



November 13, 2013

## MEMORANDUM

**TO:** Rich Horstmann, PE, CDOT Project Manager

**FROM:** Amy Ochello, Environmental Scientist, Felsburg Holt & Ullevig (FHU)

**SUBJECT:** Current Conditions Analysis for Parks and Recreation Resources  
for the I-225 PEL Study  
FHU Reference No: 112200-01

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## PROJECT DESCRIPTION

The Colorado Department of Transportation (CDOT) is conducting a Planning and Environmental Linkages (PEL) study for southbound Interstate 225 (I-225) between Yosemite Street and Interstate 25 (I-25) in the City and County of Denver, Colorado. The I-225 PEL (Yosemite to I-25) is being conducted to assess existing conditions, identify anticipated problem areas, and to develop and evaluate transportation improvements to reduce congestion, improve mobility, and enhance the safety of the I-225 within the study area. CDOT, in cooperation with the Federal Highway Administration (FHWA), is preparing this PEL study in accordance with FHWA and CDOT PEL guidance for improving and streamlining the environmental process for transportation projects by conducting planning activities prior to the start of the National Environmental Policy Act (NEPA) process.

## INTRODUCTION TO RESOURCE

Parks and recreational resources are important community facilities that warrant consideration during federally funded projects. These resources include parks, trails, and open space areas which offer opportunities for recreation, including both passive and active activities. For purposes of this project, park and recreational resources can be categorized into one of the following categories:

- ▶ **Regional Park and Recreational Facility** – Regional parks typically involve jurisdiction partnerships that contribute to the development and maintenance of the regional park. These areas serve residents throughout the Front Range and are regionally recognized.
- ▶ **Community Park** – These facilities are typically smaller in size than regional facilities and serve as an attraction for residents and communities within a closer area, about 3 miles, of the facility. Community parks are typically managed and maintained by one entity.

- ▶ **Neighborhood Park** – Neighborhood parks typically serve residents and community members within a 0.5 mile radius of the park. These parks are typically accessed by non-motorized means and are managed by one jurisdiction.
- ▶ **Open Space** – Open space areas include land and water parcels that remain in a predominantly natural or undeveloped state. Open space areas include possible activities such as growth management to habitat protection and/or passive recreation.
- ▶ **Trails** – Municipalities typically manage numerous miles of trails, including paved and non-paved trails. Trails often extend beyond one jurisdictional boundary into an adjacent boundary making them regional trails. It is typical for trails to follow existing linear features such as a ditch, river, or railroad.

### **ANALYSIS METHODOLOGY**

- ▶ The study area in which parks, trails and open space resources were evaluated is shown in **Figure 1**. Properties were identified that were within the close proximity or adjacent to the study area. Details and characteristics of existing parks and recreational resources in the study area were identified through GIS and then field verified in May 2013. Additional inventory details about the resources, such as ownership, size and amenities were obtained from accessing individual municipalities' websites in May 2013. Research was centered on utilizing the most current version of information available online. The information has not been confirmed with the jurisdictions and may change as the project progresses through the planning phases.

Figure 1 Existing Parks and Open Spaces



**FINDINGS**

**Table 1** lists existing park, trail and open space resources in the study area.

**Table 1. Existing Park, Trail, and Open Space Resources**

Map ID	Resource Name	Location	Description & Location	Classification	Managed by
1	Eastmoor Park <sup>1</sup>	Princeton Avenue and Oneida Street	12-acre park with playground and paved path	Neighborhood Park	Denver Parks and Recreation
2	Rosamond Park <sup>1</sup>	8051 East Quincy Avenue	38-acre fully developed turf grass park. Park features trails, softball fields, soccer fields, football fields, tennis courts, playground, basketball court, and benches. Goldsmith Gulch runs through the park.	Community Park	Denver Parks and Recreation
3	Goldsmith Gulch North Middle Park <sup>1</sup>	I-225 to Quincy Avenue	4.5 acres adjacent to Quincy Avenue. Goldsmith Gulch runs through property. Prairie dogs present.	Open Space – Special Use	Denver Parks and Recreation
4	Goldsmith Gulch North Park <sup>1</sup>	Hampden Avenue to Mansfield Avenue	5.4 acres undeveloped with Goldsmith Gulch running through property. Gravel trail adjacent to Tamarac Dr.	Open space	Denver Parks and Recreation
5	George M. Wallace Park <sup>1,4</sup>	Belleview Avenue and DTC Boulevard	24.8 - Jointly funded UDFCD, Denver, and Goldsmith Metro District since 1990 as a flood control/drainage way with recreational and park purposes.	Community Park	Denver Parks and Recreation
6	George M. Wallace Park North <sup>1</sup>	DTC Boulevard and Temple Avenue	7.7 acres – Park that parallels DTC Boulevard with a paved trail	Community Park	Denver Parks and Recreation
7	Goldsmith Gulch Trail <sup>2</sup>	Prentice Avenue to Quincy Avenue	Paved trail parallel to DTC Boulevard	Minor Trail	Denver Parks and Recreation
8	Village Greens	East Union	25.12 acre site that	Regional Park	Greenwood

Map ID	Resource Name	Location	Description & Location	Classification	Managed by
	Park <sup>3</sup>	Avenue and South Dayton Street	hosts Cherry Creek High School athletics and youth leagues. Contains multi-use fields, softball, baseball fields and picnic amenities.		Village
9	Cherry Creek State Park and Reservoir	I-225 and South Parker Road	5.2 square miles with reservoir, trails, campgrounds, and picnic facilities.	Regional Park	Colorado Parks and Wildlife
10	Samuels Elementary School Playground	Mansfield Avenue and Tamarac Drive	Elementary school playground with ballfields, playground equipment etc.	Neighborhood Park	Denver Public Schools

<sup>1</sup> City and County of Denver, 2013a; <sup>2</sup> City and County of Denver, 2013b; <sup>3</sup> Greenwood Village, 2013; <sup>4</sup>UDFCD, 2013

Denver’s Park and Recreation District website was reviewed for future planned or upgrades to existing parks, open spaces, and trails. No proposals for future improved areas were identified within for the properties listed in **Table 1** or within proximity to the study area.

**LIST OF REFERENCED MATERIALS**

City and County of Denver. 2013a. Website accessed May 17, 2013:  
<http://www.denvernature.net/Documents/DenverParks.html>

City and County of Denver. 2013b. Website accessed May 20, 2013:  
[http://www.denvergov.org/Portals/747/documents/parks/trails/regional\\_trails\\_web.pdf](http://www.denvergov.org/Portals/747/documents/parks/trails/regional_trails_web.pdf)

Greenwood Village. 2013. Website accessed May 20, 2013:  
<http://www.greenwoodvillage.com/index.aspx?NID=351>

Urban Drainage and Flood Control District (UDFCD). 2013. Website access May 17, 2013:  
[http://www.udfcd.org/downloads/pdf/fhn/fhn90\\_1.pdf](http://www.udfcd.org/downloads/pdf/fhn/fhn90_1.pdf)



November 13, 2013

## MEMORANDUM

**To:** Rich Horstmann, PE, CDOT Project Manager

**From:** Dale Tischmak, Environmental Scientist, Felsburg, Holt & Ullevig (FHU)

**Subject:** Current Conditions Analysis for Traffic Noise for the I-225 PEL Study  
FHU Reference No: 112200-01

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## PROJECT DESCRIPTION

Colorado Department of Transportation (CDOT) is conducting a Planning and Environmental Linkages (PEL) study for southbound Interstate 225 (I-225) between Yosemite Street and Interstate 25 (I-25) in the City and County of Denver, Colorado (**Figure 1**, located at the end of this technical memorandum). The I-225 PEL (Yosemite to I-25) is being conducted to assess existing conditions, identify anticipated problem areas, and develop and evaluate transportation improvements to reduce congestion, improve mobility, and enhance the safety of the I-225 within the study area. CDOT, in cooperation with the Federal Highway Administration (FHWA), is preparing this PEL study in accordance with FHWA and CDOT PEL guidance for improving and streamlining the environmental process for transportation projects by conducting planning activities prior to the start of the National Environmental Policy Act (NEPA) process.

The primary purpose of this memorandum is to evaluate and document current (2012) traffic noise conditions within the I-225 PEL study area. This information will be used to evaluate potential I-225 improvements in terms of possible noise impacts to nearby developed properties (i.e., receptors).

## INTRODUCTION TO RESOURCE

The CDOT Noise Analysis and Abatement Guidelines (CDOT, 2013) specify that a noise analysis study is required for all Type I projects if noise-sensitive receptors are present within the project study zone. A Type I project consists of a proposed Federal or Federal-aid highway project for the construction of a highway on a new location or the physical alteration of an existing highway which significantly changes either the horizontal or vertical alignment or increases the number of lanes.

Under the I-225 PEL, a number of highway improvements are being considered, including the addition of a through lane on southbound I-225. Such improvements would be a Type I project through the criterion of "addition of through-travel lane(s) by new construction or restriping an existing highway" (CDOT, 2013). There are noise-sensitive receptors near the potential improvements in the study area (**Figure 2**, located at the end of this technical memorandum). Therefore, a traffic noise analysis would be required under NEPA

for the I-225 improvements in the study area. Current conditions for traffic noise must be examined as part of a CDOT noise analysis, so current conditions were examined for the PEL.

The I-225 PEL study area was included in the Southeast Corridor Final Environmental Impact Statement (EIS) (CDOT & FHWA, 1999). The EIS considered multimodal improvements to both the I-25 and I-225 corridors. The noise analysis for the EIS identified numerous noise impacts along I-225 in the PEL study area. The EIS noise analysis evaluated abatement actions for those impacts and recommended construction of several noise walls in the PEL study area. The noise abatement actions recommended in the EIS were constructed and are the existing noise walls shown in **Figure 2**, located at the end of this technical memorandum. With one exception—the wall south of I-225 and east of Yosemite Street was constructed prior to the EIS as a private action by the local homeowners. The noise walls were estimated in the EIS to provide 8-10 dBA of noise reduction to the adjacent properties. These noise walls were intended to benefit ground-level residences, not upper-floor balconies, etc., and are important factors in the current traffic noise environment for the PEL study area.

## **ANALYSIS METHODOLOGY**

The analytical methods for the evaluation followed the CDOT Noise Analysis and Abatement Guidelines (CDOT, 2013). Current traffic noise conditions were evaluated through computer modeling of the PEL study area. Modeling is used because day-to-day variations in traffic or weather conditions that affect traffic noise levels cannot be captured or quantified by brief noise measurements alone. In addition, the modeling can evaluate many more locations than can reasonably be field measured.

The modeling was used to calculate traffic noise levels at numerous representative locations throughout the PEL study area (**Figure 2**, located at the end of this technical memorandum). The modeling results represent predicted typical average traffic conditions during peak traffic noise periods for 2012.

Noise levels from the model were compared to CDOT's Noise Abatement Criteria (NAC) (**Table 1**) to determine noise impacts. Under CDOT guidelines, equaling or exceeding the NAC is viewed as a noise impact. The CDOT NAC for residences (Category B) and for parks and recreational areas (Category C) is an exterior equivalent sound level ( $L_{eq}$ ) of 66 dBA. The NAC for sensitive commercial properties (Category E) is an  $L_{eq}$  of 71 dBA.

A noise impact can also be caused by a "substantial" noise increase from a proposed project. A "substantial" noise increase is when the future noise level is expected to increase by 10 dBA or more over existing levels. Because this analysis and memorandum are considering only current conditions, the substantial noise increase criterion is not relevant and will not be considered further.

The traffic noise modeling software used was FHWA's Traffic Noise Model (TNM) Version 2.5. The ultimate purpose of the model was to examine whether traffic noise levels would be high enough to impact neighboring properties.

A noise model was developed in TNM for current conditions that reflected the existing road layout, receptor locations and traffic volumes. Because of the nature of the PEL study area, a simple "flat" noise model would not provide an accurate representation of traffic noise conditions. The terrain in the PEL study area is hilly and complex, so elevation differences are important influences on the traffic noise environment. The actual terrain for the PEL study area (from 2-foot ground surface contour data) was used to develop the noise model. The residential areas in the PEL study area that adjoin I-225 or I-25 already

have noise walls in place (**Figure 2**, located at the end of this technical memorandum) and were included to calculate accurately current traffic noise levels. The heights of these walls are variable due to the hilly terrain and detailed height data were not available for the PEL, so simplified, representative walls heights (from field reconnaissance) were used in the noise model. The noise model included the major existing roads that could be important local traffic noise contributors with existing (2012) traffic volumes and road layouts. For both I-225 and I-25 traffic, the peak traffic volumes were congested, so the modeled traffic conditions were 1,800 vehicles/lane/hour traveling at 65 miles per hour (mph) and 55 mph along some portions (CDOT, 2013). The percentage of medium and heavy trucks in I-225/I-25 traffic was obtained from CDOT traffic count data from the area. For the ramps and other roads, the traffic volumes calculated for the PEL traffic analysis were used. Therefore, the current conditions noise model was relatively complex.

**Table 1. CDOT Noise Abatement Criteria (NAC)**

NAC Category	CDOT NAC (L <sub>eq</sub> )	Description of NAC Category
A	56 dBA (Exterior)	Tracts of land in which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is to continue to serve its intended purpose.
B	66 dBA (Exterior)	Residential
C	66 dBA (Exterior)	Active sport areas, amphitheatres, auditoriums, campgrounds, cemeteries, day care centers, hospitals, libraries, medical facilities, places of worship, public meeting rooms, public or non-profit institutional structures, radio studios, recording studios, schools, Section 4(f) sites, trails, trail crossings, and television studios
D	51 (Interior)	Auditoriums, day care centers, hospitals, libraries, medical facilities, places of worship, public meeting rooms, public or non-profit institutional structures, radio studios, recording studios, schools and television studios
E	71 dBA (Exterior)	Hotels, motels, offices, restaurants, bars and other developed lands, properties or activities not included in A-D or F.
F	Not Applicable	Agriculture, airports, bus yards, emergency services, industrial, logging, maintenance facilities, manufacturing, mining, rail yards, retail facilities, ship yards, utilities (water resources, water treatment, electrical), and warehousing
G	Not Applicable	Undeveloped lands that are not permitted for development

Source: CDOT, 2013

Approximately 190 model receptor points were examined (**Figure 2**, located at the end of this technical memorandum). Many of the buildings are three- or four-story structures; the upper floors of residential buildings were modeled if there were exterior areas of frequent human use present (i.e., balconies).

**FINDINGS**

The noise model for current conditions was used to evaluate traffic noise levels within the I-225 PEL study area. The noise-impacted areas are illustrated in **Figure 3**, located at the end of this technical memorandum. Overall, the calculated noise level range at the model points was 52-76 dBA.

Several residential areas were calculated to have current traffic noise levels at or above the Category B NAC during the peak hour (**Figure 3**, located at the end of this technical memorandum). It was estimated that approximately 475 residential units were impacted by traffic noise (**Table 2**). These areas include a number of multi-story multi-family buildings. The impacted receptors are usually the upper floors/balconies of these buildings, for reasons described below.

One Category C property (Wallace Park) and no Category E properties (commercial areas) were found to be impacted (**Table 2**).

The residential areas adjoining I-225 already have a noise abatement feature in place (i.e., walls). The existing noise walls along I-225 appeared to be effective in abating traffic noise for ground-level front-row receptors, particularly in the single-family and/or single-story residential areas. Few of these receptors were found to be impacted (**Figure 3**, located at the end of this technical memorandum); those that were tended to be at the ends of the walls or at a location where the noise wall was noticeably shorter than adjacent walls.

**Table 2. Summary of Calculated Noise Impacts**

Land Use Category	Existing (2012) Receptors Impacted
Category B	474
Category C	1
Category E	0

Current (2012) traffic noise conditions in the I-225 PEL study area were evaluated through noise modeling. Approximately 475 residential units (**Table 1**) were calculated to have traffic noise levels at or above the Category B NAC (**Figure 3**, located at the end of this technical memorandum), although most of these were on upper floors.

Previous projects in the I-25/I-225 corridors have constructed noise walls next to most of the current residential areas in the I-225 PEL study area (**Figure 2**, located at the end of this technical memorandum). From the modeling results, these walls appeared to be effective in mitigating traffic noise for front-row ground-level receptors in the residential areas. Receptors for the upper floors (i.e., balconies) of multi-story apartment buildings did not appear to benefit from the noise walls; noise walls typically are not designed to benefit the upper floors. Therefore, traffic noise mitigation is already in-place throughout the I-225 PEL study area that is likely to address any added traffic noise due a road improvement(s) recommended through the I-225 PEL.

The existing noise walls were installed as mitigation actions by previous projects. The alternatives and improvements examined through the I-225 PEL should seek to avoid these walls. An alternative or improvement that requires the removal of any of these walls will result in the I-225 project needing to replace the affected walls to maintain the mitigation actions of the earlier projects.

An evaluation of traffic noise for the selected alternative will be needed.

## REFERENCES

- CDOT & FHWA. 1999. Southeast Corridor Final EIS, December 13.
- CDOT. 2013. Noise Analysis and Abatement Guidelines, February.

Figure 1. Study Area Map

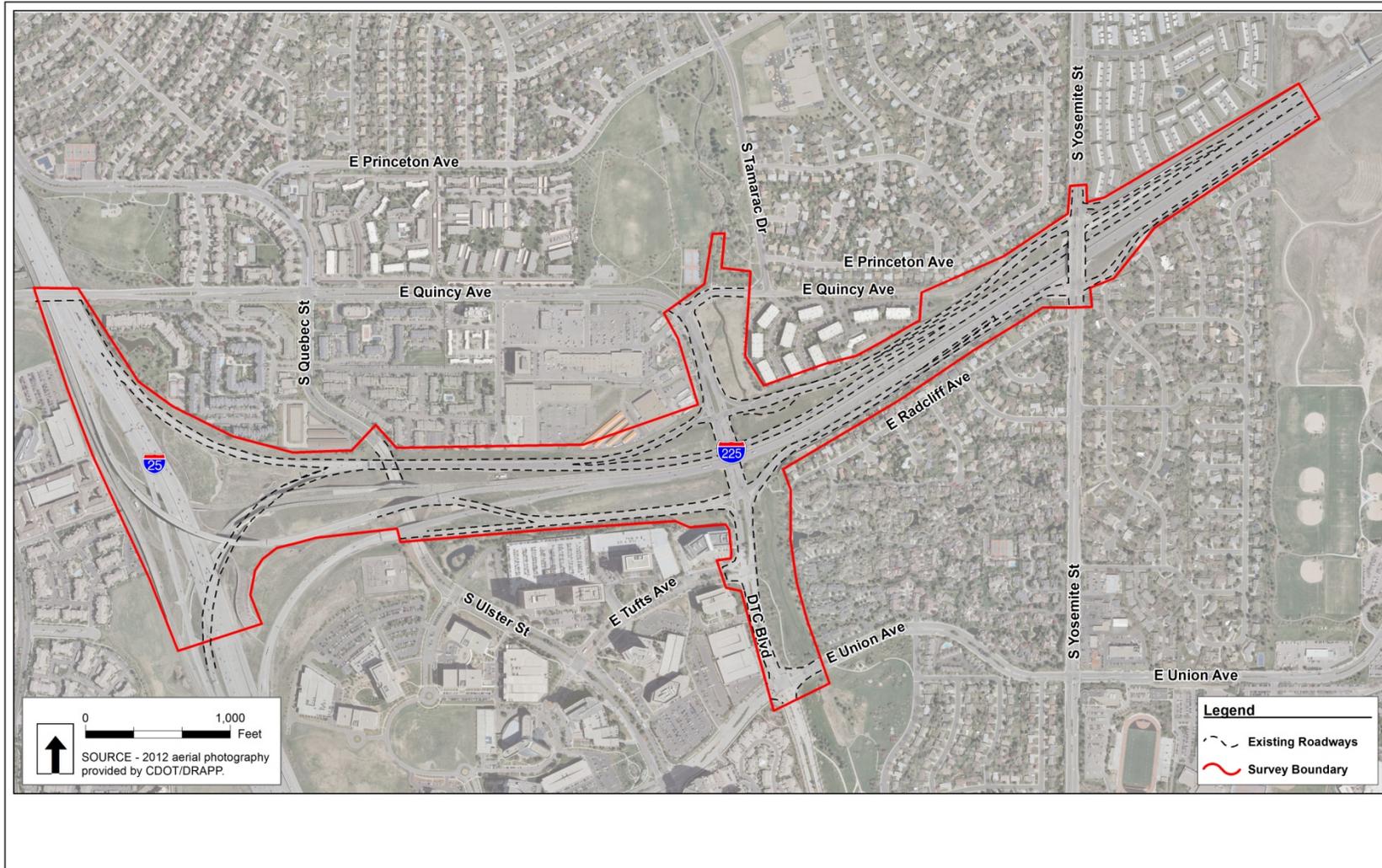
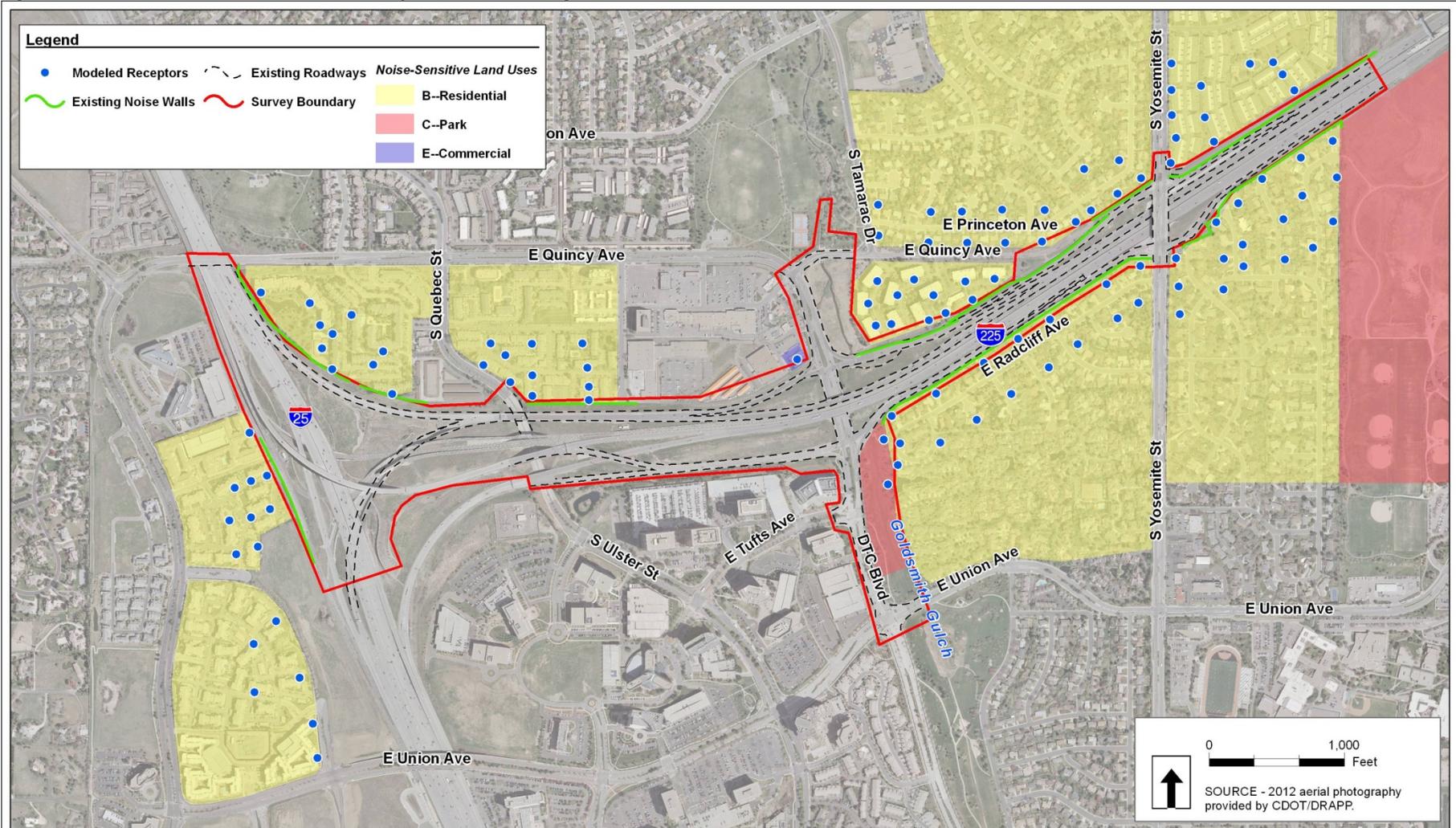
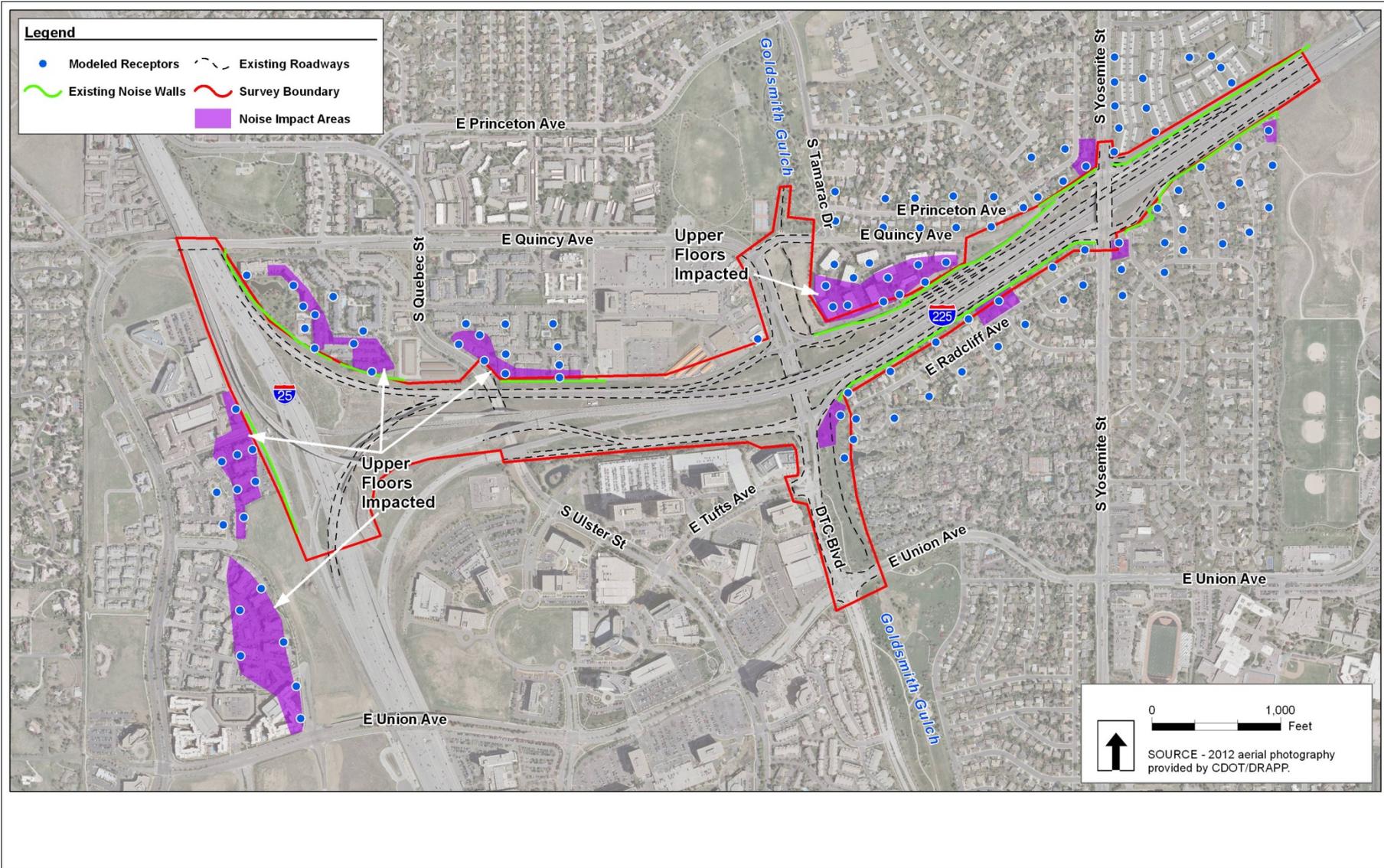


Figure 2. Land Uses, Modeled Receptors and Existing Noise Walls



**Figure 3** Noise-Impacted Areas from Noise Model Results



November 13, 2013

## MEMORANDUM

**TO:** Rich Horstmann, PE, CDOT Project Manager

**FROM:** Jake Lloyd, Environmental Scientist, Felsburg, Holt & Ullevig (FHU)

**SUBJECT:** Historic Cultural Resources Analysis for the I-225 PEL Study  
FHU Reference No: 112200-01

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### PROJECT DESCRIPTION

The following information constitutes our assessment of historic cultural resources associated with the Planning and Environmental Linkages (PEL) study for southbound I-225 between Yosemite Street and I-25. FHU is facilitating the PEL on behalf of the Colorado Department of Transportation (CDOT) to assess existing conditions, identify anticipated problem areas, and to develop and evaluate transportation improvements within the I-225 study area. **Figure 1** illustrates the general vicinity of the I-225 PEL study area located in southeastern City and County of Denver.

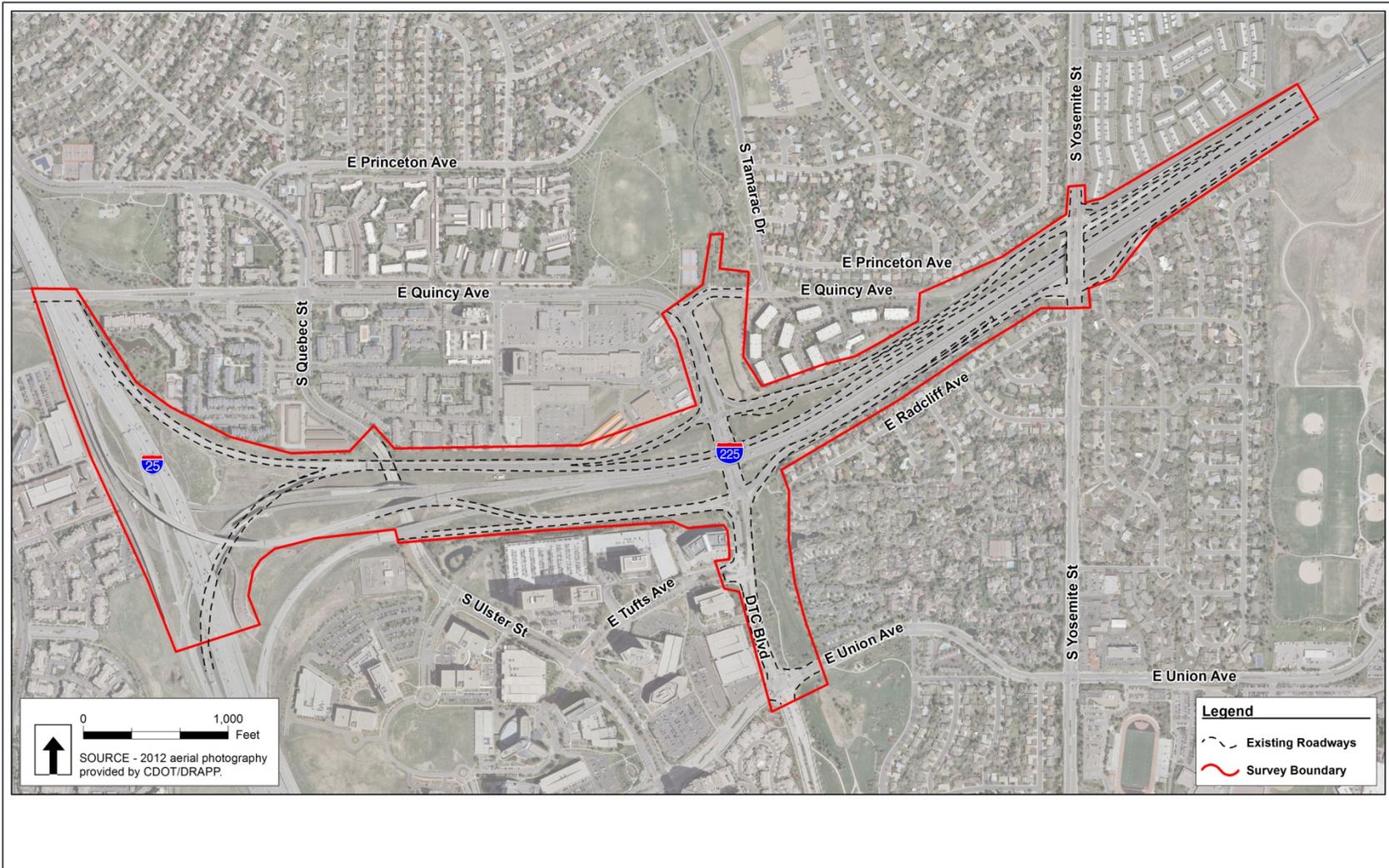
### INTRODUCTION TO RESOURCES

Historic cultural resources are places and remains from the past including historic buildings, structures, sites, districts, and landscapes. Historic cultural resources are divided into two categories; historic resources and archaeological resources. Historic resources include buildings, bridges, railroads, roads, and other structures that are generally at least 50 years old (45 years old for transportation projects). Archaeological resources are often buried and include artifacts and features associated with prehistoric Native American culture, but can also include historic artifacts, features, and ruins from the period after Euro-American settlement.

Historic cultural resources are afforded consideration by Section 106 of the National Historic Preservation Act of 1966, as amended, as well as Section 4(f) of the Department of Transportation Act of 1966. Significant historic resources are those resources that are eligible for inclusion or listed on the National Register of Historic Places (NRHP). Sites qualifying for the NRHP must retain sufficient integrity (of location, design, setting, materials, workmanship, feeling, and association) and meet one or more of the following eligibility criteria as specified in 36 CFR 60.4:

- A. Be associated with events that have made a significant contribution to the broad patterns of our history
- B. Be associated with the lives of persons significant in our past

Figure 1 Study Area Map



- C. Embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction
- D. Have yielded, or may be likely to yield, information important in prehistory or history

## ANALYSIS METHODOLOGY

The following methodology was used to gather information within this memorandum:

- ▶ Searched the COMPASS database (Office of Archaeology and Historic Preservation online) to determine whether previously determined eligible or listed historic properties are located within the I-225 PEL study area
- ▶ Reviewed City and County of Denver Assessor's Office records to determine age-eligible properties
- ▶ A field assessment to identify properties with architectural significance and integrity that may be potential historic resources
- ▶ Used Google Earth street view for initial site assessment

## FINDINGS

### Area of Potential Effect (APE)

An APE is defined by the proposed I-225 PEL study area and includes all adjacent properties. Each property was checked against the COMPASS database and City and County of Denver Assessor's Office database to determine whether the property was a previously recorded historic resource or met the minimum age requirement of 45 years old. The results are outlined below.

#### Previously Identified Historic Sites within the APE

No previously recorded historic sites occur today within the APE.

One historic site did occur within the APE before it was removed in 2003 when the I-25/I-225 Interchange was built. The historic site included two vehicular bridges; F-17-FW and F-17-FX, located at the I-25/I-225 Interchange. These bridges were found to be eligible for the NRHP based on their uniquely engineered three-way grade separation and angled piers (**Table 1**).

**Table 1** Previously Occurring Historic Sites within the APE

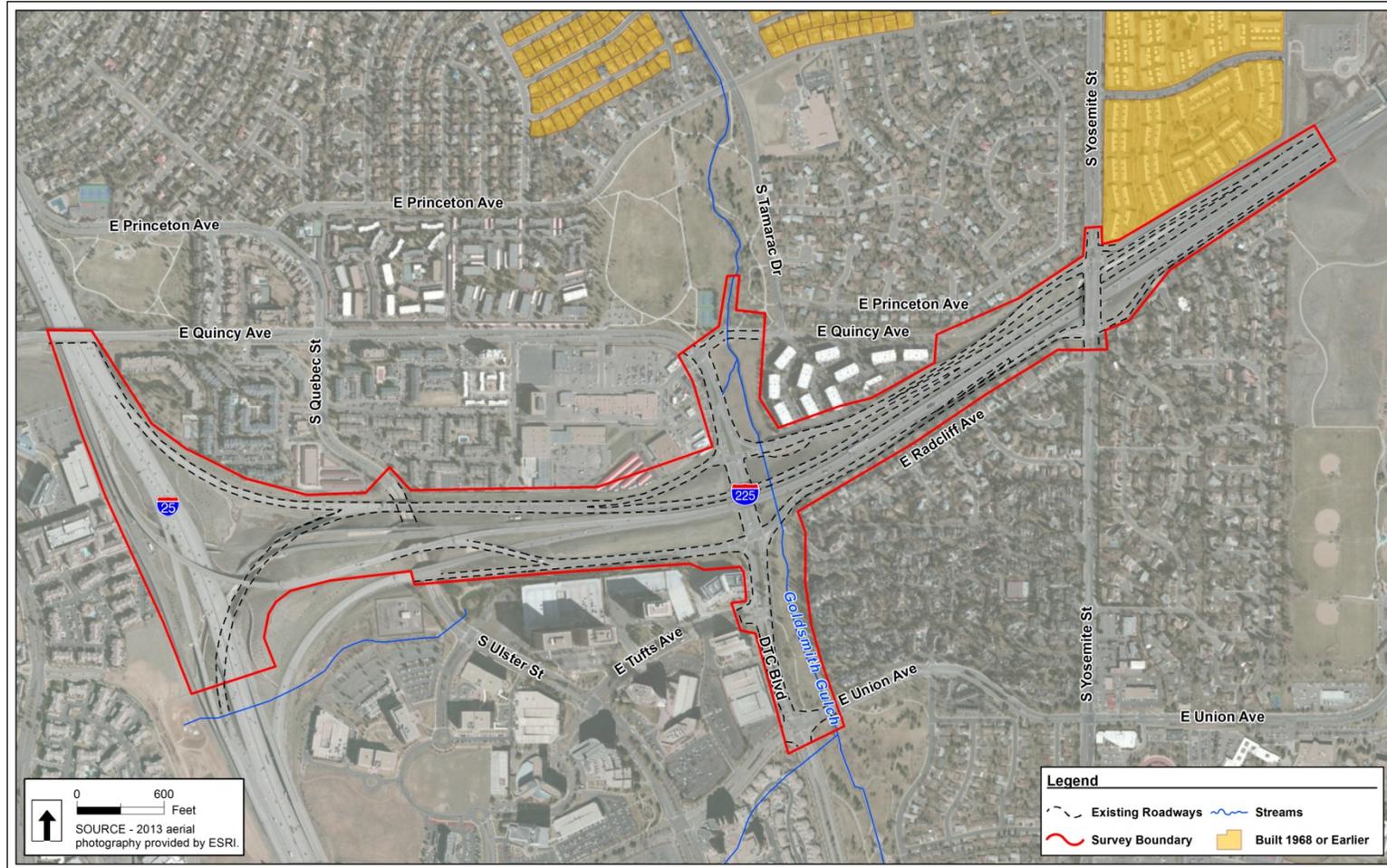
Site #	Name	Address	Description	Status
5DV.2130	Bridges: F-17-FW F-17-FX	I-25/I-225 Interchange	Built 1972-1973. Concrete box girder with three-way grade separation and angled piers.	Removed (2003)

Age-Eligible Sites within the APE

Only one site within the APE was found to be at least 45 years old which satisfies the age-eligibility requirement for historic cultural resources. This site is known as the Cherry Creek Townhouses, a residential condominium development, and is located at the northeast corner of Yosemite Street and Oxford Drive at the east end of the study area (**Figure 2**).

The City and County of Denver Assessor's Office showed that the property was developed in 1966, though a field visit revealed that the condominium development does not have the potential for being a historic cultural resource. An initial review of this site suggests that the buildings associated with the Cherry Creek Townhouse development would not be classified as eligible for the NRHP under any of the four eligibility criterion outlined above. These simple residential buildings do not represent any distinctive architectural characteristics, nor do they appear to be associated with events or people of significance in the history of the area or development of the Denver Tech Center.

**Figure 2**      **Previously Recorded and Potentially Historic Sites**



November 13, 2013

## MEMORANDUM

**TO:** Rich Horstmann, PE, CDOT Project Manager

**FROM:** Kate Baird, PE, Environmental Scientist, Felsburg, Holt & Ullevig (FHU)

**SUBJECT:** Current Conditions Analysis for Floodplains and Water Quality for the I-225 PEL Study  
FHU Reference No: 112200-01

## PROJECT DESCRIPTION

Colorado Department of Transportation (CDOT) is conducting a Planning and Environmental Linkages (PEL) study for southbound Interstate 225 (I-225) between Yosemite Street and Interstate 25 (I-25) in the City and County of Denver, Colorado (**Figure 1**). The I-225 PEL (Yosemite to I-25) is being conducted to assess existing conditions, identify anticipated problem areas, and develop and evaluate transportation improvements to reduce congestion, improve mobility, and enhance the safety of the I-225 within the study area. CDOT, in cooperation with the Federal Highway Administration (FHWA), is preparing this PEL study in accordance with FHWA and CDOT PEL guidance for improving and streamlining the environmental process for transportation projects by conducting planning activities prior to the start of the National Environmental Policy Act (NEPA) process.

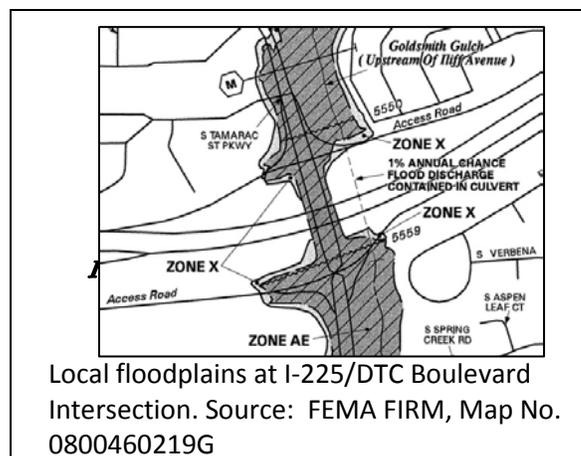
## INTRODUCTION TO RESOURCE

This section provides a summary of major floodplains in the study area and a summary of local water quality.

## FLOODPLAINS

Floodplains were identified by inspecting the Federal Emergency Management Agency (FEMA) flood insurance rate maps (FIRM) for the study area. FEMA designated floodplains that are located within the study area are described below:

- ▶ Zone AE is part of the FEMA 100-year flood hazard area (1% chance flood) where base flood elevations have been determined. The 100-year flood is FEMA's base flood.
- ▶ Zone X is part of the FEMA 500-year flood area,



100-year flood area with average depths of less than one foot, or with drainage areas less than one square mile.

Goldsmith Gulch is the only drainageway that has a FEMA designated floodplain in the study area (see **Figure 1**, located at the end of this memorandum). Portions of Goldsmith Gulch flow through open channels while other portions are piped underground, such as under I-225. The gulch is a tributary of Cherry Creek and is mainly used for natural moderation of floods and has limited wildlife usage. FEMA has designated Zones AE and Zone X in the Goldsmith Gulch Floodplain.

Drainageways that have a Zone AE designation, such as Goldsmith Gulch, are sensitive to changes. Relatively small changes that do not result in a net increase of fill may be incorporated in the floodplain without triggering the Conditional Letters of Map Revision (CLOMR)/Letters of Map Revision (LOMR) process; however, floodplain modeling may be required to assess the extent of the impact. If the impacts cause greater than 0.5 foot of rise in the flood elevation, the CLOMR/LOMR process could be required.

If any of the proposed I-225 work is to be done within the floodway areas of DTC Boulevard, coordination with the City of Denver floodplain administrator and/or FEMA will be necessary. If work in the floodway is minor and no fill is added, a no rise certificate must be submitted to the City of Denver floodplain administrator with calculations, cross sections, and volume calculations.

## **WATER QUALITY**

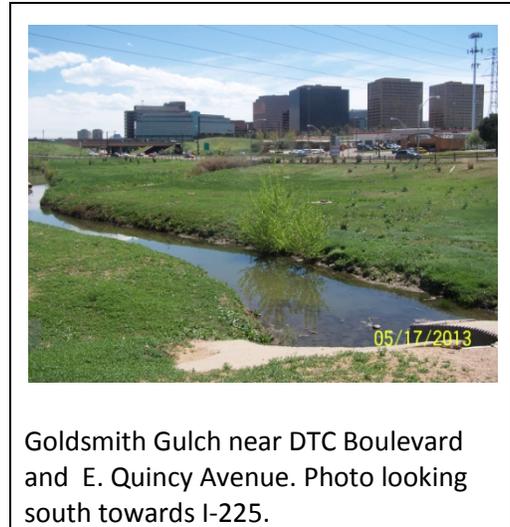
Water quality concerns are attributed to surface waters found in the study area. Goldsmith Gulch is the only surface water resource within the study area. The Colorado Water Quality Control Division defines water use classifications for water resources such as Goldsmith Gulch. All tributaries to Cherry Creek, including all lakes and reservoirs, from the source of east and west Cherry Creek to the confluence of the South Platte River (including Goldsmith Gulch) are classified as the following: Aquatic Life 2; Recreation 2; and Agriculture (Colorado Department of Health and Environment [CDPHE], 2013).

Groundwater resources mainly include four non-tributary aquifers: the Denver Basin, Arapahoe, Laramie Fox-Hills, and Dawson Aquifers cover the entire Denver metropolitan area. A shallow alluvial aquifer is also a tributary to the South Platte River west of the study area.

Nearby, the Cherry Creek watershed is one of the fastest growing areas in Colorado. The Colorado Water Quality Control Commission developed "Regulation 72" to protect water quality as the watershed matures. Regulation 72 sets forth stormwater related construction requirements for development projects, including construction best management practices (BMPs) and post-construction water quality features depending on the size of the project. Regulation 72 requirements are similar to CDOT's Municipal Separate Storm Sewer System permit requirements but are typically more stringent.

Existing water quality features in the study area include a pond/wetland area in the I-25/I-225 Interchange and a pond at the southbound I-225 off-ramp to DTC Boulevard. The sizes of these features are unknown but should be determined once further details about impacts are determined.

If any proposed work is to be done in a water quality feature in the study area, such as Goldsmith Gulch, coordination with the Colorado Water Quality Control Division will be necessary.



## **RESOURCES**

Cherry Creek Water Quality Basin Authority. Website accessed May 14, 2013. [www.cherrycreekbasin.org](http://www.cherrycreekbasin.org)

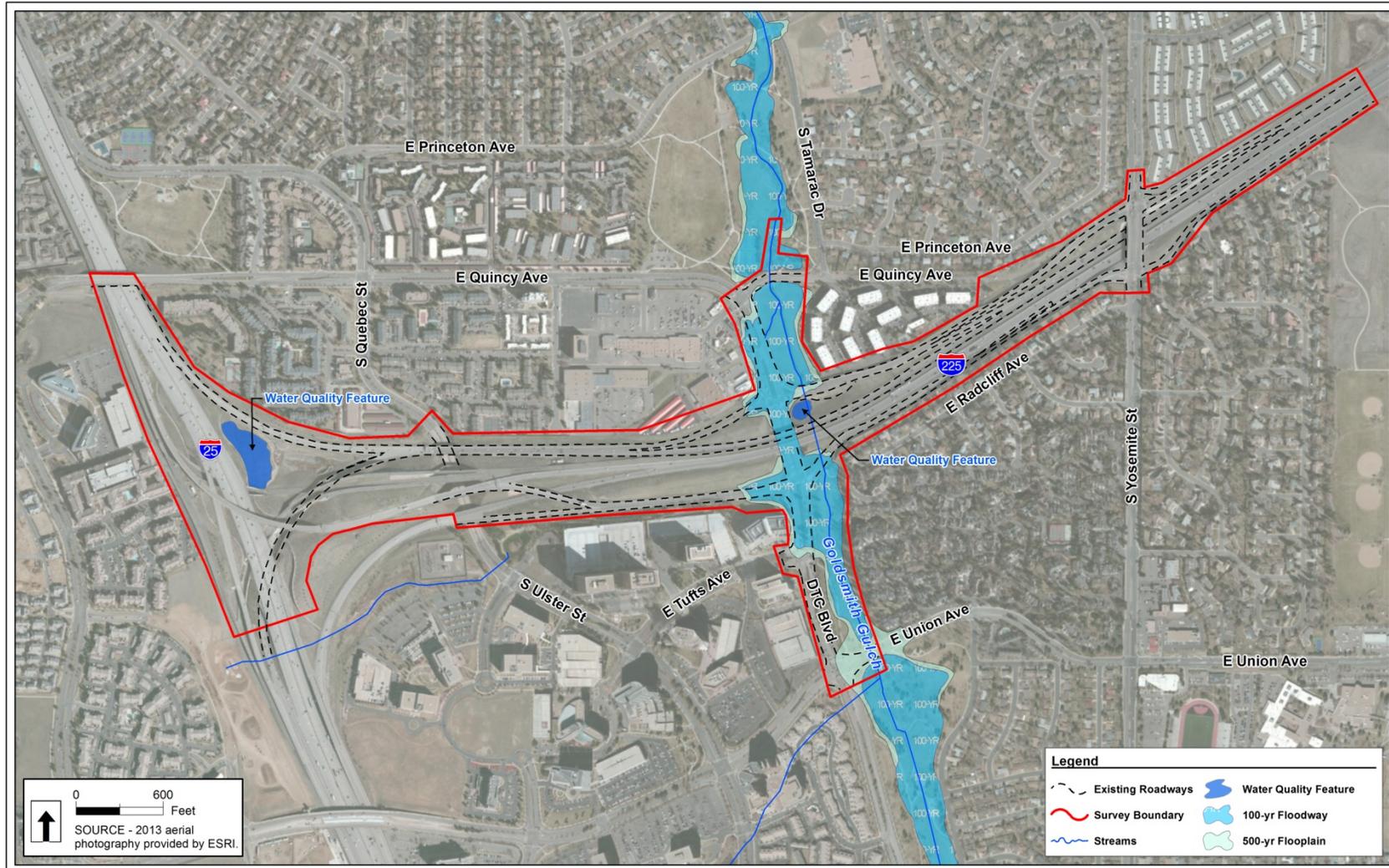
CDPHE, 2012. Cherry Creek Reservoir Control Regulation #72. Effective November 30, 2012.

CDPHE. 2013. Regulation 38 – Classifications and Numeric Standards for South Platte River Basin. Effective March 1, 2013.

FEMA FIRM, Community Panel , Map revised No. 0800460219G, Map revised November 17., 2005.

Flood Insurance Study of City and County of Denver, Colorado, FEMA, November 17, 2005.

Figure 1. Floodplains and Water Quality Features





November 13, 2013

## MEMORANDUM

**TO:** Rich Hortsman, PE, CDOT Project Manager

**FROM:** Keith Hidalgo, Environmental Scientist, GISP, Felsburg Holt & Ullevig (FHU)

**SUBJECT:** Current Conditions Analysis for Biological Resources and Wetlands for the I-225 PEL Study  
FHU Reference No: 112200-01

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## PROJECT DESCRIPTION

The Colorado Department of Transportation (CDOT) is conducting a Planning and Environmental Linkages (PEL) study for southbound Interstate 225 (I-225) between Yosemite Street and Interstate 25 (I-25) in the City and County of Denver, Colorado. The I-225 PEL (Yosemite to I-25) is being conducted to assess existing conditions, identify anticipated problem areas, and to develop and evaluate transportation improvements to reduce congestion, improve mobility, and enhance the safety of the I-225 within the study area. CDOT, in cooperation with the Federal Highway Administration (FHWA), is preparing this PEL study in accordance with FHWA and CDOT PEL guidance for improving and streamlining the environmental process for transportation projects by conducting planning activities prior to the start of the National Environmental Policy Act (NEPA) process. Refer to **Figure 1** for a study and survey area map.

## INTRODUCTION TO RESOURCE

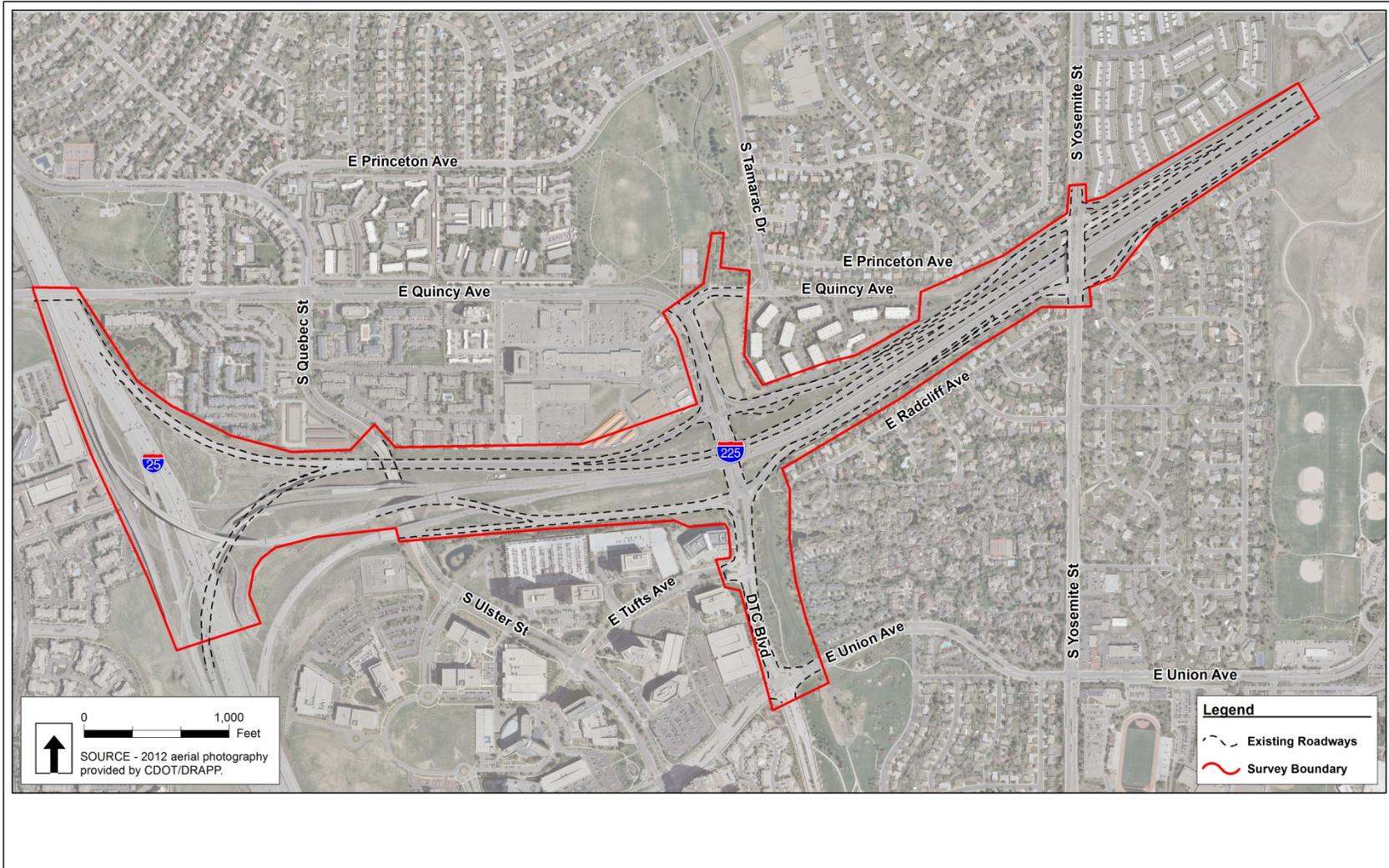
### Wetlands and other Waters of the US

Wetland resources are protected under Section 404 of the Clean Water Act (CWA) (33 US Code [USC] 1344) and Executive Order 11990 Protection of Wetlands (US Environmental Protection Agency [USEPA], 1977). The CWA requires coordination with the US Army Corps of Engineers (USACE) and resource agencies such as the USEPA and the US Fish and Wildlife Service (USFWS) when impacts occur to wetlands that are considered waters of the US. The US Department of Transportation (USDOT) Order 5660.1. A Preservation of the Nation's Wetlands (USDOT 1978), provides guidance on wetland mitigation assessment. CDOT has incorporated this and other FHWA environmental guidance into its Environmental Stewardship Guide (CDOT 2005d), which emphasizes efforts to avoid and minimize wetland impacts and impacts to other Waters of the US (WUS).

### Wildlife/Special Status Species

Wildlife is an important public resource that warrants consideration during federally funded projects and is documented during the NEPA process. Various federal laws have been established to protect wildlife, including: the Endangered Species Act (ESA); the Migratory Bird Treaty Act (MBTA); the Bald and Golden Eagle Protection Act (BGPA); and the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU).

Figure 1. Study Area Map



## **Resource Review**

### Wetlands and Waters of the US

The following wetland analysis describes the inventory of wetlands and other open waters within the I-225 PEL study area. This analysis builds on the results of prior environmental studies completed in the study area, including the Southeast Corridor Final Environmental Impact Statement (EIS) (CDOT & FHWA 1999). FHU staff identified areas where potential wetlands would be prior to conducting a field survey. FHU staff used the U.S. Geological Survey's (USGS) National Hydrological Dataset (NHD) to initially identify areas of known surface water, including streams, ditches, ponds, and lakes which would be likely areas of wetlands or open water which would be considered WUS. FHU staff also referenced the National Wetland Inventory (NWI), which is maintained by the USFWS for more specific locations of known wetlands.

### Wildlife/Special Status Species

Details and characteristics of wildlife resources in the study area were identified using existing geographic information system (GIS) data and field verified (May 17, 2013) Additional inventory details about the resources, such as protection status and presence of species were obtained from accessing the Colorado Department of Parks & Wildlife (CPW) Natural Diversity Information Source (NDIS), the Colorado Natural Heritage Program (CNHP), and the USFWS Information Planning and Conservation System (IPaC) websites in May 2013. Research was centered on utilizing the most current version of information available online. Data from the Southeast Corridor Final EIS were utilized because the two study areas generally overlap (CDOT, & FHWA 1999).

## **ANALYSIS METHODOLOGY**

A limited site reconnaissance of the project corridor was conducted in May 2013. Previously identified wetlands as well as potential wetland areas that had not been mapped in prior studies were examined. Wetland vegetation and hydrology was reviewed at each potential site, data collected and wetland areas that had not been previously mapped were located. Refer to **Attachment A** for photographs taken at the time of the field visit.

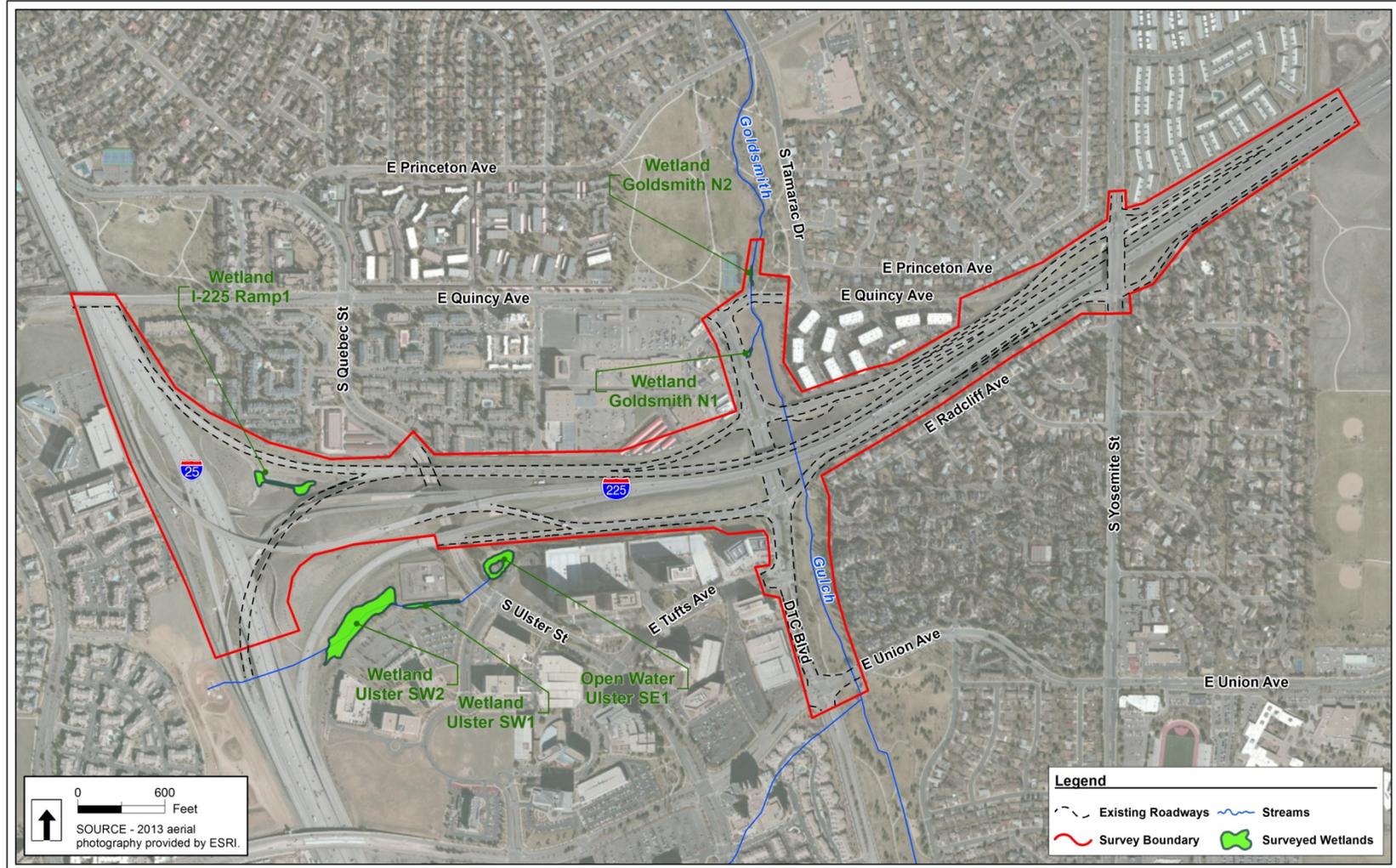
All field determinations were performed in accordance with the Corps of Engineers Wetland Delineation Manual (Environmental Laboratory 1987) and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Great Plains Region (Environmental Laboratory 2010). Field surveys and reviews of vegetation followed the 2012 Great Plains Wetland Indicator List (Lichvar 2012) and wetland community types were classified according to Cowardin et al. (1979).

## **FINDINGS**

The majority of wetlands identified within the corridor are small palustrine emergent wetlands with most occurring in a narrow fringe in isolated locations along Goldsmith Gulch and in a stormwater pond in CDOT's ROW on the northeast quadrant of the I-25 and I-225 interchange. These wetlands were considered low quality wetlands in prior studies. All of these wetlands are isolated by development or are modified fully to an urban landscaped space (Goldsmith Gulch Park) and provide minimal wildlife habitat.

All wetlands identified in this field review are shown on **Figure 2** in relation to the study area.

Figure 2. Surveyed Wetlands and Other Waters



All wetlands are listed in **Table 1**, which lists the previous survey ID, the new wetland ID, water source, and the area of each.

**Table 1. Summary of Surveyed Wetlands**

Previous Wetland ID	Updated Wetland ID	Water Source	Acres
I25I225NE1 – NE5	I-225 Ramp 1	Stormwater Drain, Surface Runoff	0.361
I25I225SE2	Ulster SE1	Stormwater Pond	0.449
I25I225SE3	Ulster SW1	Stormwater	0.173
I25I225SE3	Ulster SW2	Stormwater	1.680
TamNE2	Goldsmith N1	Goldsmith Gulch	0.027
TamNE2	Goldsmith N2	Goldsmith Gulch	0.013
TamSE1	Goldsmith OW <sup>1</sup>	Goldsmith Gulch	N/A – WOUS Channel

1 – Goldsmith OW represents Goldsmith Gulch, this is labeled as a stream in **Figure 2**

Wetland hydrology for the surveyed wetlands in the study area was based on field observations and was found to be a combination of a modified stream corridor, stormwater runoff, landscaping irrigation, and stormwater ponds. Wetland types found in the study area include palustrine emergent systems with persistent vegetation. This field review confirmed earlier studies (Southeast Corridor Final EIS 1999) that found the following wetland types and vegetation/hydrological conditions.

#### **Palustrine Emergent Wetlands**

Palustrine emergent wetlands found in the study area were located along stormwater ditches, edges of stormwater ponds and adjacent to perennial and intermittent waterways. The typical vegetation includes a predominance of reed canarygrass (*Phalaris arundinacea*) and common cattail (*Typha latifolia*), as well as smaller populations of Canada thistle (*Cirsium arvense*), and soft-stem bulrush (*Scirpus validus*).

The primary hydrology for these wetlands is surface runoff, ground water flows, and adjacency to intermittent and perennial waterways. Hydrologic indicators observed include sediment deposits, areas of inundation and drainage patterns in wetlands.

#### **Existing Wildlife/Special Status Species**

**Table 2** identifies the special status species found within the study area as identified by NDIS and IPaC. This list was then field verified based on a field visit on May 17, 2013, whereby FHU personnel observed whether species or species habitat was present. Based on the field visit, the full species list for the City and County of Denver was then reduced to what species could be potentially present based on available habitat in the study area.

**Table 2. Existing Wildlife Resources**

Resource Name	Protection Type	Habitat	Habitat Present?	Observed in Field?
Cliff Swallows ( <i>Petrochelidon pyrrhonota</i> )	MBTA	Streams and creeks with readily available access to insects and locations for building nests.	Yes, multiple locations where structures can be used to build nests.	Some. However, staff did not have access to all structures to check for nests.
Preble's Meadow Jumping Mouse ( <i>Zapus hudsonius preblei</i> )	Federally Threatened Species - ESA	Inhabits riparian areas near standing or running water in lowland areas that are dominated by forested wetlands, shrub dominated wetlands, and grass/forb dominated wetlands between 4,000 and 8,000 ft in elevation.	No, highly landscaped Goldsmith Gulch. *Note: A block clearance zone for this species exists for the study area.	No Survey Conducted.
Various nesting birds, including Canada Goose ( <i>Branta canadensis</i> ) at Stormwater Pond	MBTA	Canada Goose nesting at stormwater pond. Various other migratory birds nesting near Goldsmith Gulch.	Yes, multiple nests were observed at the stormwater pond near Ulster Street.	Yes, several nests identified.
Black-Tailed Prairie Dog ( <i>Cynomys ludovicianus</i> )	State Species of Special Concern	Black-tailed prairie dogs form large colonies or "towns" in shortgrass or mixed prairie.	Yes, north of I-225 east of DTC Boulevard on either side of Goldsmith Gulch	Yes, one prairie dog colony located.

The wildlife resources that were identified during the review can be categorized into one of the following categories:

- ▶ Threatened & Endangered Species – State and federal listed threatened & endangered species that are listed or are candidates for listing on the ESA. Habitat and range maps were collected from the above resources.
- ▶ Protected Species – Species or their habitat readily visible in the field at the time of the survey. They included species that are protected by the MBTA.
- ▶ Wildlife Corridors – Identified corridors for wildlife to move through the landscape freely. Wildlife Corridors and wildlife crossings are identified, as part of SAFETEA-LU, as a source for safety risks to the general public. Identifying and planning for best management practices for wildlife crossings is also identified in SAFETEA-LU.

Generally, the study area is in a flat to rolling plains region of Colorado which consists of a high density built-up environment. Goldsmith Gulch is the only drainage through the study area. During the field surveys, resources were identified that are within or adjacent to the road right-of-way (ROW) within the study area.

#### **Migratory Birds**

During the field survey, any nests that were within or readily visible from the ROW, including migratory birds, raptors, and eagles, were noted. Multiple Cliff Swallows (*Petrochelidon pyrrhonota*) were seen flying nearby and their nests were assumed in areas with structures over Goldsmith Gulch. Canada Goose nests were also identified on the island in the middle of the stormwater pond next to Ulster Street.

Thus, impacts to migratory birds (e.g., song birds, herons, other migratory birds) may occur from design alternatives if construction occurs during the normal nesting season of these species. The normal nesting season is between February 15th and July 15th.

#### **Wildlife Corridors**

Wildlife is identified as a road safety hazard, causing billions of dollars annually in repairs and medical costs due to animal-vehicle collisions (AVCs) nationwide. These AVCs also result in a loss to wildlife populations and wildlife diversity. Typically the total number of AVCs is under-reported and only focus on large wildlife species. Existing land use in the study area is primarily residential, commercial, and a managed park. Where wildlife had free movement along the Goldsmith Gulch drainage in the past, their movements are now highly constricted or no longer present.

Currently, there are no parks or open space properties which include identified movement corridors for wildlife between protected tracts of land within or adjacent to the study area. The construction of wildlife-friendly structures over this drainage will provide avenues for wildlife to move through the study area while keeping the general public safe.

#### **State Species of Special Concerns**

One Black-tailed Prairie Dog (*Cynomys ludovicianus*) colony is located at Goldsmith Gulch North Middle Park, north of I-225 along DTC Boulevard (found on **Figure 2**, around Wetland N1). Black-tailed Prairie Dogs inhabit short and mid-grass prairie and semi-desert shrublands. The extents of the Black-tailed

November 13, 2013

Memorandum to Rich Horstmann

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Prairie Dog colony shall be determined and delineated during final design. The project will comply with the CDOT Black-tailed Prairie Dog Policy (CDOT, 2009).

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- Environmental Protection Agency (EPA). 1977. Executive Order No. 11990: Protection of Wetlands. 42 F.R. 26961
- Lichvar, R.W. 2012. The National Wetland Plant List. ERDC/CRREL TR-12-11. Hanover, NH: U.S. Army Corps of Engineers, Cold Regions Research and Engineering Laboratory.
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- USFWS. 2013. IPaC System: <http://ecos.fws.gov/ipac/> Accessed in May.

**ATTACHMENT A – SITE PHOTOGRAPHS**



Photograph looking north towards the I-225/DTC Boulevard Interchange. This is a picture of the highly channelized Goldsmith Gulch showing the concrete bottom and banks. No wetlands were found in this area and this is a highly managed park with no wildlife habitat.



Photograph looking south at the culverts under Ulster Street for Goldsmith Gulch. This entire area is managed as a park and the channel and banks are concrete, no wetlands present.



Photograph taken south of Ulster Street of the only natural area with wetlands on Goldsmith Gulch. However, this area is south of the study area.



Photograph of the stormwater pond east of Ulster Street and south of I-225. Very little to no wetland vegetation surrounds this pond, possibly due to management or wildlife removing it.



Photograph of Canada Goose nest on the island in the middle of the stormwater pond.



Photograph west of Ulster Street and south of I-225 where there is an electrical substation and a cattail wetland. However, this is south of the study area.



Photograph looking south from E. Quincy Avenue towards I-225 and the DTC Boulevard interchange. The only area with prairie dogs, east of DTC Boulevard and a narrow storm drain channel in the background with sandbar willows. No wetlands were present on either side of the main Goldsmith Gulch channel here.



Photograph looking north from E. Quincy Avenue into the nearby park where Goldsmith Gulch crosses E. Quincy Avenue. Fringe wetlands are present in the channel and along the west bank. However, most of the channel is lined with riprap and devoid of wetland vegetation due to park management activities.



November 15, 2013

## MEMORANDUM

**TO:** Rich Horstmann, PE, CDOT Project Manager

**FROM:** Laura Haas, Felsburg Holt & Ullevig (FHU); Amy Sobol, FHU

**SUBJECT:** Hazardous Materials Assessment Analysis for the I-225 PEL Study  
FHU Reference No:112200-01

### ***Introduction***

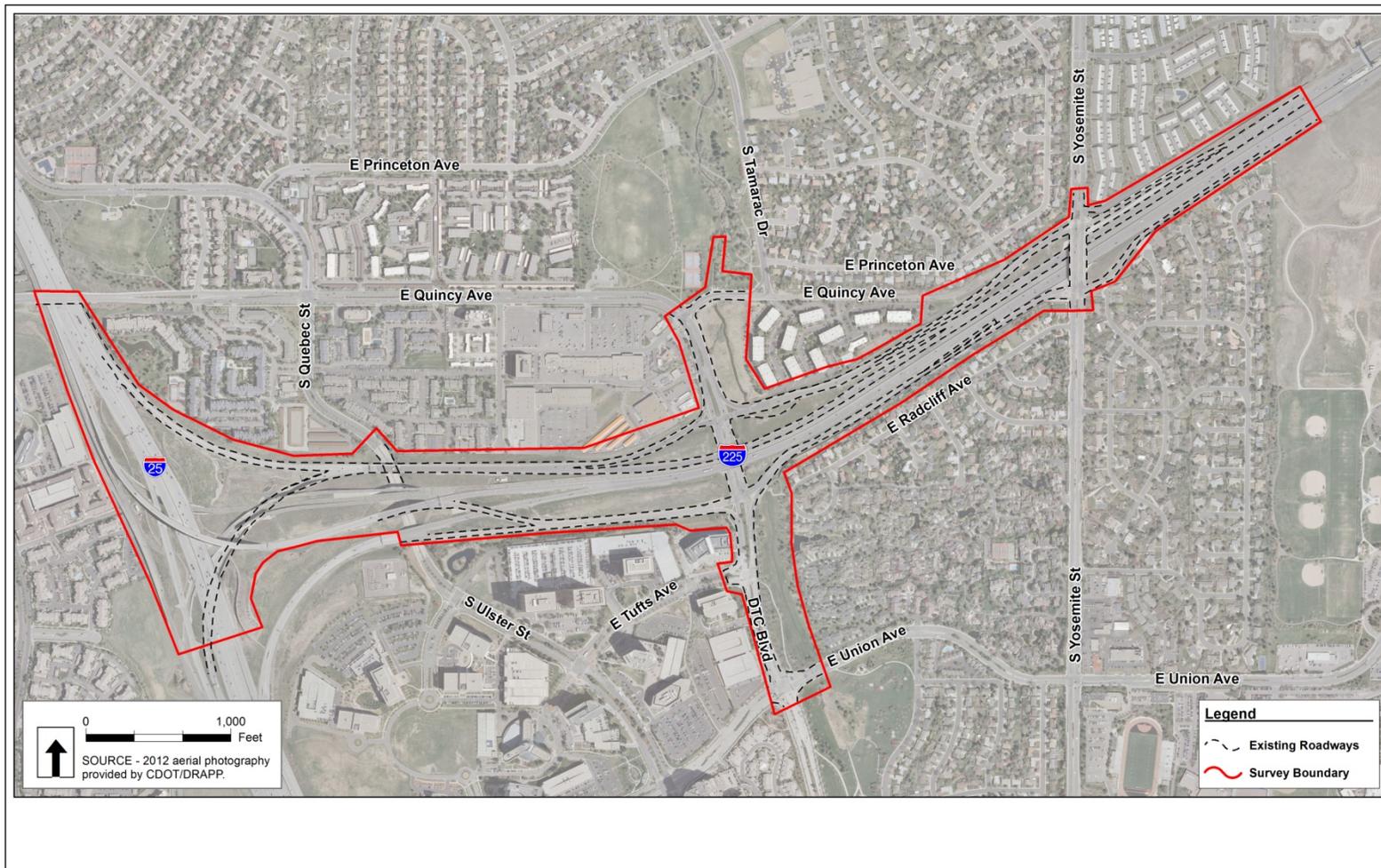
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FHU, acting on behalf of Colorado Department of Transportation (CDOT), conducted a hazardous materials assessment for the Planning and Environmental Linkages (PEL) study for southbound Interstate 225 (I-225) between Yosemite Street and Interstate 25 (I-25) in the City and County of Denver, Colorado. The I-225 PEL (Yosemite to I-25) Study is being conducted to assess existing conditions, identify anticipated problem areas, and to develop and evaluate transportation improvements to reduce congestion, improve mobility, and enhance the safety of the I-225 within the study area. CDOT, in cooperation with the Federal Highway Administration (FHWA), is preparing this PEL study in accordance with FHWA and CDOT PEL guidance for improving and streamlining the environmental process for transportation projects by conducting planning activities prior to the start of the National Environmental Policy Act (NEPA) process.

The purpose of the hazardous materials assessment is to identify and assess the potential for encountering hazardous materials on properties adjacent to or within the study area (**Figure 1**). For this hazardous materials assessment, sites within the study area were identified as having known (current and historic) soil or groundwater contamination and are distinguished in this report as sites with recognized environmental conditions. Recognized environmental conditions, include sites *with “the presence or likely presence of any hazardous substances or petroleum products on a property under conditions that indicate an existing release, a past release, or a material threat of a release of any hazardous substances or petroleum products into structures on the property or into the ground, groundwater, or surface water of the property”* (ASTM 2005). Sites with the potential for soil and/or groundwater contamination that could not be confirmed without additional inspection or investigation are distinguished as sites with potential environmental conditions.

This hazardous materials assessment has been prepared with a level of detail appropriate for the development and screening of design alternatives for the I-225 PEL Yosemite to I-25 Study. At the time of writing this report, it is unknown if acquisition and/or easements are expected as part of any future projects. If full acquisition is required, it is anticipated that additional assessment and/or field investigations could be needed to assist in the right-of-way acquisition process and the development of specific materials management or institutional controls that may be required during construction.

Figure 1. Study Area Map



## ***Methodology***

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This hazardous materials assessment included the following steps:

- ▶ Reviewed readily available local, state, and federal environmental agency databases as dictated by the American Society for Testing and Materials (ASTM) Standard E1527-05 (ASTM 2005). The Environmental Data Resources, Inc. (EDR) Database Report is included in **Appendix A** (EDR 2013)
- ▶ Performed a limited site reconnaissance of the study area to identify site activities and potential contamination sources within and adjacent to the study area. Areas adjacent to the study area were observed from the existing right-of-way only
- ▶ Review of the contaminated materials section of the Southeast Corridor Environmental Impact Statement (EIS)
- ▶ Identified sites with known or potential hazardous materials concerns (i.e., sites with recognized environmental conditions and sites with potential environmental conditions)

## ***Site Reconnaissance***

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A limited site reconnaissance was conducted on May 9, 2013 by Jessica Myklebust and Amy Sobol, environmental scientists with FHU. The purpose of the site reconnaissance was to assess the study area for obvious evidence of potential contamination sources such as current hazardous substances storage or use; unusually stained soils, concrete slabs, or pavements; sumps, dumps, drums, tanks, and electrical transformers; stressed vegetation; and discarded hazardous substances containers. The limited site reconnaissance did not include the investigation of areas not visible from public right-of-way.

### ***Site Setting***

The study area is located in the City and County of Denver along the Front Range of the Rocky Mountains in central Colorado. The local climate is semi-arid with low relative humidity, low precipitation, and high evaporation.

Within the Front Range urban corridor, the primary water-bearing shallow aquifers are present within unconsolidated deposits (20 to 100 feet in thickness) of Quaternary age (2 to 1.8 million years ago) and floodplain alluvium of the lower South Platte River basin and its tributaries (USGS 2003; Colorado Geological Survey 2003).

Surficial groundwater flow direction varies, but generally moves downstream and toward drainages. Based on the surface topography in the study area (gradual sloping to the north/east) groundwater likely flows to the north/east toward Goldsmith Gulch. Confirmation of the direction of groundwater flow beneath the study area was beyond the scope of this hazardous materials assessment.

### ***Site Reconnaissance Observations***

**Table 1** includes a summary of the site reconnaissance observations. Photographs from the site reconnaissance are included in **Appendix B**.

**Table 1 General Site Reconnaissance Observations**

Hazardous Materials Observations	Description
<p><b>Underground Storage Tanks/Aboveground Storage Tanks</b></p>	<p>Evidence of underground storage tanks (USTs) were observed at the 7-11 gasoline station (4351 S. Tamarac Pkwy) (<b>Figure 1</b>). No aboveground storage tanks (ASTs) were observed during the site reconnaissance. USTs and ASTs were previously associated with the former Stanford Place II site (7979 E Tufts Ave) (<b>Figure 1</b>).</p>
<p><b>Monitoring Wells</b></p>	<p>A groundwater monitoring well was observed at Coloradoland Tire &amp; Service (8000 E. Quincy Ave) (<b>Figure 1</b>) during the site reconnaissance. The well is located on the south side of the auto service building structure.</p>
<p><b>Stockpile/Surface Trash/Debris</b></p>	<p>General garbage debris was visible within the study area and on surrounding properties during the site reconnaissance.</p>
<p><b>Protected/Fenced Areas</b></p>	<p>Many of the residential/commercial properties located in the study area contain fenced-in areas that were not visible from the public right-of-way during the site reconnaissance. Storage sheds were also observed, but the contents of the sheds are unknown.</p>
<p><b>Chemical Handling/Storage</b></p>	<p>Automotive service station (Coloradoland Tire &amp; Service at 8000 E. Quincy Ave.) with vehicle maintenance bays. Unknown material handling and disposal practices. Potential materials include: fuel, motor oils, hydraulic fluids, degreasers, paints, and solvents. Former leaking underground storage tank (LUST) site. A 55-gallon drum was observed at the restaurant adjacent to 8000 E. Quincy Ave. The contents are unknown.</p> <p>Two open dry cleaning operations (4403 S. Tamarac Pkwy and 4680 S. Yosemite St.) with unknown cleaner and solvent handling and disposal practices. No reported contamination of soil and groundwater associated with this site.</p>
<p><b>Potential for Methamphetamine Lab Activity</b></p>	<p>Storage Units. Although not reported, the potential exists for methamphetamine lab activity.</p>

***Review of Previous Studies***

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As part of this hazardous materials assessment, the Southeast Corridor EIS was reviewed (CDOT & FHWA 1999). According to the contaminated materials section of the Southeast Corridor EIS, sites along the I-225 corridor include LUST sites. No specific addresses were identified in the EIS.

**Agency Records Review**

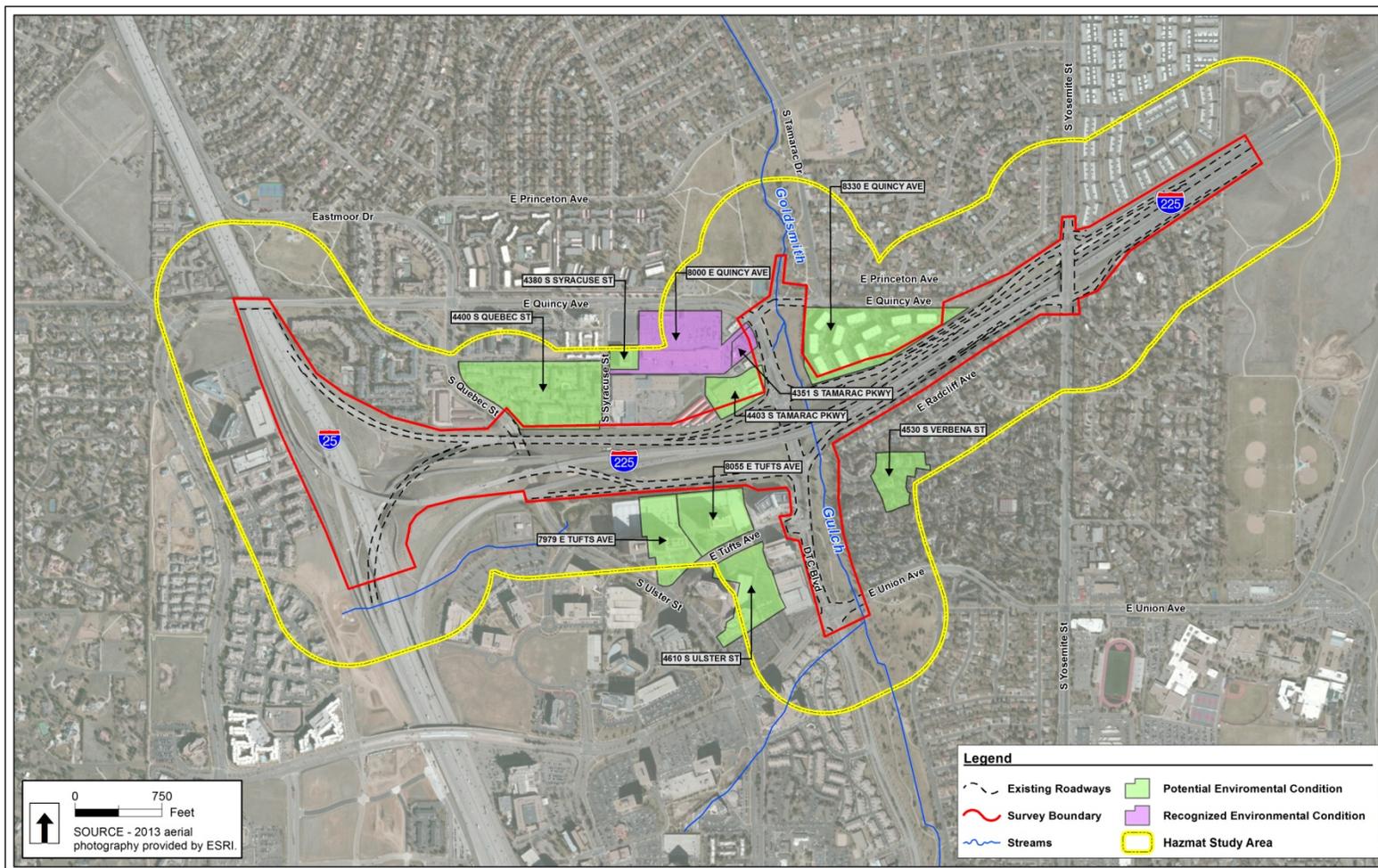
An environmental database search was conducted for sites extending up to one mile from the study area with potential hazardous materials concerns. **Table 2 and Figure 2** include sites adjacent to and/or within 1/8 mile (660 feet) of the study area.

**Table 2 Sites Adjacent to or within 1/8 Mile of the Project Study Area**

Site Address	Location/Gradient	Site Description
4351 S. Tamarac Pkwy.	Adjacent/Down-gradient	Closed LUST (Closed); Open 7-11 Gasoline Station with operating USTs. Site identified as a recognized environmental condition due to closed LUST. If ground-disturbing activities are expected to occur in the vicinity of this site, residual soil and/or groundwater contamination could be present.
8000 E. Quincy Ave.	Adjacent/Down-gradient	Closed LUST; Dry Cleaners/Historical Dry Cleaners; Open Coloradoland Tire & Service Auto Repair Shop; Monitoring well located on the south side of building. Site with recognized environmental conditions due to closed LUST and historical dry cleaning operations.
4403 S. Tamarac Pkwy	Adjacent/Down-gradient	Dry Cleaners/Historical Dry Cleaners; Open dry cleaning business - DTC Cleaners. Site identified as a potential environmental condition due to historic dry cleaning operations. It is unknown if any spills/releases have occurred at this site in the past. Based on the history of this site as a historical dry cleaner facility, any work within the vicinity of the site should be closely monitored for signs of soil and/or groundwater contamination during construction activities.
4400 S. Quebec St.	Adjacent/Up-gradient	Historical Auto; Currently the Brandy Chase Apartment Home Complex. Site identified as a potential environmental condition due to historic auto operations. It is unknown if any spills/releases have occurred at this site in the past. Based on the history of this site as a historical auto facility, any work within the vicinity of the site should be closely monitored for signs of soil and/or groundwater contamination during construction activities.
8330 E. Quincy St.	Adjacent/Up-gradient	Historical Auto; Currently a public storage unit complex. Site identified as a potential environmental condition due to historic auto operations. It is unknown if any spills/releases have occurred at this site in the past. Based on the history of this site as a historical auto facility, any work within the vicinity of the site should be closely monitored for signs of soil and/or groundwater contamination during construction activities. Also, as a storage unit, the potential exists for methamphetamine lab activity.
4380 S. Syracuse St.	Approximately 500 feet from project footprint/Up-gradient	Historical Auto; Currently the Westgold Centre Office Building (brick, multi-story). Site identified as a potential environmental condition due to historic auto operations. It is unknown if any spills/releases have occurred at this site in the past. Based on the history of this site as a historical auto

Site Address	Location/Gradient	Site Description
		facility, any work within the vicinity of the site should be closely monitored for signs of soil and/or groundwater contamination during construction activities.
4530 S. Verbena St.	Approximately 200 feet from project footprint/Down-gradient	Historical Cleaners; Currently multi-unit residences/Large parcel w/ multiple patio homes. Site identified as a potential environmental condition due to historic dry cleaning operations. It is unknown if any spills/releases have occurred at this site in the past. Based on the history of this site as a historical dry cleaner facility, any work within the vicinity of the site should be closely monitored for signs of soil and/or groundwater contamination during construction activities.
7979 E. Tufts Ave.	Adjacent/Up-gradient	UST, AST; Currently the Allied Insurance Office Building (brick, multi-story, w/fenced in generator). No reported leaks or spills associated with this facility.
8055 E. Tufts Ave.	Adjacent/Up-gradient	Historical Auto; Currently the Stanford Place Office Building (glass, multi-story). Site identified as a potential environmental condition due to historic auto operations. It is unknown if any spills/releases have occurred at this site in the past. Based on the history of this site as a historical auto facility, any work within the vicinity of the site should be closely monitored for signs of soil and/or groundwater contamination during construction activities.
4610 S. Ulster St.	Approximately 325 feet from project footprint/Up-gradient	Historical Auto; Currently an office Building (multi-story) Site identified as a potential environmental condition due to historic auto operations. It is unknown if any spills/releases have occurred at this site in the past. Based on the history of this site as a historical auto facility, any work within the vicinity of the site should be closely monitored for signs of soil and/or groundwater contamination during construction activities.

Figure 2. Sites Adjacent to and/or within 1/8 mile of the Project Footprint



## ***Findings***

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Several sites with recognized or potential environmental conditions were identified within 1/8 mile from the existing right-of-way within the study area. Hazardous materials are most likely to be encountered during ground-disturbing activities near sites with recognized environmental conditions. There are two LUST sites adjacent to the study area. Both of the LUST sites have been closed and clean-up has been completed. The Colorado Department of Labor and Employment, Division of Oil and Public Safety (OPS) defines a LUST site as closed/clean-up complete when “the owner and/or operator has not necessarily removed all contamination, but instead actions taken have met the criteria that the State uses for determining adequate clean up.” As a result, residual surficial and subsurface soil contamination and/or groundwater contamination may be present at closed sites and could be encountered on-site or down-gradient of these closed sites during subsurface construction activities.

The other sites within the project study area are associated with historical auto operations, historical dry cleaner operations, or current dry cleaner operations, and USTs/ASTs. These sites have been identified as site with potential environmental conditions because it is unknown if any spills/releases have occurred at these sites in the past. However, because these sites have previously been redeveloped, these sites are considered low risk because it is likely that any historic contamination issues would have been cleaned-up as part of the redevelopment efforts. Based on the unknown history of these sites, any work within the vicinity of the site should be closely monitored for signs of soil and/or groundwater contamination during construction activities

## ***Recommendations***

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A more-detailed hazardous materials initial site assessment would be needed as part of any future project development. The purpose of conducting a more detailed hazardous materials assessment is to gather additional information needed to plan for known and potential hazardous materials issues. During the planning and design process, this information can be used to identify avoidance options, when possible, and to assist with the development of specific materials management or mitigation measures. Properties to be acquired may also require individual site assessments as part of the right-of-way acquisition process. Specific CDOT requirements are included below and would depend on scope of work for any future project.

### Groundwater Wells

If any groundwater wells will be affected by the project, they must be abandoned and plugged according to Section 202.02 of the CDOT Standard Specifications for Road and Bridge Construction (CDOT 2011a). A revised Section 202/Removal of Structures and Obstructions of the CDOT Standard Specifications for Road and Bridge Construction should be included with the project plans.

If present, all other permanent wells must be protected during construction with flagging and the installation of orange construction fencing. Although not expected, if any wells are impacted during construction, the well must be abandoned and plugged according to Section 202.02 of the CDOT Standard Specifications for Road and Bridge Construction (CDOT 2011a).

#### Groundwater Management

If dewatering of groundwater is required for the project for activities such as excavation for caissons associated with bridge piers, a Construction Dewatering Permit will be required.

#### Asbestos

Asbestos-containing material (ACM) is a toxic substance that may exist on highway structures and other structures (e.g., buildings) associated with the parcels to be acquired, particularly if they were constructed prior to 1980. Asbestos presents a worker health and safety concern due to the potential negative health impacts associated with the inhalation of asbestos fibers.

It is recommended that a State Certified Asbestos Inspector inspect for the presence of asbestos during utility work on potential ACM. If asbestos is found, all further work (soil-related) shall proceed in accordance with Section 250.07 specification (ACM Management) of the CDOT Standard Specifications for Road and Bridge Construction (CDOT 2011a).

Projects with significant utility excavations (i.e., greater than three feet below ground surface) are required to follow CDOT's Asbestos-Contaminated Soil Management Standard Operating Procedure (CDOT 2011b).

#### Lead-Based Paint

Lead is a hazardous substance that potentially exists on steel highway structures and other structures (e.g. buildings) associated with the parcels to be acquired, particularly if they were constructed prior to 1980. Due to the potential negative health impacts associated with lead exposure, the presence of lead-based paint presents a worker health and safety concern. Project personnel can be exposed to the toxic effects of lead through inhalation or ingestion of lead paint chips, dust, or debris during construction or materials management activities. Lead-based paint may need to be removed prior to demolition if the lead is leachable at concentrations greater than regulatory levels. Where lead-based painted surfaces would be removed via torching, additional health and safety monitoring requirements are applicable.

If LBP is present on any highway structures or other structures associated with parcels to be acquired, the requirements of subsection 250.04 (Heavy Metal Based Paint Management) shall be followed in addition to the requirements of subsection 250.03 (General) of the CDOT Standard Specifications for Road and Bridge Construction (CDOT 2011a).

#### Removal of Structures

Any electrical equipment with no label or unknown concentration is assumed to be "PCB - contaminated equipment" per EPA regulation and should be managed accordingly. In general, legal and financial responsibility for PCB-containing equipment lies with the equipment owner; however, if another party causes the equipment to fail, financial and legal responsibility may be transferred to the responsible party. Therefore, if during final design it is determined that any of the pole-mounted electrical transformers will be removed, coordination with the equipment owners will be required.

If any of the pole-mounted electrical transformers will be removed as part of the project, the location of the affected transformers should be identified on the Utility Plans. In addition, a note will be included on the Utility Plans indicating that prior to removal of any transformers coordination with the appropriate utility owners is required. The note should include the name and phone number of the utility owners.

Materials Management

Preparation of a Materials Handling Plan as required by Section 250.03 of the CDOT Standard Specifications for Road and Bridge Construction was recommended for parcels where residual contamination could be present from sites with known soil and groundwater contamination.

***References***

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CDOT & FHWA. 1999. Southeast Corridor Final EIS.

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**APPENDIX A    EDR RADIUS MAP REPORT  
(SEE ATTACHED CD)**

**APPENDIX B  
PHOTO LOG**

		<p>4351 S. Tamarac Pkwy. Closed LUST (Closed); Open 7-11</p>
		<p>4403 S. Tamarac Pkwy Dry Cleaners/Historical Dry Cleaners; Open dry cleaning business - DTC Cleaners.</p>
		<p>4400 S. Quebec St. Historical Auto; Currently the Brandy Chase Apartment Home Complex.</p>



8330 E. Quincy St.  
Historical Auto; Currently  
the Summit Ridge  
Apartment Home Complex.



4380 S. Syracuse St.  
Historical Auto; Currently  
the Westgold Centre Office  
Building (brick, multi-story).



4530 S. Verbena St.  
Historical Cleaners;  
Currently multi-unit  
residences/Large parcel w/  
multiple patio homes.



8000 E. Quincy Ave.  
Closed LUST; Dry  
Cleaners/Historical Dry  
Cleaners; Open  
ColoradoLand Tire & Service  
Auto Repair Shop;  
Monitoring well located on  
the south side of building.



7979 E. Tufts Ave.  
UST, Aboveground storage  
tank (AST); Currently the  
Allied Insurance Office  
Building (brick, multi-story,  
w/fenced in generator)



8055 E. Tufts Ave.  
Historical Auto; Currently  
the Stanford Place Office  
Building (glass, multi-story)



4610 S. Ulster St.  
Historical Auto; Currently  
an office Building (multi-  
story)