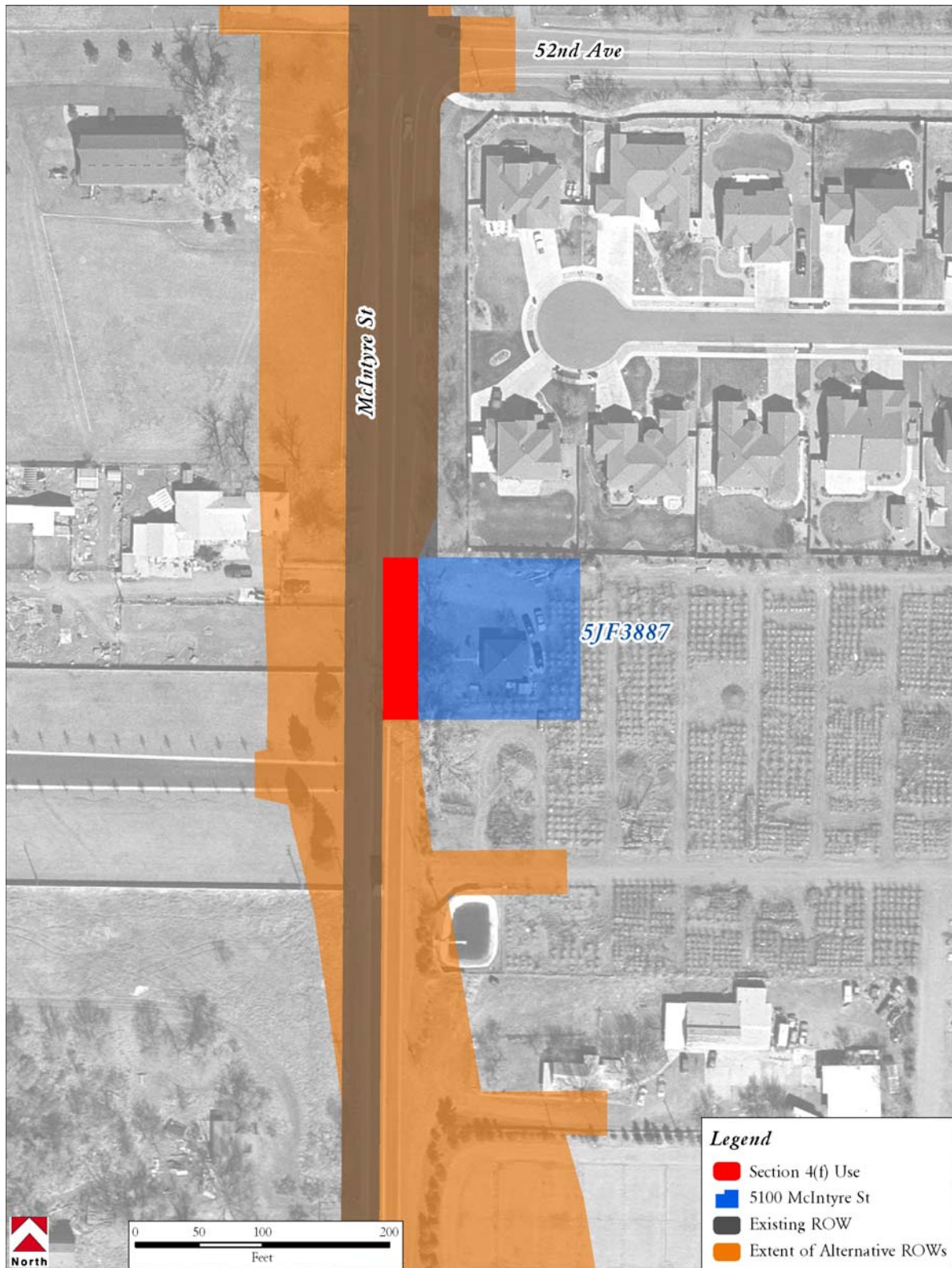
**Combined Alternative (Recommended Alternative):** Expansion of the right-of-way along McIntyre Street will require acquisition of a 28-foot-wide, 125-foot-long (0.081 acre) strip of roadway frontage from the west side of the historic property. The right-of-way expansion on the west side of McIntyre Street, including a proposed bicycle path, will be bounded by a retaining wall adjacent to the historic property.

#### ***DE MINIMIS USE***

The SHPO, as the jurisdictional authority for this property, has provided a written determination that it is eligible for the NRHP and that No Adverse Effect to the historic resource would be created by the Combined Alternative (Recommended Alternative). A potential *de minimis* impact finding for the farmhouse at 5100 McIntyre Street (5JF3887) could be pursued.



Figure 5.8-19 5100 McIntyre Street (5JF3887)



Source: Compiled by Felsburg, Holt & Ullevig, 2007.



### 5.8.3.9 COLORADO AND SOUTHERN RAILROAD SEGMENT (5JF519.8)

The historic Colorado and Southern Railroad segment (5JF519.8), currently belonging to the Burlington Northern Santa Fe Railroad (BNSF), is a 700-foot-long segment of standard gauge track, bed and historic right-of-way. The segment crosses McIntyre Street at a lighted railroad signal arm near 44<sup>th</sup> Avenue in Wheat Ridge. The original alignment was constructed by the Colorado Central Railroad in 1870. The railway became part of the Union Pacific Denver and Gulf Railroad in 1889 and the Colorado and Southern Railway in 1899. Although rail spur modifications have occurred in recent years, the route is relatively intact, represents over 130 years of use, and is directly associated with the early growth and commercial development of the state. The entire railroad is eligible for the NRHP under Criterion A. BNSF currently operates on this track (see **Figure 5.8-20**).

#### DESCRIPTION OF IMPACTS FOR BUILD ALTERNATIVES

**Freeway Alternative, Tollway Alternative, and Regional Arterial Alternative:** There would be no use of this resource resulting from these alternatives.

**Combined Alternative (Recommended Alternative):** The new four-lane McIntyre Street template across the railroad would remain at grade and would result in a use of 0.22 acre of railroad right-of-way. By consolidating the width of the proposed roadway and trail footprint, an 80-foot by 110-foot swath of railroad right-of-way would be used for roadway occupancy. Approximately 60 feet of track could be upgraded across the new roadway. An upgraded railroad safe crossing arm would be installed.

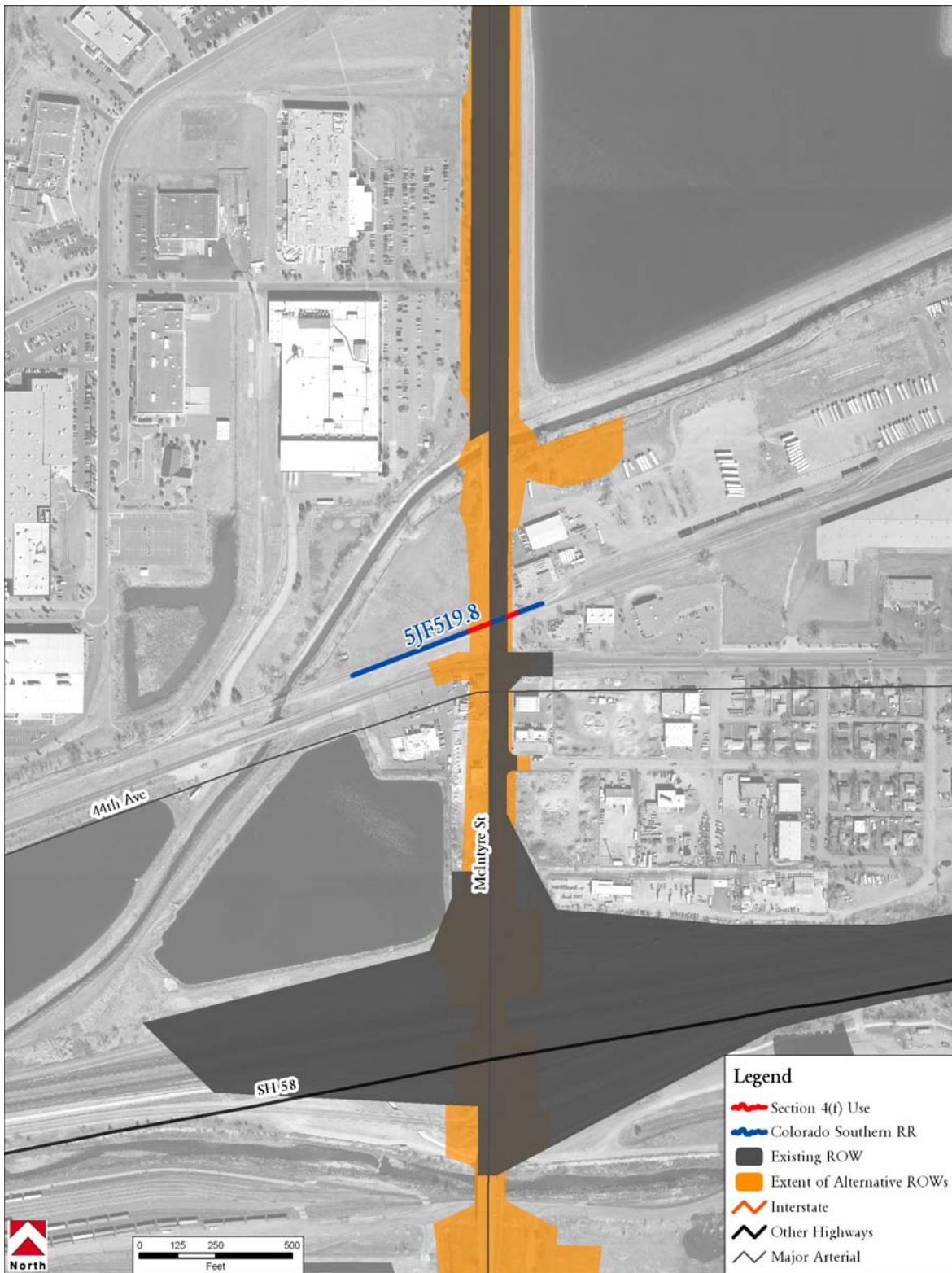
#### MINIMIZATION OF HARM

This portion of the roadway template will be comprised of four through lanes with a reduced median. Impacts to the property caused by the Combined Alternative (Recommended Alternative) have been slightly reduced by pulling planned sidewalk and bike paths to the edge of pavement of McIntyre Street.

#### *DE MINIMIS USE*

The SHPO, as the jurisdictional authority for this property, has provided a written determination that it is eligible for the NRHP and that No Adverse Effect to the historic resource would result from the Combined Alternative (Recommended Alternative). A potential *de minimis* impact to this segment of the Colorado and Southern Railroad (5JF519.8) could be pursued.

*Figure 5.8-20 Colorado and Southern Railroad Segment (5JF519.8)*



Source: Compiled by Felsburg, Holt & Ullerig, 2006.



### 5.8.3.10 CHURCH DITCH SEGMENT (5JF267.1)

This historic segment of Church Ditch (5JF267.1) is a 2.7 mile-long, irrigation ditch located in Golden. Church Ditch first appropriated water from Clear Creek in 1860 and supported historic agricultural development in the surrounding region. The ditch crosses under US 6 in a box culvert. The ditch remains located in a relatively rural setting and retains sufficient overall integrity for eligibility to the NRHP under Criterion A (see **Figure 5.8-21**).

#### **DESCRIPTION OF IMPACTS FOR BUILD ALTERNATIVES**

**Freeway Alternative, Regional Arterial Alternative and Combined Alternative (Recommended Alternative):** There would be no direct use of this historic resource by these alternatives. Portions of the existing Church Ditch located underneath the existing US 6 bridge are piped within an existing culvert. Open ditch sections currently located within CDOT right-of-way would be bridged by any new roadway element associated with these alternatives and will remain undisturbed.

**Tollway Alternative:** Widening of the US 6 bridge span and SH 58 and SH 93 intersection modifications with a new access ramp would result in an eastward extension of the existing culvert, replacing 150 feet or 0.069 acre of open ditch with a concrete box culvert.

#### **MINIMIZATION OF HARM**

The bridge causing impacts to the Church Ditch requires a single span bridge of approximately 400 feet to bridge over Clear Creek, two Section 4(f) protected recreational and park properties, and the water treatment ponds of the City of Golden.

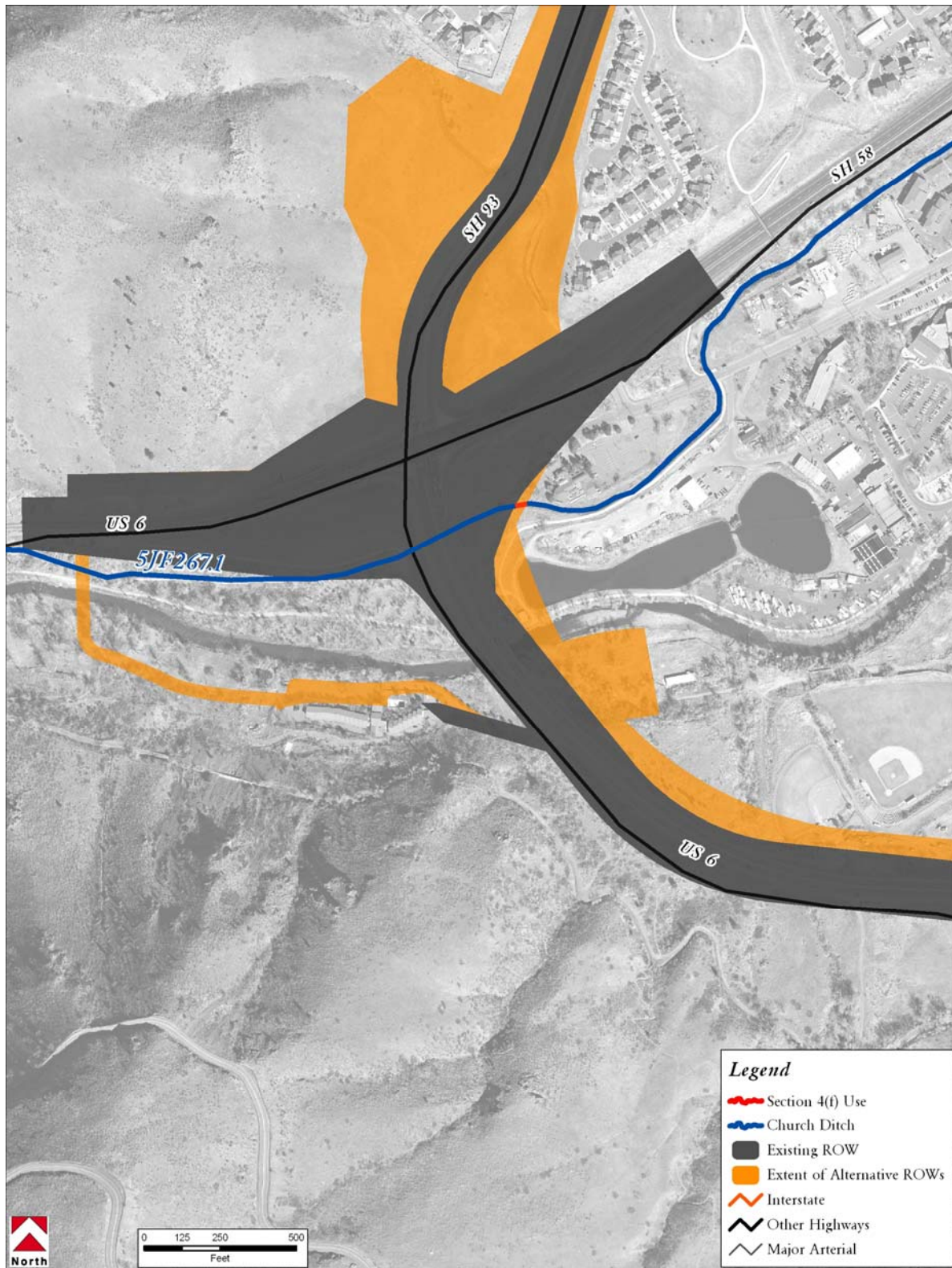
The Tollway Alternative interchange would be elevated at SH 58 with continuation of the long span bridges over SH 58. The structures connect with retaining walls between the general purpose lanes as well as the outside shoulders of the tolled lanes to accommodate left turn movements at SH 58. Geometric and structural load requirements have been addressed in definition of this ramp, resulting in the identified impact to the ditch. Only the buried box culvert would protect the ditch operational integrity under these conditions. There is no excess length of the box culvert beyond that necessary to accommodate the retaining wall and ramp structures.

#### ***DE MINIMIS USE***

The SHPO, as the jurisdictional authority for this property, has provided a written determination that it is eligible for the NRHP and that No Adverse Effect to the historic resource would be created by the Freeway Alternative, the Tollway Alternative, the Regional Arterial Alternative, or the Combined Alternative (Recommended Alternative). A potential *de minimis* impact finding for this segment of the Church Ditch (5JF267.1) could be pursued.



*Figure 5.8-21 Church Ditch Segment (5JF267.1)*



Source: Compiled by Felsburg, Holt & Ullevig, 2007.



### 5.8.3.11 WELCH DITCH SEGMENT (5JF848.5)

The Welch Ditch (5JF848.5) is an approximately 0.5-mile/2,534 feet-long segment of the abandoned earthen Welch Ditch. The recorded segment is located at the mouth of Clear Creek Canyon (south wall) and is cut into the north-facing slope of a steep hill. It follows a sinuous southeasterly course around the hillside, and closely parallels US 6 before entering a modern concrete culvert extending beneath the roadway to a continuation of the open ditch (5JF848.6) on the east side of the highway (see **Figure 5.8-22**).

#### DESCRIPTION OF IMPACTS FOR BUILD ALTERNATIVES

**All Alternatives:** The construction of retaining walls to accommodate the new roadway would impact 300 feet or approximately 0.14 acres of the abandoned ditch.

#### MINIMIZATION OF HARM

Greater impacts occur to the uphill portion of the ditch in all the alternatives because the roadway alignment must cross the recumbent curves of the sinuous ditch path. Moving the alternative roadways downhill, away from this portion of the ditch, would result in more impact to the 5JF848.6 segment of the Welch Ditch. The overall impacts were reduced by construction of retaining walls and minimizing the width of the roadway through this curved section of the roadway.

#### DE MINIMIS USE

The SHPO, as the jurisdictional authority for this property, has provided a written determination that it is eligible for the NRHP and that No Adverse Effect to the historic resource would result from the Freeway Alternative, the Tollway Alternative, the Regional Arterial Alternative, or the the Combined Alternative (Recommended Alternative). A potential *de minimis* impact finding for this segment of the Welch Ditch (5JF848.5) could be pursued.

### 5.8.3.12 WELCH DITCH SEGMENT (5JF848.6)

This site is an 82-foot-long segment of the abandoned Welch Ditch located on the east side of US 6.. The ditch segment includes a tunnel excavated through a sandstone outcrop (see **Figure 5.8-13**).

#### DESCRIPTION OF IMPACTS FOR BUILD ALTERNATIVES

**Freeway Alternative, Regional Arterial Alternative, and Combined Alternative (Recommended Alternative):** There would be no impacts to this segment of the Welch Ditch as a result of these alternatives.

**Tollway Alternative:** The construction of retaining walls to accommodate the new roadway would impact 45 feet or approximately 0.02 acres of the abandoned ditch.

#### MINIMIZATION OF HARM

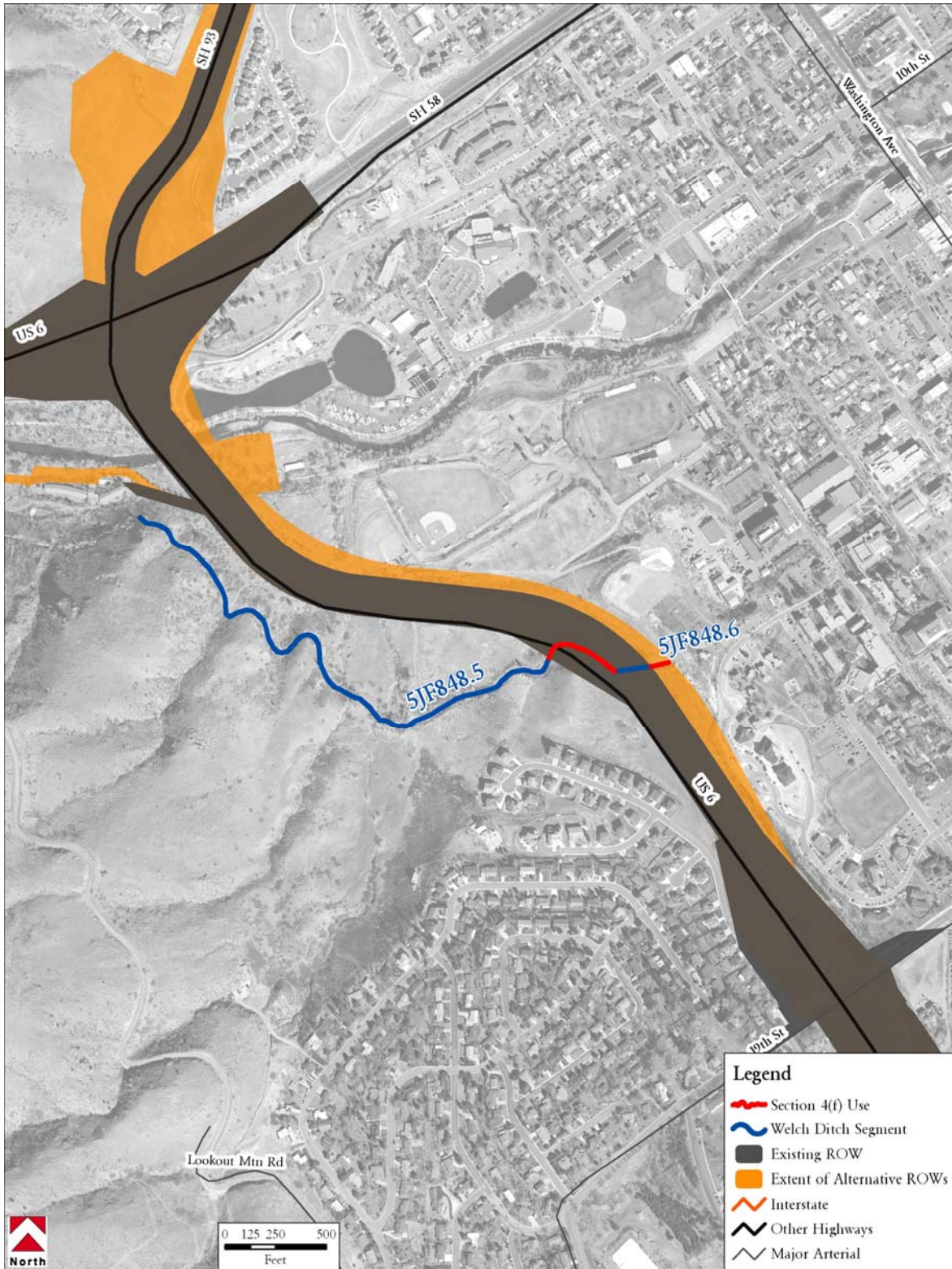
The overall impacts to the ditch between 19<sup>th</sup> Street and SH 58 were reduced by elimination of fill slopes and construction of retaining walls along this portion of the new roadway. Further minimization of impacts would incorporate a reduced roadway width by use of a 26 foot wide center median through this curved section of the Freeway Alternative, Regional Arterial Alternative, and Combined Alternative (Recommended Alternative) roadways.

The Tollway Alternative roadway section from 19<sup>th</sup> Street to SH 58 requires a greater level of alignment adjustments and retaining wall construction to minimize impacts to the Welch Ditch segment 5JF848.6. The alignment uses 55 MPH curves shifted to the east to minimize impacts to the 5JF 848.5 segment of the Welch Ditch; infringing more on the 5JF848.6 ditch segment and the Colorado School of Mines non 4(f) protected properties.

#### DE MINIMIS USE

The SHPO, as the jurisdictional authority for this property, has provided a written determination that it is eligible for the NRHP and that No Adverse Effect to the historic resource would be created by the Tollway Alternative. A potential *de minimis* impact finding for this segment of the Welch Ditch (5JF848.6) could be pursued.

*Figure 5.8-22 Welch Ditch Segment (5JF848.5 and 5JF848.6)*



*Source: Compiled by Felsburg, Holt & Ullerig, 2006.*



**5.8.3.13 SUMMARY OF IMPACTS: HISTORIC RESOURCES**

The No Action Alternative does not impact historic properties within the study area. The Regional Arterial Alternative results in the potential *de minimis* use of one historic property. The Freeway Alternative results in potential *de minimis* use of two historic properties. The Tollway Alternative results in potential *de minimis* use of three historic properties. The Combined Alternative (Recommended Alternative) results in potential *de minimis* use of 10 historic resources. A summary of Section 4(f) potential *de minimis* use of historic resources in the study area is provided (see **Table 5.8-3**).

*Table 5.8-3 Summary of Impacts to Historic Sites*

Display Id	Name	Alternative				
		No Action	Freeway	Tollway	Regional Arterial	Combined (Recommend)
5JF2346.6	Denver & Rio Grande Western Railroad Segment	None	0.96 acre	0.96 acre	None	0.96acre
5JF2346.7	Denver & Rio Grande Western Railroad Segment	None	None	None	None	0.55 acre
5JF3873	14801-14803 West 72 <sup>nd</sup> Avenue	None	None	None	None	0.40 acre
5JF267.8	Church Ditch Segment	None	None	None	None	0.05 acre
5JF250.6	Farmer's Highline Canal Segment (north)	None	None	None	None	0.11 acre
5JF250.7	Farmer's Highline Canal Segment (south)	None	None	None	None	0.08 acre
5JF3877	5675 McIntyre Street	None	None	None	None	0.046 acre
5JF3887	5100 McIntyre Street	None	None	None	None	0.081
5JF519.8	Colorado and Southern Railroad Segment	None	None	None	None	0.22 acre
5JF267.1	Church Ditch Segment	None	None	0.069 acre	None	None
5JF848.5	Welch Ditch Segment	None	0.17 acre	0.18 acre	0.17 acre	0.27 acre
5JF848.6	Welch Ditch Segment	None	None	0.02 acre	None	None
<b><i>De Minimis</i> Impact Total</b>		<b>None</b>	<b>1.13 acres</b>	<b>1.16 acre</b>	<b>0.17 acre</b>	<b>2.77 acres</b>

Note: Ditch and canal linear features measured from design plans. Acreage is estimated based upon an average 20-foot wide occupancy corridor unless otherwise defined. Railroad impacts are measured as impacted railroad right-of-way acreage.



## 5.9 SECTION 4(F) COORDINATION

Coordination occurred with agencies having jurisdiction over Section 4(f) protected properties (see **Table 5.9-1**). Copies of correspondence received from jurisdictions are included (see **Appendix C**).

**Table 5.9-1 Summary of Section 4(f) Coordination**

Date	Jurisdiction	Type	Purpose
January 26, 2004	Colorado State Parks	Letter	Request for LWCF areas within project area
March 8, 2004	Jefferson County	Meeting	Obtain information on parcels located in study area
March 8, 2004	City of Golden	Meeting	Discuss potential 4(f) properties and identify any natural resource concerns
March 17, 2004	City of Arvada	Meeting	Obtain information on parcels located in study area
March 23, 2004	City of Golden	Meeting	Verify new mapping of potential 4(f) properties
March 23, 2004	City of Westminster	Meeting	Obtain information on parcels located in study area
April 4, 2004	Broomfield	Meeting	Obtain information on parcels located in study area
January 28, 2005	City of Arvada	Meeting	4(f) verification meeting
February 2, 2005	Colorado School of Mines	Meeting	Discuss status of school properties in study area
February 18, 2005	City of Lakewood	Meeting	4(f) verification meeting
March 2, 2005	Town of Superior	Meeting	4(f) verification meeting
March 3, 2005	City of Golden	Meeting	4(f) verification meeting
March 4, 2005	City of Boulder	Meeting	4(f) verification meeting



Date	Jurisdiction	Type	Purpose
March 5, 2005	City of Westminster	Meeting	4(f) verification meeting
March 7, 2005	City of Arvada	Letter from Arvada to CDOT	Section 4(f) recommendations
March 7, 2005	City of Louisville	Meeting	4(f) verification meeting
March 7, 2005	City of Westminster	Meeting	4(f) verification meeting
March 11, 2005	Jefferson County	Meeting	4(f) verification meeting
March 14, 2005	City and County of Broomfield	Meeting	4(f) verification meeting
April 6, 2005	City of Golden	Letter from City of Golden to Carter & Burgess	Responses to Wendy Wallach (C&B) request for information
April 28, 2005	CDOT and FHWA	Meeting	4(f) coordination meeting
May 4, 2005	City of Boulder	Meeting	Verify parcel information
May 5, 2005	Jefferson County	Meeting	Verify parcel information
May 10, 2005	City of Golden	Meeting	4(f) verification meeting
May 16, 2005	City of Wheat Ridge	Meeting	Verify parcel information
May 18, 2005	Boulder County	Meeting	Verify parcel information
May 19, 2005	City of Arvada	Meeting	Verify parcel information
May 20, 2005	FHWA	Meeting	4(f) coordination
May 23, 2005	Colorado State Parks	Letter	Letter requesting Section 6(f) information from Colorado State Parks



Date	Jurisdiction	Type	Purpose
June 6, 2005	Boulder County	Email	Information request on select parcels
June 15, 2005	Boulder County	Telephone conversation	Discuss information requested in 6/6/05 email to Ron Stewart
June 8, 2005	FHWA	Letter	Transmit information on potentially impacted park and rec, open space, and refuges
June 24, 2005	City of Golden	Letter from City of Golden to FHWA and NW Corridor Study Team	Supplemental comments regarding the designation of public parks within or near the City for Section 4(f) of the Department of Transportation Act purposes
June 24, 2005	FHWA	Memo	Follow-up to 4(f) request
July 6, 2005	Jefferson County	Letter	Distribute current trails data and request meeting to verify information
July 6, 2005	City and County of Broomfield	Letter	Distribute current trails data and request meeting to verify information
July 6, 2005	City of Golden	Letter	Distribute current trails data and request meeting to verify information
July 6, 2005	City of Wheat Ridge	Letter	Distribute current trails data and request meeting to verify information
July 6, 2005	Town of Superior	Letter	Distribute current trails data and request meeting to verify information
July 6, 2005	City of Arvada	Letter	Distribute current trails data and request meeting to verify information
July 6, 2005	Boulder County	Letter	Distribute current trails data and request meeting to verify information
July 12, 2005	City of Arvada	Telephone conversation	Verify information on AR-17 (Broad Lake Park)
July 13, 2005	Federal Highway Administration	Letter of Transmittal	Transmit data on 12 representative parcels for Section 4(f) determination by FHWA



Date	Jurisdiction	Type	Purpose
July 27, 2005	Jefferson County Open Space	Meeting	Verify trails information
July 27, 2005	City of Arvada	Meeting	Verify trails information
July 28, 2005	City of Golden	Meeting	Verify trails information
July 28, 2005	City and County of Broomfield	Meeting	Verify trails information
August 1, 2005	Colorado State Parks	Letter from Colorado State Parks to Carter & Burgess	Section 6(f) properties that may be affected by project
August 8, 2005	City of Golden	Letter	Response to Golden's June 24, 2005 letter
August 10, 2005	Federal Highway Administration	Letter of Transmittal	Transmit data for remaining 47 parcels for Section 4(f) determination by FHWA
August 12, 2005	Federal Highway Administration	Letter	Response to Golden's June 24, 2005 letter
August 24, 2005	City of Wheat Ridge	Telephone Conversation	Verify trails data distributed July 6, 2005
August 25, 2005	City of Golden	Letter	Transmit updated trail information and request clarification by September 7, 2005
August 25, 2005	Jefferson County	Letter	Transmit updated trail information and request clarification by September 7, 2005
August 25, 2005	City and County of Broomfield	Letter	Transmit updated trail information and request clarification by September 7, 2005
August 29, 2005	City of Arvada	Letter	Transmit updated trail information and request clarification by September 7, 2005
August 29, 2005	City of Golden	FAX	Changes to trail information.
August 30, 2005	Town of Superior	Telephone Conversation	Verify trails data distributed July 6, 2005





Date	Jurisdiction	Type	Purpose
August 31, 2005	City of Wheat Ridge	Meeting	Additional verification of trails data distributed July 6, 2005
August 31, 2005	Jefferson County	Letter from Jefferson County to Jill Schlaefer, Carter & Burgess	Provided additional trail information
September 7, 2005	Boulder County	Email	Distribute current trails data and request meeting to verify information
September 12, 2005	City of Arvada	Letter from City of Arvada to Northwest Corridor	Provided additional trail information
September 13, 2005	Boulder County	Email from Boulder County to Carter & Burgess	Response to 9/7/05 email with information requested
September 14, 2005	Federal Highway Administration	Letter of Transmittal	Resubmit parcel data submitted on July 13, 2005 and August 10, 2005
September 19, 2005	Federal Highway Administration	Meeting	Discuss 4(f) process, schedule, and FHWA eligibility determinations
September 22, 2005	FHWA	Meeting	4(f) property eligibility determination
September 28, 2005	City of Arvada	Meeting	Section 4(f) property verification meeting
September 28, 2005	Town of Superior	Letter	Transmittal of town's trail map
September 29, 2005	State Land Board	Email	Confirmation on two Jefferson County parcels
September 31, 2005	State Land Board	Phone	Response to 9/27/05 request for land ownership and use status
October 6, 2005	Colorado State Parks	Email	Request specific information on recent 6(f) properties
October 6, 2005	Colorado School of Mines	Phone/Fax	Response to request for property ownership and use
October 6, 2005	City of Arvada	Email	Received revised property boundaries
October 7, 2005	Jefferson County, Broomfield, City of Westminster	Meeting	Discuss alternative routing and status of various parcels within Great Western Reservoir area



Date	Jurisdiction	Type	Purpose
October 13, 2005	Jefferson County	Meeting	Discuss trails associated with Jefferson County properties
October 19, 2005	Jefferson County	Email	Response to 10/13/05 request for park use definition
October 26 & 27, 2005	Colorado State Parks	Phone/Fax	Discuss final status of LWCF properties within the affected area, possible mitigation strategies
October 31, 2005	City of Golden	Meeting	Discuss last of Golden trail locations and requested site plans for new parks
November 21, 2005	Federal Highway Administration, Colorado Dept of Transportation	Meeting	Reviewed listing of all parks, recreation and trail properties
December 29, 2005- January 26, 2006	Jefferson County	Emails	4(f) Coordination
January 18, 2006	Arvada	Meeting	4(f) Review with Arvada and CDOT
March 15, 2006	Arvada	Letter	Arvada preliminary <i>de minimis</i> impact agreement on Combined Alternative (Recommended Alternative)
March 23, 2006	Jefferson County	Meeting	Review trails issues at North Table Mountain and Municipal Complex
April 13, 2006	City and County of Broomfield	Meeting	Review potential alternatives and impacts to Great Western Reservoir properties, planned open space trail alignments, mitigation measures, and <i>de minimis</i>
April 14, 2006	Prospect Recreation and Park District	Meeting	Review potential impacts to Prospect Trail, mitigation measures, and <i>de minimis</i>
April 14, 2006	Colorado School of Mines	Meeting	Review potential impacts to various CSM properties, access, and <i>de minimis</i>



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