

# FINAL Environmental Scan Report



## I-70 & Kipling Interchange | PEL Study





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Kipling Street under I-70 bridges

# Introduction

## I-70 & Kipling Interchange Planning and Environmental Linkage (PEL) Study

The Colorado Department of Transportation (CDOT) initiated a PEL Study to provide an understanding of the existing conditions at the Interstate 70 (I-70) and Kipling Street (State Highway 391) interchange while considering future surrounding development and community plans.

The goal of the study is to develop a range of improvements to reduce congestion and improve operations and safety and accommodate multi-modal connections at the I-70 and Kipling interchange.

A PEL represents an approach to transportation decision-making that considers environmental, community, and economic goals early in the planning stage and carry them through project development, design and construction.

This Environmental Scan Report identifies environmental resources and environmentally sensitive areas; this is mostly comprised of readily available data and field survey information. The purpose of this scan report is to identify resources early in the planning process to avoid fatal flaws and to consider sensitive environmental resources in the study area.

The intent of this scan report is not to identify impacts but rather to identify potential “red flag” resource areas for use in alternatives analysis to avoid and minimize impacts to resources during subsequent study phases while developing alternatives that meet purpose and need.

If a recommended interchange project receives funding, the results of the PEL Study will be carried forward at that time into project development, additional environmental review (National Environmental Policy Act (NEPA)-level or similar state environmental review process), design, and ultimately construction, maintenance, and operations.

The PEL approach supports federal guidance that encourages building on decisions and information developed during the planning process.



Looking south along Kipling Street towards I-70

# Methodology

This report summarizes data collected as part of this study effort, data already available from CDOT, City of Wheat Ridge, City of Arvada, Jefferson County and other agencies, and the results of the evaluation of existing environmental resources in the study area. This data will be used in development and analysis of improvement alternatives.

During project initiation, environmental and community resources in the study area were reviewed. The following resources were determined to not be

present and are not included in this report:

- Floodways and Floodplains
- Rivers and Lakes
- State and National Forests
- Wildlife Reserves
- Prime Agricultural Land
- Visual Resources
- Pedestrian and Bicycle Resources (facilities are addressed in the Existing Transportation Conditions Report (DEA, 2012))
- Environmental Justice Communities
- Geology and Paleontology

The environmental and community resources topics summarized in this report include:

- Air Quality
- Hazardous Materials
- Historic and Archeological Resources

- Parks and Recreation Resources (Section 4(f)/6(f))
- Wells
- Biological Resources (Wetlands, Noxious Weeds and Threatened and Endangered Species)
- Noise
- Land Use/Community Impacts

Data collection to identify the existing resources in the area was conducted in the spring of 2012 using readily available resources such as file searches from agencies with jurisdiction, a literature review, and windshield surveys. In addition a letter was also sent in April 2012 to the following resource agencies requesting the identification of any known resources or issues of concern within the study area:

- Air Pollution Control Division
- City of Arvada Parks/Planning and Community Development
- City of Wheat Ridge Parks and Recreation
- Denver Regional Council of Governments (DRCOG)
- Environmental Protection Agency (EPA)
- Jefferson County Open Space/Planning
- State Historic Preservation Office
- United States Army Corps of Engineers (USACE)
- United States Department of Agriculture
- United States Fish and Wildlife Service (USFWS)

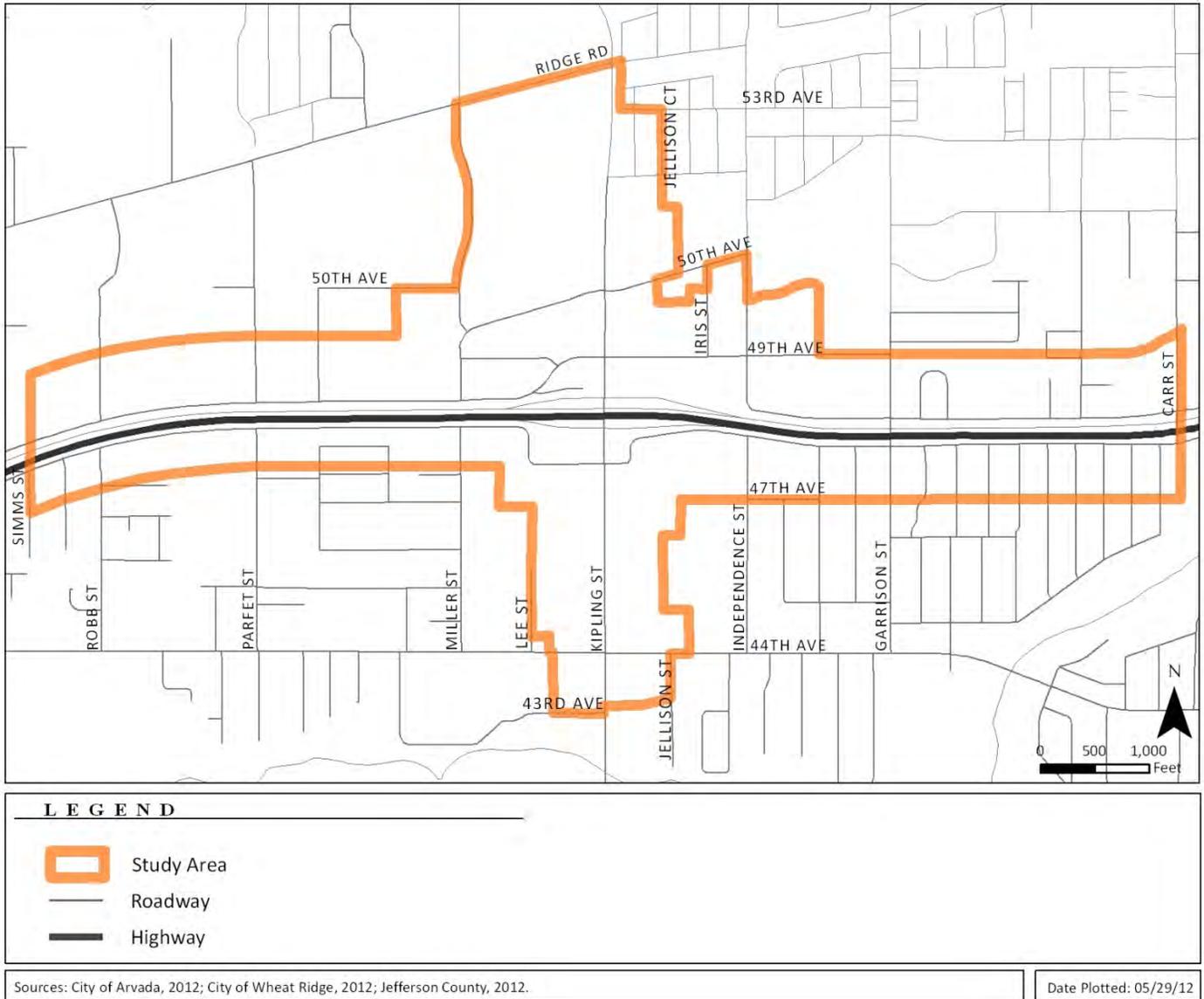
## Study Area

The environmental resource review area for the project, illustrated in **Figure 1**, is focused around the area of most likely physical impacts of interchange improvements. To take into account the potential for indirect or secondary effects to community or environmental resources as a result of potential recommended projects, the initial focus area was extended for a range of approximately 400-1,500 feet on either side. This boundary was then extended to the back lot line of the adjacent parcels.

The I-70 and Kipling interchange is located within the City of Wheat Ridge in Jefferson County. The boundary for the City of Arvada is located immediately north of the interchange between the 50th Avenue and 51st Avenue intersections.

The study area is located in a predominantly urban area where land use is predominantly a mixture of commercial, residential and light industrial properties.

Figure 1: Environmental Study Area





Kipling Street at eastbound I-70 ramps intersection

# Air Quality

Air quality is generally assessed by comparing concentrations of air pollutants to National Ambient Air Quality Standards (NAAQS), which are set to protect human health and welfare. As part of the Denver metropolitan region, this study considered consistency with regional plans for attaining and maintaining air quality standards both locally and regionally.

## Existing Conditions

Air pollutants related to transportation that are of concern are shown in **Table 1**. The table also illustrates the standards which cannot be exceeded. In addition, Mobile Source Air Toxics (MSATs) have been identified as an issue of concern related to transportation projects.

**Table 1: NAAQS for Pollutants of Concern**

Pollutant	Averaging Time	Primary Standard
Carbon Monoxide	8 hour	9 parts per million
	1 hour	35 parts per million
Ozone	8 hour	0.08 parts per million
	1 hour	0.12 parts per million
Particulate Matter (PM <sub>10</sub> )	24 hour	150 microgram per cubic meter

Source: EPA, 2011

## MSATs

The Clean Air Act identified 188 air toxics, also known as hazardous air pollutants. Most air toxic pollutants originate from human-made sources, including on-road mobile sources (e.g. automobiles), non-road mobile sources, (e.g., airplanes), area sources (e.g. dry cleaners) and stationary sources (e.g., factories). The EPA also

extracted a subset of this list of 21 that it now labels as the six priority MSATs. These are benzene, formaldehyde, acetaldehyde, diesel particulate matter/diesel exhaust organic gases, acrolein, and 1,3-butadiene.

## Carbon Monoxide

The metro area was originally classified as moderate non-attainment for the 8-hour carbon monoxide NAAQS, then to serious non-attainment, and finally re-designated to maintenance on December 14, 2001 after no violations had occurred since 1995.

For the Arvada monitoring station, nearest to the study area, the readings have been well below 2 parts per million (9 parts per million is the exceedence standard) since 2004 (Source: Regional Air Quality Council (RAQC 2010)).

## Ozone

Ground-level ozone can occur a long distance away from the source. Therefore, a larger study area is used for attainment and maintenance analysis. The ozone study area includes the area along the Front Range all the way to the Wyoming border and includes the counties of Larimer, Weld, Boulder, Broomfield, Jefferson, Adams, Arapahoe, and Douglas.

Measured concentrations of 1-hour ozone in the Denver region have not violated the NAAQS since 1987, but 8-hour ozone concentrations violated the NAAQS in 2010, where the highest concentration was measured at Chatfield Reservoir. While the regional average has been below the standard there have been violations of the 8-hour standard at two of the measurement locations. The metro area has tentatively been designated as non-attainment in December 2011 (EPA, 2011b). This designation is expected to be finalized in 2012. At that time Colorado will be required to develop an attainment plan that will bring the area into compliance within three years.

The latest published (2010) monitoring results for the Denver metropolitan area demonstrates current compliance with all the criteria pollutants except ozone.

## PM<sub>10</sub>

Measured concentrations of PM<sub>10</sub> in the Denver region have not violated the NAAQS since 1993. For the Metro area PM<sub>10</sub> stations, measured values are below the standards. There are no pollution monitoring sites near the study area, but because monitoring sites were selected to represent locations with the highest concentration, pollutant levels near the interchange are expected to be less.

## Next Steps

Next steps for recommendations from this study to move forward include conducting an air quality impact analysis for each future project to determine regional conformity, and conduct local project-level analysis for carbon monoxide and particulate matter, as required.



Gas station; typical site with potential for soil or groundwater contamination

## Hazardous Materials

This hazardous materials review provides information about properties within the study area that pose a potential risk of environmental contamination from hazardous materials. Sites with known (current and historic) soil and/or groundwater contamination are distinguished as sites with “recognized environmental conditions.” \*

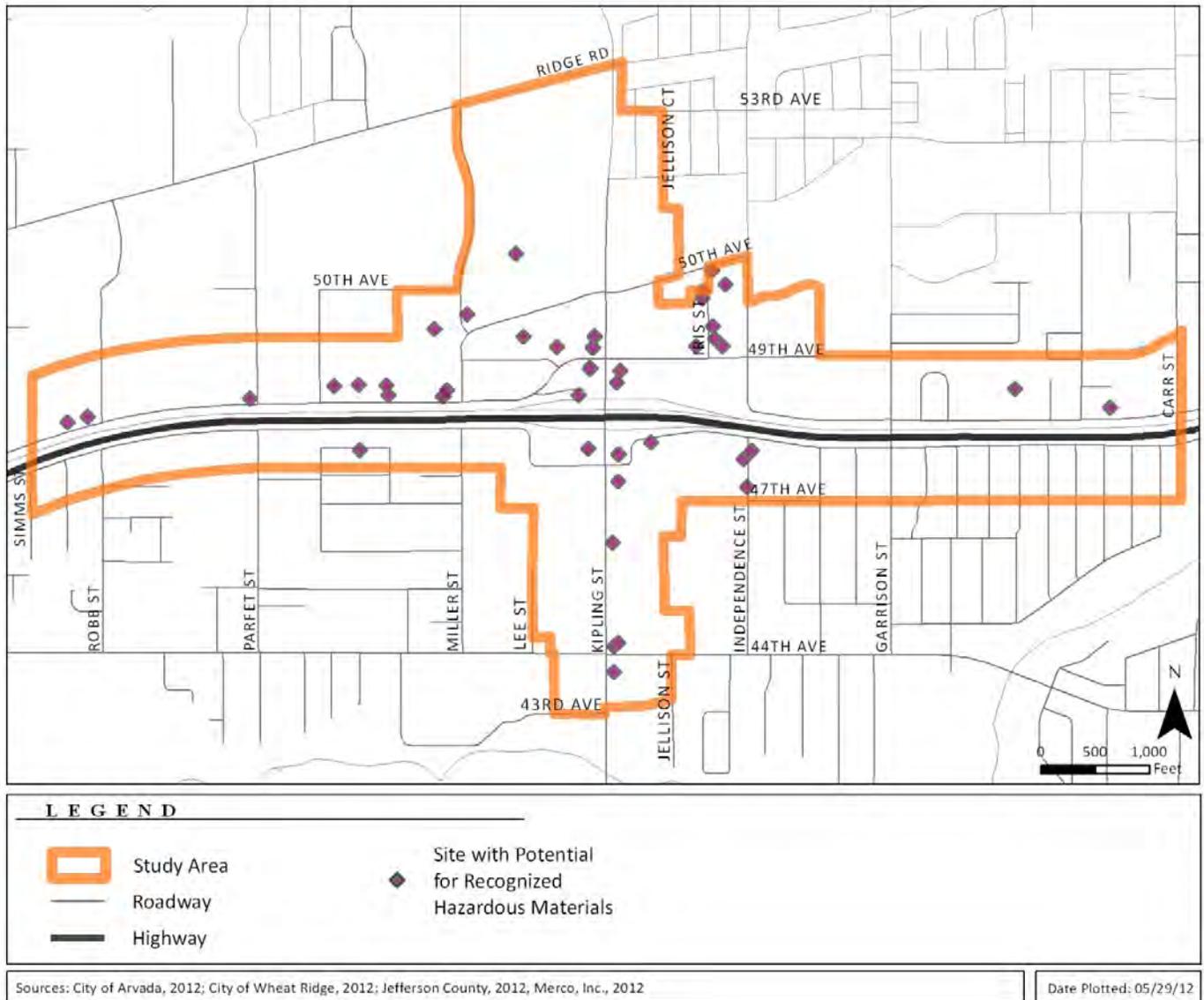
\*Recognized environmental conditions, as defined by the American Society for Testing and Materials Standard E 1527-05, include sites with “*the presence or likely presence of any hazardous substances or petroleum products on a property under conditions that indicate an existing release, a past release, 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.*” \*

### Existing Conditions

After review of the database search of local, state, tribal, and federal environmental agency databases and a windshield survey, a total of 41 sites were “flagged” within the study area and adjacent to the study area with recognized environmental conditions. All of these sites were categorized as having “low” or “medium” potential impact to the study area. There were no sites categorized as “high”. These sites are listed in **Appendix A** and shown in **Figure 2**.

Eleven sites were identified with medium potential to impact project recommendations from the study. Primarily, these sites are closed Leaking Underground Storage Tanks or historical solid waste landfills; however, residual contamination may have the potential to impact soils in the study area. Thirty sites were identified with a low potential to impact the study area. These sites are generally Resource Conservation and Recovery Act registered generators of hazardous waste in compliance, or facilities with registered underground storage tanks (USTs).

**Figure 2: Sites with the Potential for Recognized Environmental Conditions**



To obtain current information on the presence of potential or recognized environmental conditions, a limited site reconnaissance of properties within the study area was conducted. The interior of buildings, fenced areas and rear lots (alley side portion of each property) were not inspected as part of the site reconnaissance. The properties were assessed for evidence of potential presence of hazardous materials concerns. Sites identified from the site reconnaissance are summarized in **Table 2**.

**Table 2: Facilities with Potential to Impact the Study Area – Site Reconnaissance**

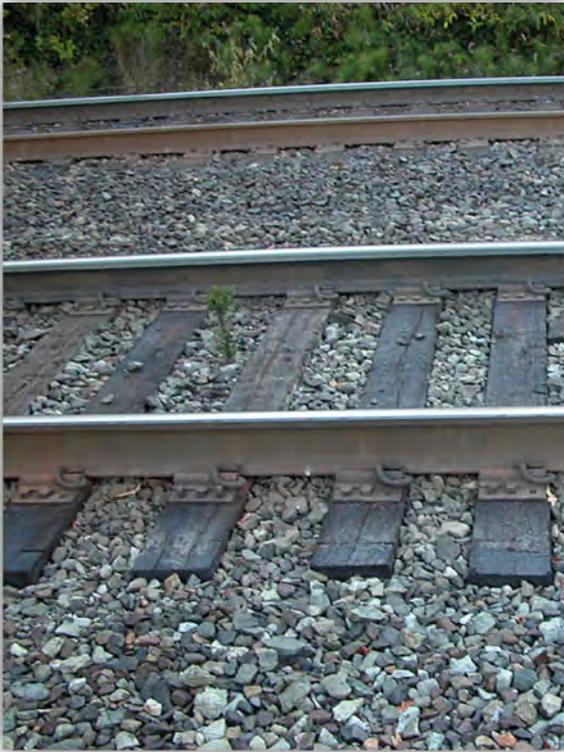
Site Name	Site Address	Potential Issues
Clover Masonry	4830 Dover Street	There is a scrap yard on-site and a potential UST. Perform masonry work.
National Self Storage-Denver	8845 N I-70 Frontage Road	Public storage facility. Potential exists for methamphetamine lab activity and/or improper waste storage or disposal.
Pikotec Industries	Southwest Intersection of Independence Street and West 50th Avenue	Air scrubbers observed. Potential generator of small quantity hazardous waste.
Terracon	10625 W I-70 Frontage Road	Environmental consulting company. Possible generator of small quantity hazardous waste.
Samuel, Son, & Co.	5185 Miller Street	Metal processing and distribution business. Possible generator of small quantity hazardous waste.
Habitat for Humanity Habitat Re-Store	10625 W I-70 Frontage Road	Potential generator of small quantity hazardous waste.
Wolf Auto	4855 Miller Street	Potential generator of small quantity hazardous waste.
NAPA Auto Parts	10100 West 49th Avenue	Potential generator of small quantity hazardous waste.

Source: Limited site reconnaissance, Pinyon Environmental, March 2012

## Next Steps

Where the potential for encountering contamination is suspected, avoidance or identification of potential mitigation measures can be implemented when reasonably possible. Environmental contaminants are most likely to be encountered during ground-disturbing activities at hazardous materials sites, and the contaminants at each site can be different. The most fundamental management for hazardous materials is to avoid contaminated sites, which often is not feasible. Wherever possible, responsibilities for known hazardous materials issues at properties targeted for construction should be resolved during acquisition. Accordingly, it is anticipated that additional assessment and/or field investigations may be required in future NEPA activities, right-of-way acquisition or the development of specific materials management or institutional controls required during construction.

A hazardous materials assessment, such as a Modified Phase I Environmental Site Assessment, would typically be needed as part of future project development. The purpose of conducting a more detailed hazardous material assessment is to provide the information needed to plan for known and potential hazardous materials and contaminated sites. During the final planning and design process, this information can be used to identify avoidance options, when possible, and to assist with the development of specific contaminated soils/groundwater material management or mitigation measures. Properties to be acquired may also require individual site assessments and/or preliminary site investigations as part of the right-of-way acquisition process, and may require remediation prior to acquisition or development.



Portion of the Colorado and Southern Railway near study area

## Historic and Archeological Resources

To warrant consideration of impacts in a federally-funded project, archaeological and historic resources must be listed on or meet the eligibility criteria established for the National Register of Historic Places (NRHP).

### Existing Conditions

The Colorado Historical Society/Office of Archeology and Historic Preservation performed a file search for the following land sections encompassed by the study area. The file search was followed by an online search for more information about the identified cultural resources in order to determine the potential for impact by the project.

A historic overview of study area development has been included. It is included to support the evaluation of cultural resources and allow better understanding of historical patterns, themes, and periods that may contribute to the significance of cultural resources.

### History of Jefferson County

The history of Jefferson County extends back to the first documented gold strike in Colorado, when Lewis Ralston discovered gold in 1850 at the confluence of Clear Creek and Ralston Creek (Arvada Historical Society, 2011). In 1855, the Kansas Territory established Arapahoe County to include the area east of the present-day Colorado border to the Continental Divide, and settlements were established as gold was discovered at various sites in the area (Jefferson County, 2009).

In 1859, delegates from the settlements attended a convention to draft proposed state and territorial constitutions; later that year, voters chose to seek the establishment of a territory rather than a state. The provisional Jefferson Territory legislature met to organize twelve counties, this included establishment of Jefferson County. Between 1870 and 1969, several towns including Arvada, Morrison, Edgewater, Lakewood, Westminster, Lakeside, Broomfield, and Wheat Ridge were platted and incorporated.

## History of Arvada

Arvada is the site of the first documented gold strike in Colorado. Settlers began to arrive after a second gold strike was made in 1858 (Regional Transportation District (RTD), 2009). By the early 1860s, agriculture became the primary activity and farmers sold their products to the Denver Market (RTD, 2009). Benjamin Wadsworth and Louis Reno platted the town for the first time in 1870. Arvada was officially incorporated in 1904 (RTD, 2009).

During the late 1940s, development in Arvada shifted from agricultural to suburban, and residences and businesses increased. By 1960, the city was the largest in Jefferson County, and residents primarily commuted to work outside of the city. New roadways made the commute to Denver much easier, and the population increased to nearly 50,000 residents by 1970 (RTD, 2009).

## History of Wheat Ridge

The City of Wheat Ridge was settled in 1859 by gold prospectors (RTD, 2009). Government homesteading programs that provided inexpensive, fertile agricultural land encouraged more settlers to arrive, and permanent developments were established by 1867 (RTD, 2009). Wheat Ridge remained unincorporated until the 1960s, when Denver threatened to annex it. State legislature was attempting to change annexation policy so that existing towns could annex any unincorporated area within three miles of the town border without resident approval. Wheat Ridge citizens voted to incorporate the City of Wheat Ridge in 1969 (RTD, 2009).

## Resources in the Study Area

The file search revealed that three surveys had been conducted within the study area between the years of 1998 and 2008. Two potentially eligible historic resources were identified in the study area: the Slough Ditch, and the Colorado Central and Colorado and Southern Railway. No archaeological resources were identified.

### Slough Ditch

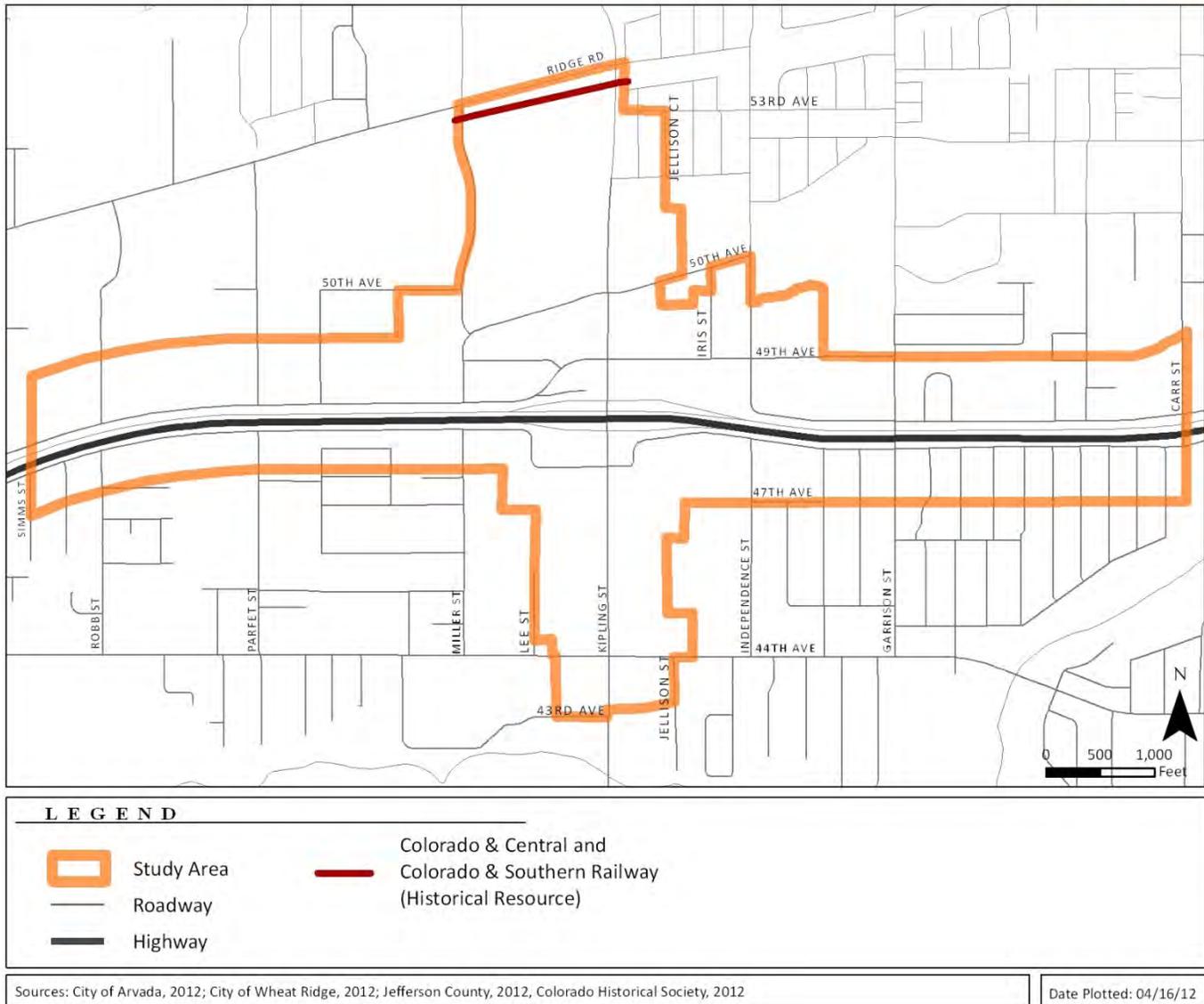
The Slough Ditch was surveyed in 2000, and found to be officially not eligible for the NRHP by State Historic Preservation Office (SHPO).

### Colorado Central and Colorado and Southern Railway

The Colorado Central and Colorado and Southern Railroad companies began construction of a railroad between Golden and Denver in 1870. The rail system was determined Officially Eligible for listing on the NHRP in 1998 and its condition ranges

from fair to heavily disturbed, according to a survey performed by URS Corporation in 2007. The railroad parallels Ridge Road through the northern portion of the study area, as shown in **Figure 3**.

**Figure 3: Cultural Resources within Study Area**



## Next Steps

Historical and archaeological sites are not renewable; as such, the best resource management is to avoid impacts to properties listed or evaluated as eligible for inclusion on the NRHP. Avoiding or minimizing impacts to historic and archaeological resources can be accomplished by the following methods:

- Avoid direct and indirect impacts to known NHRP-eligible or listed resources during alternative development and design;
- Develop alternatives that are consistent with historic character of area; and

- Mitigate unavoidable impacts to NRHP-eligible resources through data recovery, analysis, and publication of findings.

Detailed evaluation of any recommended alternatives as part of a NEPA document would be considered a federal undertaking, requiring compliance with Section 106 of the National Historic Preservation Act.

Section 106 requires federal agencies to consider the effects of their undertakings upon significant (NRHP-listed or eligible) historic properties. Compliance with Section 106 involves a consultative process and a sequence of steps: identification, evaluation, effects determination, and resolution of effects.

Compliance with these laws supports future NEPA processes and involves the following steps:

- Consult with the SHPO to define an appropriate Area of Potential Effects for historic and archaeological resources;
- Identify and invite relevant government agencies, organizations, and tribes to participate as consulting parties in the Section 106 process;
- Conduct intensive-level field surveys in all areas that may be subject to project impacts. Undetected resources, primarily archaeological sites, may exist within the study area. All identified cultural resources will be evaluated or re-evaluated for NRHP eligibility and documentation submitted to SHPO for concurrence;
- Evaluate effects to NRHP-eligible or listed properties from the project by applying federal Criteria of Adverse Effect;
- Consult with SHPO and other consulting parties to resolve any adverse effects, through project redesign/avoidance, minimization of impacts, or mitigation;
- Involve the Advisory Council on Historic Preservation if any adverse effects cannot be resolved through consultation;
- Document the resolution of any identified adverse effects and mitigation prescriptions in a Memorandum of Agreement signed by the Federal Highway Administration (FHWA), CDOT, SHPO and if appropriate, consulting parties; and
- Implement the specified mitigation measures. Mitigation of impacts to historic sites may include: permanent recording by historical narrative, medium or large format black-and-white photography, measured drawings, and public interpretation. Mitigation of impacts to archaeological sites typically involves data recovery.



Fruitdale Park in the City of Wheat Ridge

## Parks and Recreation Resources

This section describes the parklands and recreational areas in the study area. Section 4(f) of the Department of Transportation Act of 1966 stipulates that FHWA and other Department of Transportation agencies cannot approve the use of land from publicly owned parks, recreational areas, wildlife and waterfowl refuges, or public and private historic sites unless there is no feasible and prudent alternative to the use of land, and the action includes all possible planning to minimize harm to the property resulting from use.

The Land and Water Conservation Fund (LWCF) Act of 1965 established a Federal funding program to assist states in developing outdoor recreation sites. Section 6(f) of the act prohibits the conversion of property acquired or developed with these funds to a non-recreational purpose without the approval of the National Park Service (NPS) (NPS, 2008).

### Existing Conditions

The *Arvada Parks, Trails and Open Space Master Plan (2001)* and the *City of Wheat Ridge Parks and Recreation Master Plan (2006)* were consulted in combination with a survey of Geographic Information Systems (GIS) data provided by the City of Arvada, City of Wheat Ridge, and Jefferson County to identify existing and future parks and recreation facilities within the study area. The cities of Wheat Ridge and Arvada and Jefferson County have all included open space elements in future planning. These elements include both developed parks and passive open space, with natural resources and riparian areas that will be preserved. The DRCOG *MetroVision 2035 Plan* (February 2011) has a goal to “*establish an integrated parks and open space system comprised of a minimum of 880 acres*”. Two existing facilities were identified; an off-street pedestrian path and a park. A file search was

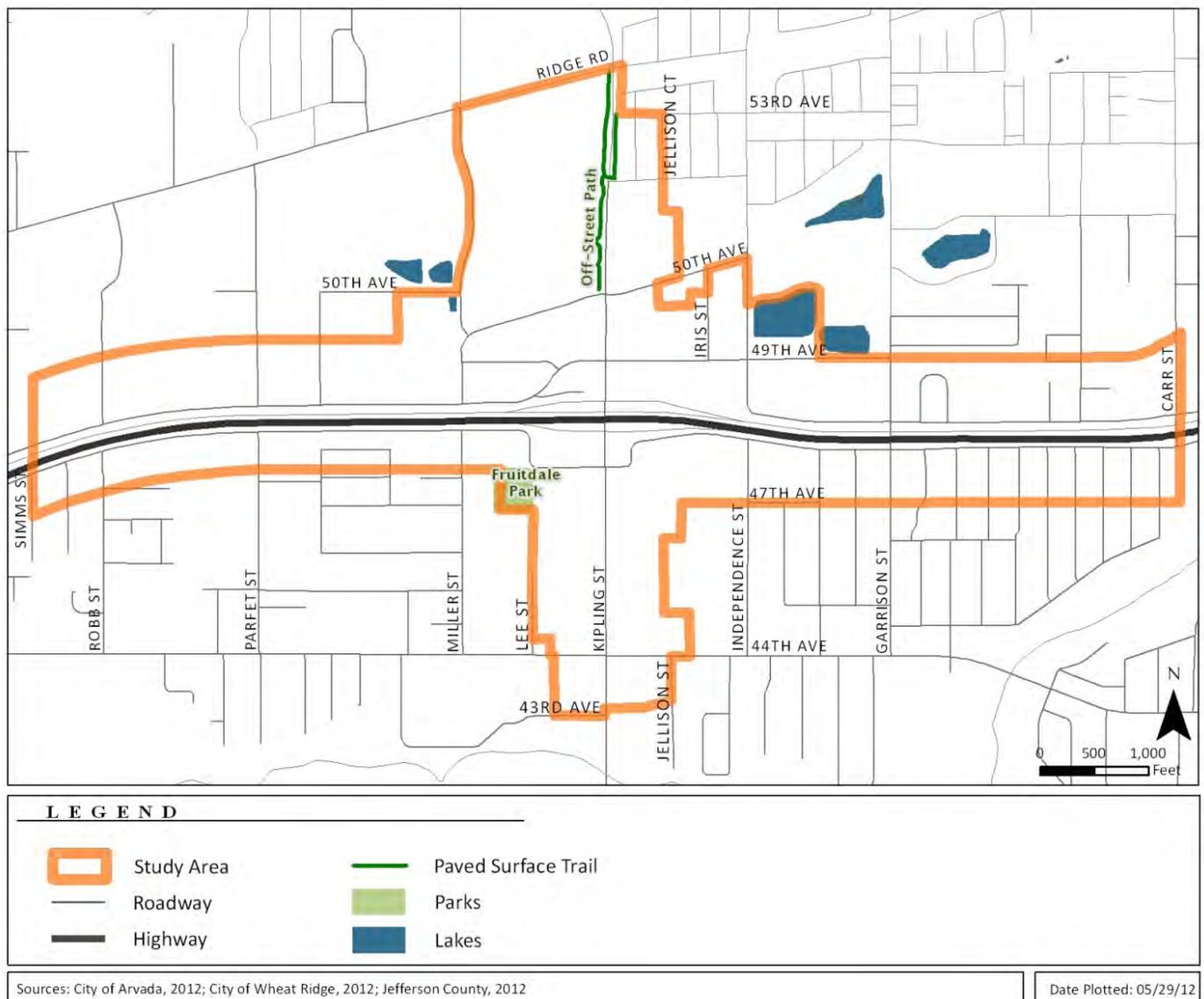
conducted in April 2012 to determine whether LWCF 6(f) funds were used on either facility. Neither facility was constructed using 6(f) funds.

Fruitdale Park facilities include a basketball court, playground, picnic shelter, barbeques, horseshoe pits, off-street parking, and soft surface walking trails.

Two potential Section 4(f) resources exist within the study area, Fruitdale Park and an unnamed off-street trail along Kipling Street as depicted in **Figure 4**. Fruitdale Park is a 12-acre park under the jurisdiction of the City of Wheat Ridge. The park is located at 4700 Miller Street, southwest of the I-70 and Kipling Street interchange, and is partially intersected by the study area boundary.

The City of Arvada maintains an unnamed, off-street paved trail running north along the west and east sides of Kipling Street. The trail originates at West 50th Avenue on the west side of Kipling Street and terminates outside of the study area.

**Figure 4: Potential Section 4(f) Resources**



## Next Steps

Mitigation measures will be coordinated with the City of Wheat Ridge and the City of Arvada, if required.

During the study alternatives development, the conceptual design will be modified to avoid impacts to parks and recreational resources wherever possible.

Next steps for impacts to Section 4(f) resources during the NEPA process include:

- A detailed analysis of the impacts of the project design to parkland and recreational resources; and
- A Section 4(f) evaluation which includes: avoidance of park and recreational resources; mitigation, or measures to minimize harm; documentation of feasible and prudent avoidance alternatives; and coordination with FHWA and officials with jurisdiction.



Northbound Kipling Street at the I-70 interchange

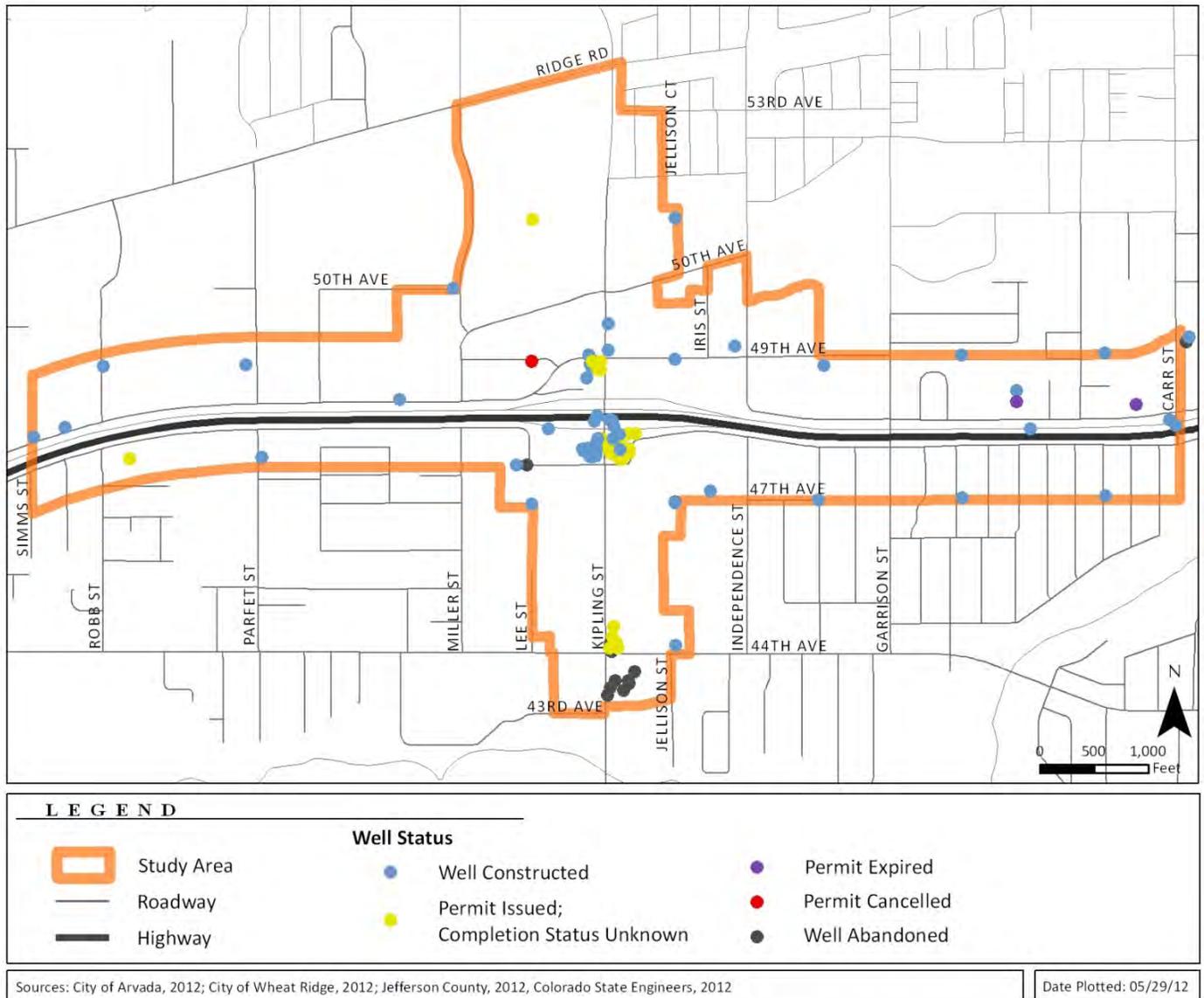
## Wells

This section describes the existing wells located in the study area. Wells may be drilled for residential, commercial, irrigation, or other uses, such as groundwater monitoring. Acquisition of right-of-way for a project recommended by the study may require use of groundwater normally allocated to the well owner, relocation of wells or potential for groundwater contamination, requiring costly mitigation. It is important to identify the location of wells so they may be avoided during design and construction activities.

### Existing Conditions

Existing wells in the study area were identified through a survey of GIS data from the Colorado Division of Water Resources (2012).

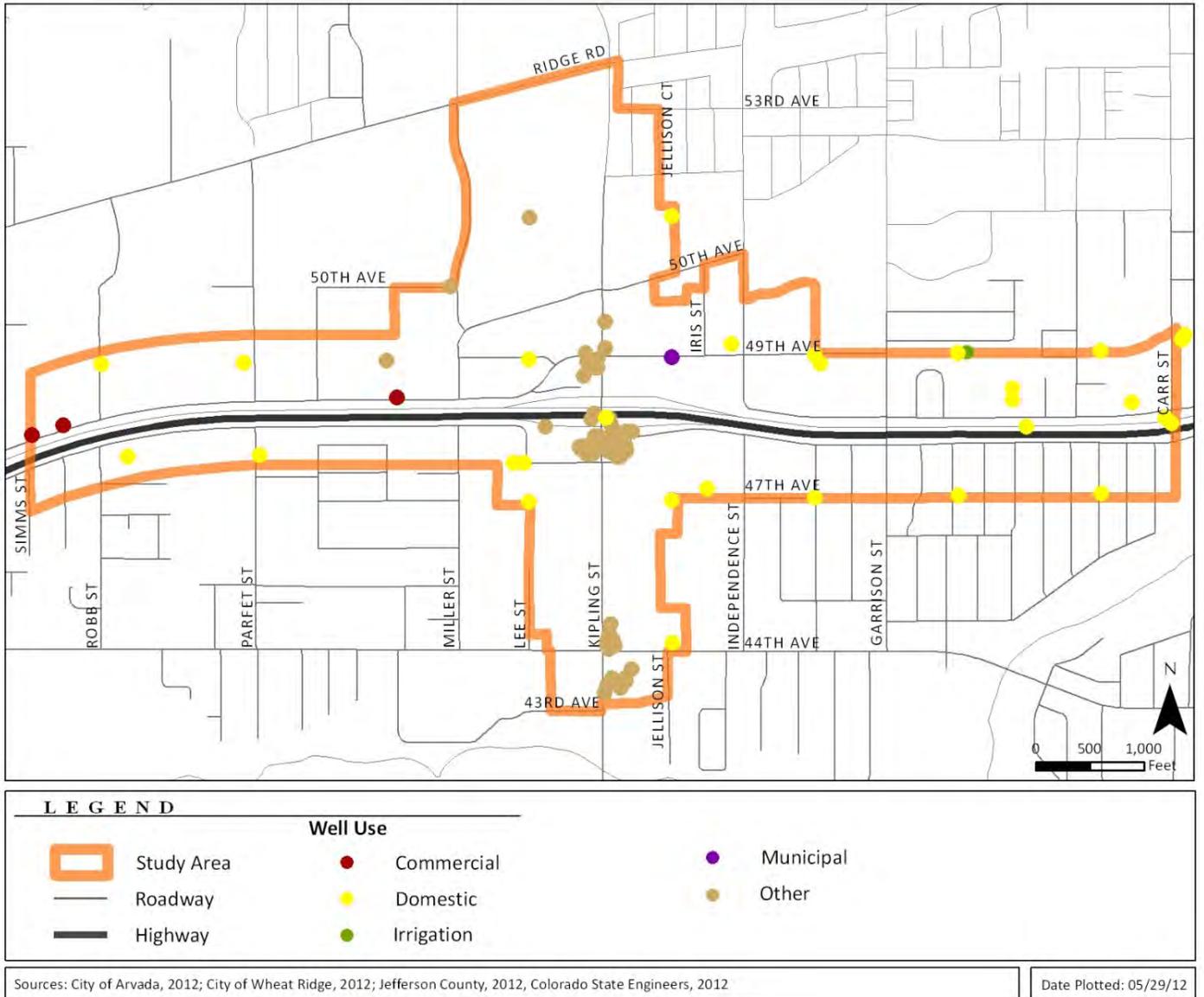
Approximately 250 water wells were identified within the study area. The distribution and construction status of the wells is depicted in **Figure 5**. The majority of these wells have been issued a permit that is still valid. However, several wells near the southern boundary of the study area have been abandoned. Several other wells have been issued a permit, but the status of the well is unknown; these wells are shown in **Figure 5** but may not have been constructed. A few of the wells have cancelled or expired permits (Colorado Division of Water Resources, 2012).

**Figure 5: Distribution and Status Of Wells in Study Area**

Approximately two-thirds of the wells are classified as “other” usages; the majority of these are used as monitoring wells. Monitoring wells are constructed for the purpose of locating water, pump or aquifer testing, monitoring ground water, or collection of water quality samples. The remaining one-third of wells are used primarily for domestic or residential uses. A few wells are used for municipal, commercial, or irrigation purposes. No specific information is available regarding the aquifer the wells draw from.

**Figure 6** depicts well usage (Colorado Division of Water Resources, 2008 & 2012).

Figure 6: Well Usage in Study Area



## Next Steps

Mitigation measures that protect water rights will be required as part of any improvements that would impact water supplies.

Construction projects resulting from this study may require dewatering permits, depending on the local groundwater levels. Dewatering permits typically involve conversion of an existing well to a dewatering system. Groundwater monitoring may also be necessary to confirm no contamination has occurred. This would require obtaining a well permit from the Colorado Division of Water Resources (Colorado Division of Water Resources, 2012).

Next steps for water well resources during the NEPA process include:

- A detailed analysis of the project design impacts to existing water wells;

- A plan for avoidance of existing wells during and after construction;
- Identification of the necessary permits for construction activities;
- Assessment of the need for groundwater monitoring before, during, and after the project; and
- Coordination with local planners and other city officials.



Ditch; northwest quadrant of I-70 and Kipling Street

## Biological Resources

Consideration of biological resources in the study area must consider area vegetation, wildlife and habitat such as riparian areas, wetlands and/or Waters of the U.S. (WUS). Impacts associated with roadway improvements have the potential to cause habitat loss, the spread of noxious weeds, impacts to aquatic species due to impacts to water resources and impacts wildlife downstream as a result of depletions to the South Platte River.

## WUS

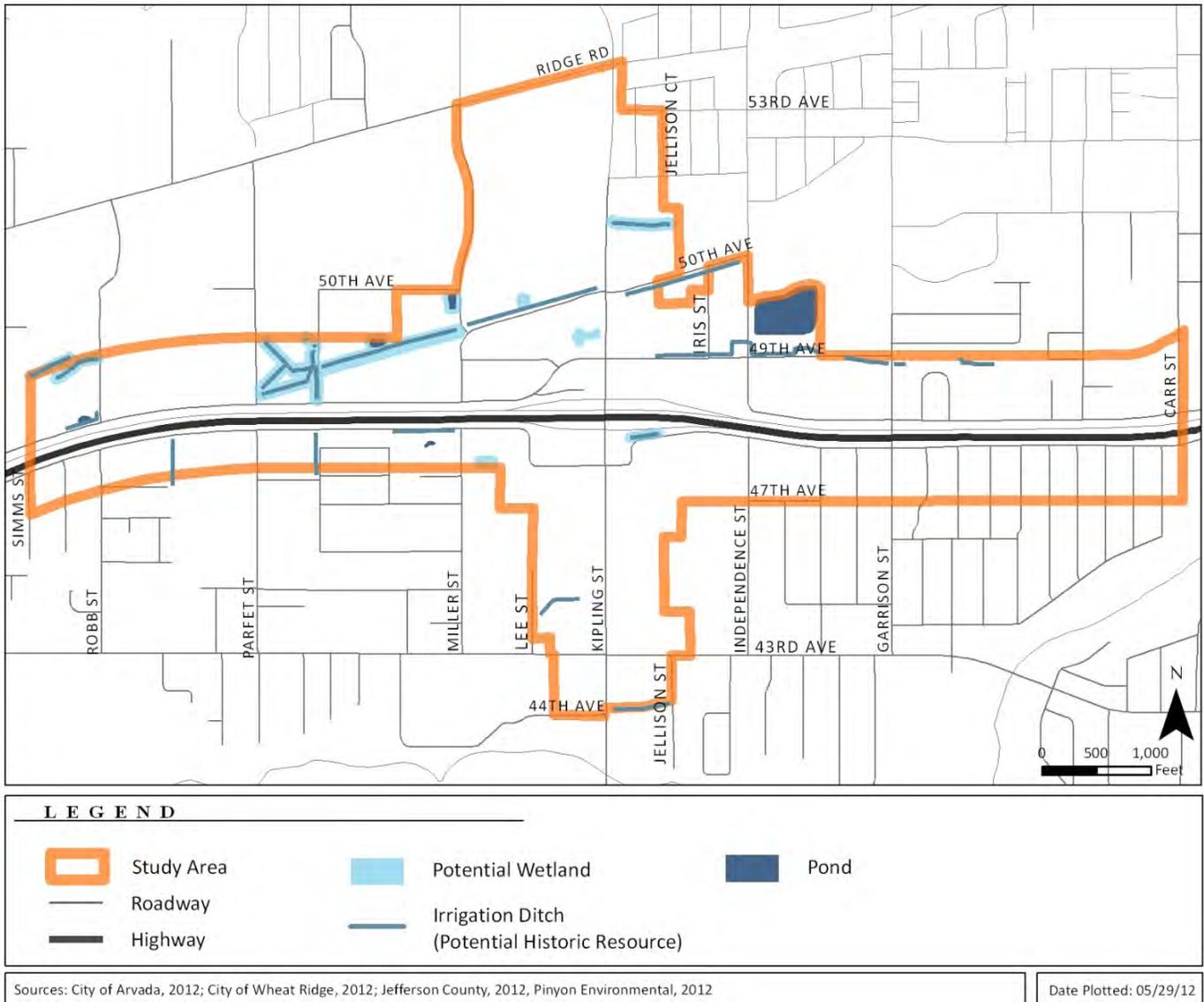
### Existing Conditions

Field maps of the study area were reviewed for potential wetlands and WUS, in addition the project team visited the study area to map potential wetlands and/or WUS. Section 404 of the Clean Water Act protects wetlands and waters of the United States. DRCOG's *MetroVision 2035 Plan* (February 2011) also acknowledges the importance of protecting regional surface waters, riparian areas and wetlands by committing to preserve and protect them from the planned increase in development. Features named are based on United States Geographic Survey (USGS) data and GIS data. If a feature was unnamed, then a name was assigned based on nearby streets. Formal wetland delineations were not performed.

There are numerous irrigations ditches located within the study area. Ditches range from small and narrow (1-foot wide) concrete-lined channels lacking any wetland vegetation to wider (8-foot wide) unconsolidated channels with abutting wetland and/or riparian vegetation. In addition to irrigation ditches, stormwater conveyance channels and detentions ponds associated with larger commercial and residential complexes are also common within the study area. Several swales/depression areas that accumulate stormwater runoff along roadsides are also present. Ditch types were assigned, but it was not always possible to determine if the primary use was for irrigation or stormwater conveyance. Some ditches may have been historically

used for irrigation, but subsequently altered to manage stormwater. Potential wetland and WUS features (ditches, swales and ponds) identified in the study area are summarized in **Appendix B** and are shown in **Figure 7**.

**Figure 7: Wetlands and Waters of the U.S. (WUS) in the Study Area**



## Next Steps

Under the Section 404 of the Clean Water Act, impacts to WUS, including wetlands and open water features, must be avoided, minimized, or mitigated to ensure that there is no net loss of functions and values of jurisdictional wetlands. To the extent practicable, future planning and design will incorporate avoidance and minimization of impacts to known wetland areas. Where avoidance and minimization would not be practicable, mitigation for impacts to wetlands could be achieved through the use of temporary and permanent Best Management Practices (BMPs).

A Section 404 permit would likely be required from the USACE to authorize placement of dredge or fill material in any WUS including wetlands. Impacts under 0.5 acre are often permitted under existing Nationwide Permits (NWP), such as Number 14 which covers linear transportation projects. Impacts greater than 0.5 acre would require obtaining an Individual Permit. An Individual Permit includes a public notice and would trigger a NEPA clearance for the USACE. Generally, mitigation would be required under either permit type for impacts exceeding 0.1 acre of jurisdictional WUS or wetlands. Prior to application for a permit, a wetland delineation survey would need to be conducted to document wetland boundaries and impact footprints.

CDOT regulates wetlands regardless of USACE jurisdiction. A CDOT Wetland Findings report may be required if permanent wetland impacts exceed 500 square feet or if temporary impacts exceed 1,000 square feet, regardless of whether USACE has jurisdiction. This does not include impacts to open water areas.

## Noxious Weeds

### Existing Conditions

The project team reviewed the State of Colorado and Jefferson County noxious weed lists (Colorado Department of Agriculture (CDOA), 2012; Jefferson County, 2012) and visited the study area on March 29, 2012 to map weeds.

There are numerous landscaped areas in the study area associated with adjacent commercial and residential properties. Vegetation in undeveloped areas is mostly a mix of herbaceous weeds and non-native grasses dominated. Smooth brome (*Bromus inermis*) is the most common species. There are trees scattered throughout the project area. Cottonwoods and Siberian elms (*Ulmus pumila*) are the most common species.

Both the State of Colorado (State) and Jefferson County place noxious weeds into one of three categories:

- List A - species are designated for eradication, and require prevention of seed production or development of reproductive propagules.
- List B - species are managed and controlled by a noxious weed management plan, with the goal of stopping the continued spread of these species.
- List C - species for which a project would develop management plans with the goal of supporting jurisdictions that choose to require management of those species (CDOA, 2012; Jefferson County 2012).

No State or Jefferson County A-listed species were observed in the study area. State and Jefferson County B-listed species observed included Canada thistle (*Cirsium arvense*), common teasel (*Dipsacus fullonum*), diffuse knapweed (*Centaurea diffusa*), hoary cress (*Cardaria pubescens*), and Russian olive (*Elaeagnus angustifolia*). List-C species included poison hemlock (*Conium maculatum*), field bindweed (*Convolvulus arvensis*), common mullein (*Verbascum thapsus*) and redstem filaree (*Erodium cicutarium*).

Weeds were generally observed along the roadsides and in disturbed areas. Two areas with noticeable weed infestations were the Slough Ditch from Oak Street to Miller and the aqueduct near 50th Avenue east of Kipling Street.

## Next Steps

There are weeds in the project area and CDOT is expected to require preparation of an Integrated Noxious Weed Management Plan which would include steps to control existing noxious weeds. Regardless of whether an Integrated Noxious Weed Management Plan is required, the construction contractor for any recommended project would be required to follow the revised Section 217 of the CDOT Standard Specifications and implement the standard CDOT BMPs.

Observation of weeds was limited because it is outside of the growing season. Therefore, it is expected that additional weeds are present in the project area. Weeds in the study area should be mapped during the growing season.

## Threatened and Endangered Species and Wildlife

### Existing Conditions

The project team reviewed State and County existing information on wildlife and threatened, endangered and special status species that could occur within the study area. The study area was assessed for:

- Habitat types;
- Habitat for state- and federally-listed species;
- Prairie dogs;
- Migratory birds including raptors; and
- Any other potential environmental concern associated with wildlife.

Northwest of the I-70 and Kipling Street interchange, there are multiple irrigation ditches. A small remnant stick nest was observed in the larger shrubs around the Swadley Ditch. There are also several unnamed irrigation features. This includes several ditches with adjacent wetland vegetation located adjacent to the ditches. Several larger trees were observed on the east boundary of the vacant field, and provide potential nesting bird habitat.

Northeast of the interchange the study area is a mix of commercial, light industrial and residential areas. There are several irrigation features in the northeast quadrant of the interchange, including an unnamed ditch north of West 50th Avenue, between Kipling Street and Independence Street. The unnamed ditch has a small riparian corridor surrounding it providing raptor nesting habitat. There is also a large pond northeast of Independence Street and West 49th Avenue and a vacant field roughly between Field Court and Estes Street. Larger trees surround the west and north perimeter of the vacant field, providing potential nesting bird habitat.

Southwest of the interchange is developed commercial properties that transition to residential properties. There are several irrigation features located in this quadrant.

There are large cottonwood (*Populus deltoides*) and Siberian elm (*Ulmus pumila*) trees within this area which are good potential habitat for nesting birds. Two potential raptor nests were observed in this area.

Southeast of the interchange the study area is primarily developed commercial and residential properties. Several unnamed drainages and swales are located along West 48th Avenue. There is a large undeveloped area along Kipling Street, from approximately West 47th Avenue south to West 44th Avenue. This area is similar to the southwest area of the interchange, dominated by an open field with patches of larger trees (cottonwoods and Siberian elms). Raptor nests were not observed here; however, the area provides good habitat for nesting raptors. Cliff swallows (*Petrochelidon pyrrhonotawere*) were observed nesting under the I-70 overpasses at Carr Street, Garrison Street and Kipling Street.

### Federally-Listed Threatened and Endangered Species

No suitable habitat was observed for any of the 12 federally-listed species with potential to occur in Jefferson County.

Three of the 12 listed species are associated with sub-irrigated soils along stream and floodplains in riparian habitat including the Preble's meadow jumping mouse (*Zapus hudsonius preblei*), the Colorado butterfly plant (*Gaura neomexicana* spp. *Coloradensis*) and the Ute ladies'-tresses orchid. There is no suitable riparian habitat within the study area for these species.

Five species that are listed occur downstream of the study area along the South Platte River and could be impacted by projects that would result in water depletions: interior least tern (*Sternula antillarum*), pallid sturgeon (*Scaphirhynchus albus*), piping plover (*Charadrius melodus*), whooping crane (*Grus americana*) and western prairie fringed orchid (*Platanthera praeclara*). The projects recommended by this study will not alter the flow of the water to the South Platte River; therefore, there is no potential to impact these species.

There is no suitable habitat for the remaining four species (CDOW, 2012b). Habitats for the Mexican spotted owls (*Strix occidentalis*), Canada lynx (*Lynx canadensis*), Gunnison prairie dog (*Cynomys gunnisoni*), and American wolverine (*Gulo gulo luscus*) do not exist in the study area.

### State-Listed Species

The Colorado Division of Wildlife (CDOW) also designates State-Specific Species of Concern (CDOW, 2012a). The habitat preferences and known locations of species with the potential to occur in Jefferson County were researched. Black-tailed prairie dogs (*Cynomys ludovicianus*) habitat was observed in all quadrants of the study area in open fields and vacant areas. Although no active prairie dogs were observed, there would be potential for this species to inhabit these areas. Black-tailed prairie dogs and some of the culverts may provide habitat for migrating burrowing owls (*Athene cunicularia*) which are a state Species of Concern and also protected under the Migratory Bird Treaty Act (MBTA).

There is moderate potential for the northern leopard frog (*Rana pipiens*) and the common garter snake (*Thamnophis sirtalis*), both State Species of Concern, to occur

in the wetland habitat along the numerous ditches, ponds, and stormwater detention basins within the study area.

## MBTA

The MBTA protects all birds their nests, and their eggs, except for pigeons (*Columba livia domestica*) and starlings (*Sturnus vulgaris vulgaris*). Bald eagles (*Haliaeetus leucocephalus*) were removed from the endangered species list in 2007, but continue to receive protection under the MBTA and the Bald and Golden Eagle Protection Act. The USFWS is responsible for enforcement of both these Acts, and works in cooperation with the CDOW. The CDOW has published guidelines on buffer distances to minimize impacts to nesting raptors (CDOW, 2008).

Tree removal, vegetation grubbing and other construction activities have the potential to destroy nests of bird species protected under the MBTA. Nearby construction activities during the breeding season may cause raptors to abandon nests. Similarly, winter construction activities may cause bald eagles to abandon roosting areas and the USFWS has published guidelines to minimize disturbance (USFWS, 2007).

Several potential raptor nests were observed in the study area, and the mature trees throughout the study area provide additional raptor nesting habitat. In addition, the mature trees may also provide winter roost sites for bald eagles. Swallows often nest under bridges and within box culverts and were observed nesting under the I-70 overpass over Carr Street, Garrison Street and Kipling Street.

## Next Steps

Several potential raptor nests and nesting habitat were observed in the study area. In Colorado, most nesting and rearing activities occur between April 1 and August 31, but raptors may nest as early as February 15. These dates are guidelines for non-disturbance; however, nesting birds are protected at all times. Construction activities for any recommended project shall schedule clearing and grubbing operations and work on structures to avoid taking (pursue, hunt, take, capture or kill; attempt to take, capture, kill or possess) migratory birds protected by the MBTA. Pre-construction surveys for nesting birds will likely be completed and should follow the methods set forth by the USFWS, CDOW or CDOT Section 240 Protection of Migratory Birds Standard Specification (CDOT, 2011).

Cliff swallows were also observed in the study area. Nesting locations may change from year to year, and areas should be re-surveyed prior to construction. No bridge or box culvert work may take place if there are nesting birds present. Bridge or box culvert work that may disturb nesting birds should be completed before birds begin to nest or after the young have fledged (typically between April 1 and August 31). If work activities are planned between these dates, old swallow nests should be removed before nesting begins and appropriate measures taken to assure no new nests are built prior to construction. Appropriate measure to keep birds from nesting include installing plastic sheeting to prevent swallows from accessing the bridge or removing any new nests within three days. Failure to keep new nests from becoming established may postpone project construction.



Frontage road near I-70 and Kipling Street interchange

## Noise

Traffic noise is an important issue for residents and business owners living near the interchange. This study will consider the noise effects of any improvement recommendations on sensitive receptors, such as residences, schools, parks and businesses. A preliminary analysis of traffic noise within the study area was performed to investigate the current traffic noise conditions and to determine the potential for future traffic noise concerns for the interchange.

### Existing Conditions

The noise analysis consisted of traffic noise measurements taken at various locations throughout the study area, followed by preliminary modeling of existing traffic noise. Potential impacts from traffic noise were assessed by comparing the traffic noise levels to CDOT's Noise Abatement Criteria (NAC), shown in **Table 3**. Noise was monitored at six locations and traffic volume estimates based on weekday counts were used.

The CDOT NAC for residences and other Category B receivers (residential) is an exterior equivalent sound level ( $L_{eq}$ ) of 66 A-scale decibels (dBA), and for commercial areas (Category C) is an  $L_{eq}$  of 71 dBA. Under CDOT guidelines (CDOT, 2002), equaling or exceeding the NAC is viewed as a noise impact and triggers an investigation of noise mitigation measures. Increasing the traffic noise levels by 10 dBA or more also constitutes a noise impact.

The selection of receptors to be modeled was a two-stage process. The first stage involved selecting of receptors that would characterize the worst noise level for all land parcels that are directly adjacent to Kipling, I-70, I-70 ramps and service roads. The worst noise for each of these properties was predicted using the noise model. Typically, a row of homes was represented by a single receptor.

**Table 4** lists parcels that were predicted to be impacted, their use, the receptor used to characterize their noise exposure, and the predicted noise level. The predicted noise was compared to the corresponding activity category criteria to establish where noise mitigation should be considered. **Figure 8** is a map showing the location of all the receptors and monitoring sites.

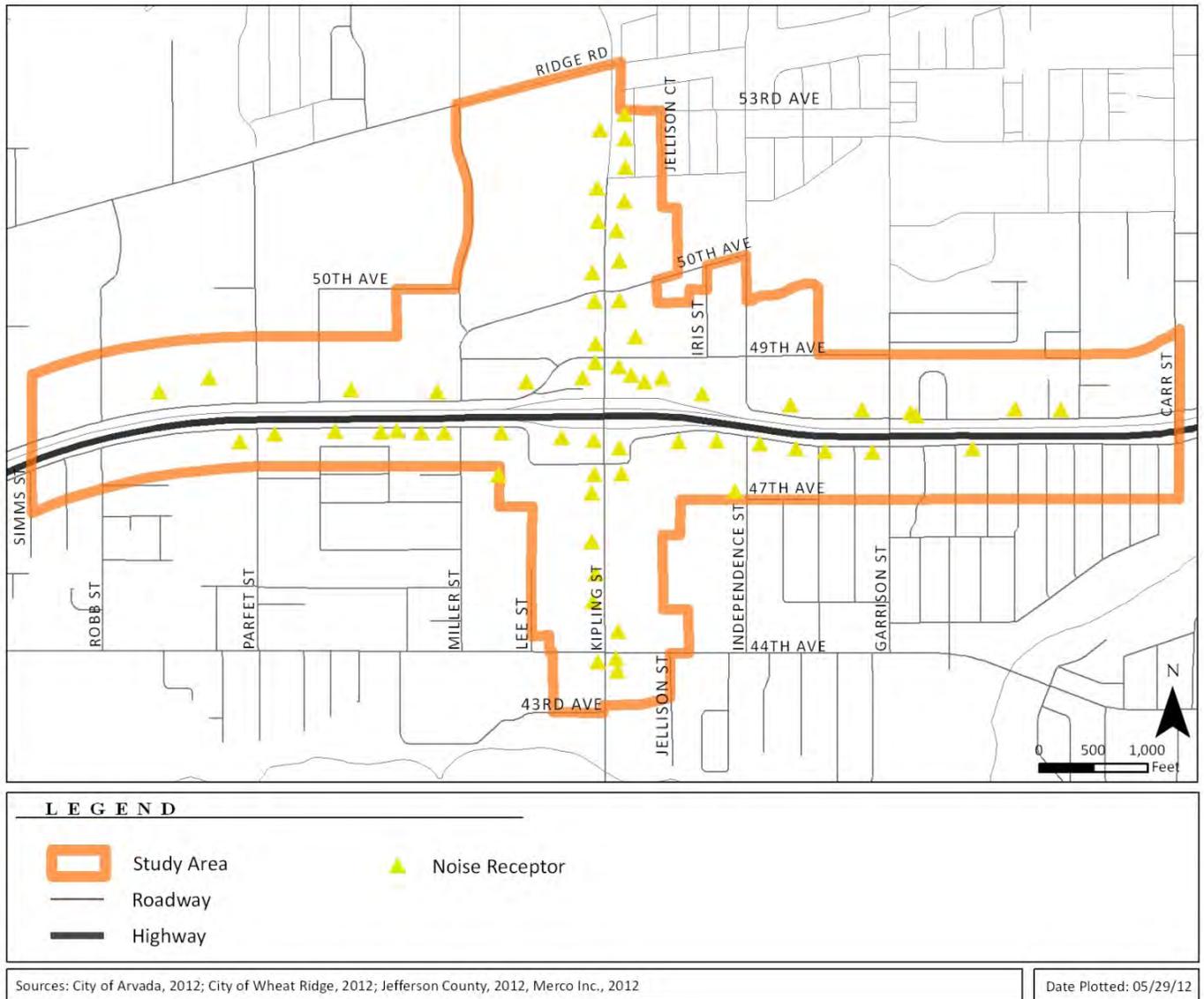
Table 3: NAC

Activity Category	Activity $L_{eq}(h)^*$	Evaluation Location	Activity Description
A	56	Exterior	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
BI	66	Exterior	Residential
CI	66	Exterior	Active sport areas, amphitheaters, auditoriums, campgrounds, cemeteries, day care centers, hospitals, libraries, medical facilities, parks, picnic areas, places of worship, playgrounds, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, recreational areas, Section 4(f) sites, schools, television studios, trails, and trail crossings.
D	51	Interior	Auditoriums, day care centers, hospitals, libraries, medical facilities, places of worship, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, schools, and television studios.
EI	71	Exterior	Hotels, motels, offices, restaurants/bars, and other developed lands, properties or activities not included in A-D or F.
F	NA	NA	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	NA	NA	Undeveloped lands that are not permitted for development.
I Includes undeveloped lands permitted for this activity category.			
* Hourly A-weighted sound level in dBA, reflecting a 1-dBA approach value below 23CFR772 values			

Table 4: Predicted Noise Impacts

Address	Land Use	Number of Units	AM Peak $L_{eq}$	PM Peak $L_{eq}$	Number of Units Impacted
9910 53 <sup>rd</sup> Ave	Single Family Home	1	65	67	1
5137 Johnson St	Single Family Home	1	65	67	1
5131 Johnson St	Single Family Home	1	65	67	1
5127 Johnson St	Single Family Home	1	65	67	1
5121 Johnson St	Single Family Home	1	65	67	1
5115 Johnson St	Single Family Home	1	65	67	1
5107 Johnson St	Single Family Home	1	65	67	1
9901 51 <sup>st</sup> Pl	Single Family Home	1	65	67	1
10605 W. 48 <sup>th</sup> Ave	Duplex	2	68	69	2
10615 W. 48 <sup>th</sup> Ave	Single Family Home	1	68	69	1
10625 W. 48 <sup>th</sup> Ave	Single Family Home	1	68	69	1
10645 W. 48 <sup>th</sup> Ave	Duplex	2	68	69	2
10675 W. 48 <sup>th</sup> Ave	Duplex	2	68	69	2
10705 48 <sup>th</sup> Ave	Duplex	2	67	68	2
10725 48 <sup>th</sup> Ave	Duplex	2	67	68	2
10800 48 <sup>th</sup> Ave	Single Family Home	1	67	68	1
4790 Robb St	Single Family Home	1	65	66	1
4745 Robb St	Mixed	2	65	66	2
4725 Routt St	Mixed	2	65	66	2

Figure 8: Noise Receptor Locations



There are 46 properties (26 residential units) with current noise levels high enough that noise mitigation consideration is required. CDOT constructed noise barriers at three locations along I-70. Except for a group of homes on 48<sup>th</sup> Avenue, these barriers reduce the noise exposure to levels below the NAC.

Commercial properties along I-70 west of Kipling Street, where no noise barrier exists, have noise exposures that exceed NAC. Homes north of 51<sup>st</sup> Avenue along Johnson Street have noise from Kipling traffic that exceeds NAC.

## Next Steps

FHWA and CDOT rules do not require mitigation consideration for noise produced from roadways beyond project limits. Some of the noise problems identified in this analysis may be beyond the limits of specific recommended improvements from this study and will not require any actions.

For properties already protected by a noise barrier, CDOT guidelines do not require rebuilding or increasing barrier capacity if it is demonstrated that the existing noise barrier reduces the noise levels by at least 7 dBA. This exception only applies if the contemplated construction does not reduce the effectiveness of the existing barrier.

A noise barrier along I-70 west of Kipling Street may be considered for noise mitigation; but because the properties impacted are commercial, interior noise levels may be the only issue. An analysis of interior noise levels may be appropriate.

If Kipling north of 51st Avenue ends up within the limits of a recommended improvement project, a noise barrier for the homes along Johnson Street may be considered. For the rest of Kipling Street within the study area, noise barriers would probably not be feasible because of the many openings required for intersecting roadways and property access.

During construction of a recommended project, a common-sense approach to controlling the impact of construction equipment and activities should be considered. Economical steps can be taken to minimize the effect of construction on local residents and sensitive receivers while not affecting construction schedules.



Vacant lot; northwest quadrant of I-70 and Kipling Street

## Land Use

Planning for future growth and land uses is an important local government responsibility. Each community's Comprehensive Plan, including its land use plan, reflects its desires and vision with respect to future growth and development. It is important to have an understanding of each community's vision and plan for the area in order to best plan for future improvements to the I-70 and Kipling Street interchange.

A variety of different sources were reviewed to create a summary of a community profile and land use maps. The summary was created using data from DRCOG and the United States (US) Census Bureau, parcel data from the counties, a visual inspection of the project area, and Arvada and Wheat Ridge planning documents, including comprehensive plans.

## Existing Conditions

As the Denver metro region continues to grow, inner ring suburbs such as the Cities of Wheat Ridge and Arvada have seen redevelopment and changes. Both communities are actively involved in planning and redevelopment activities. The Regional Transportation District (RTD) infrastructure improvements including the planned construction of the Gold Line Corridor along with the development of the Arvada Ridge station at Kipling and Ridge Road have propelled redevelopment in the I-70 and Kipling Street interchange area in advance of actual station construction.

Between 2000 and 2010, while Arvada and Jefferson County added population and households, Wheat Ridge shrunk slightly losing 2,747 persons in 583 households as seen in **Table 5**. Average annual growth rates for the decade were relatively modest for all areas at less than 1% per year, reflecting the mature nature of the communities in the area. In 2010, Arvada comprised nearly 20% of all persons and households in the County while Wheat Ridge comprised approximately 6% of persons and households.

**Figure 9** depicts current land uses as well as the boundaries of the “I-70/Kipling Corridors Urban Renewal Area” in Wheat Ridge and the “Ralston Fields Urban Renewal Area” in Arvada.

**Table 5: Population and Households: 2000-2010 in Study Area Communities**

	2000	2010	Growth 2000-2010	CAGR [1] 2000-2010
<b>Population</b>				
Wheat Ridge	32,913	30,166	-2,747	-0.9%
Arvada	102,153	106,433	4,280	0.4%
Jefferson County	527,056	534,543	7,487	0.1%
<b>Households</b>				
Wheat Ridge	14,559	13,976	-583	-0.4%
Arvada	39,019	42,701	3,682	0.9%
Jefferson County	206,067	218,160	12,093	0.6%

Source: US Census

[1] Compound Annual Growth Rate

### South of I-70 & West of Kipling

Along the I-70 Frontage Road, south of I-70 and west of Kipling, land uses include single family residential units, agricultural grazing land, agriculturally oriented commercial uses, a community school, hotels, and motels. Single family uses are interspersed and found along the Frontage Road. South of the interchange on the west side of Kipling, there are a number of multifamily units with a church located at the northwest corner of the 44th Avenue and Kipling Street intersection. There are a mix of commercial uses and vacant parcels south of the multifamily development.

### South of I-70 & East of Kipling

East of Kipling in the study area along the I-70 Frontage Road, there are a cluster of primarily commercial uses oriented to the highway. Many of the uses are in industrial style buildings while the businesses are commercial in orientation. Sample tenants include a Recreational Vehicle sales business, a medical business, a plumbing and heating shop, and auto repair. There are also single and multifamily residential units.

There are commercial uses immediately south of the interchange on the east side of Kipling. There are a number of vacant lots lining the east side of Kipling Street south of 47th Avenue. There is a gas station on the corner of Kipling and 44th Avenue. South of 44th, commercial uses include a car dealership and auto glass repair shop.

### North of I-70 & West of Kipling

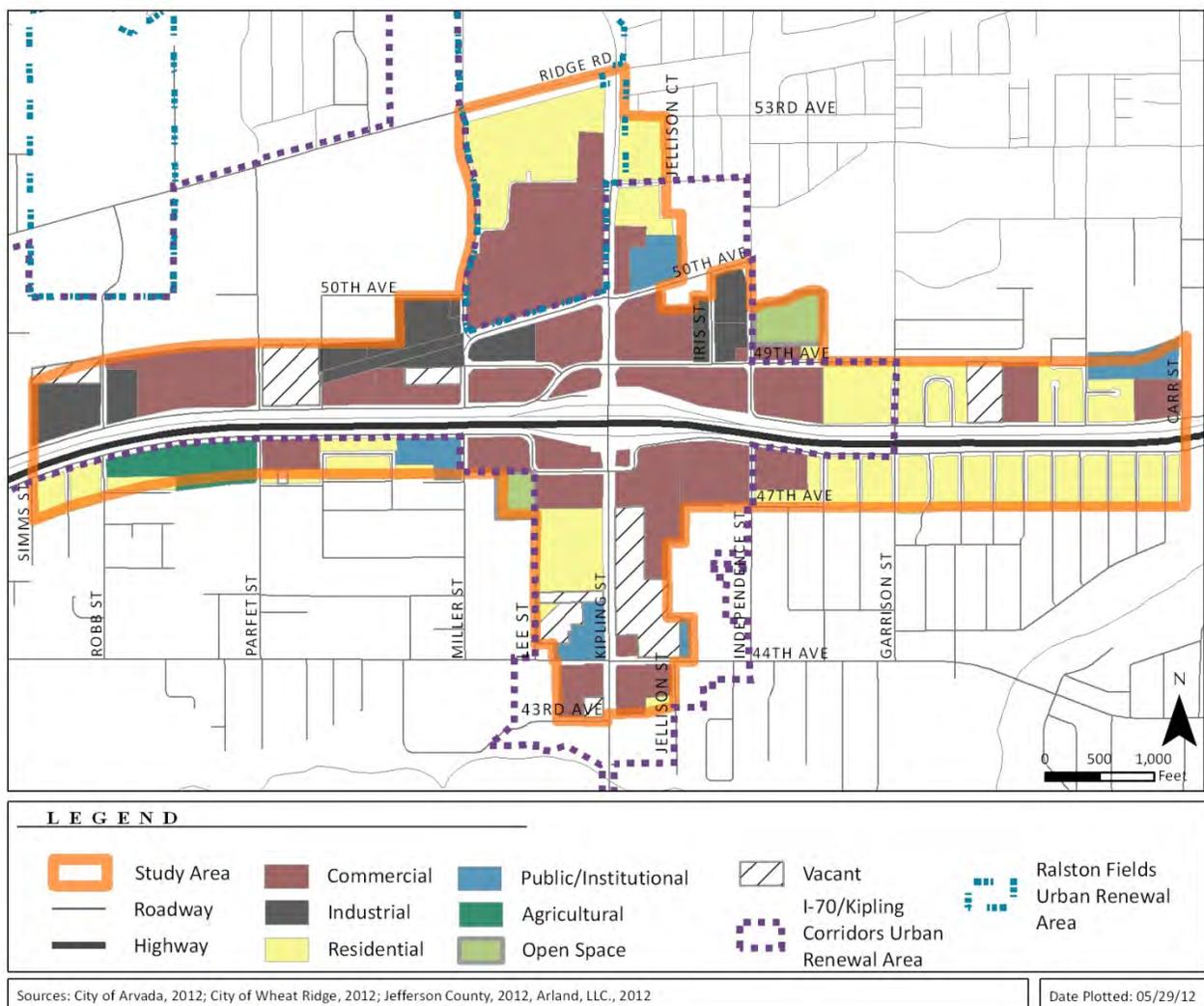
In the area north of I-70 and west of Kipling, the land uses are mainly industrial and commercial. There is a regional commercial center on the west side of Kipling, north of 50th Avenue, anchored by a Super Target, other medium box retail stores, and other commercial uses. Adjacent to the Super Target, Embrey Partners is currently constructing over 300 multifamily residential units adjacent to the planned RTD commuter rail station. There are industrial and commercial uses west of this

development area. Highway oriented retail such as car dealerships and hotels border I-70. Some commercial uses including a car dealer and a Habitat for Humanity retail outlet border I-70 in industrial warehouse type buildings. There are also a few vacant parcels which appear to have never been developed.

### North of I-70 & East of Kipling

Commercial uses border the east side of Kipling Street north of I-70 and along the highway close to the interchange. There is a multifamily residential development south of 51st Place bordered by commercial uses. East of a gas station on the corner of 50th and Kipling, a church and its offices are located on the north while commercial uses are found on the south. On 49th Avenue, commercial uses border the road with the exception of some industrial buildings to the north. Several single-family houses converted to businesses can be found east of Independence Street. There is a large pond north of these parcels. Single family residential units can be found east of and adjacent to Garrison Street, interspersed with vacant parcels, a school, and self-storage businesses.

**Figure 9: Current Land Uses in I-70 and Kipling Interchange PEL Study Area**



## Future Land Uses

**Table 6** shows population, household and employment estimates and forecasts for 2010 and 2035 for Wheat Ridge, Arvada, and Jefferson County. While both Wheat Ridge and Arvada are forecast to grow through 2035, together they represent a relatively small portion (16%) of Jefferson County forecasted population and household projected growth. Wheat Ridge is forecast to add nearly 5,000 households and Arvada is forecast to add nearly 9,000 households.

Wheat Ridge has a stronger employment base relative to its household numbers compared with Arvada and Jefferson County. It is projected to add over 6,600 jobs by 2035. Arvada is projected to add approximately 12,300 jobs while Jefferson County is forecast to add 167,600 jobs.

**Table 6: Population, Households and Employment: 2010-2035 in Study Area Communities**

	2010 <sup>[1]</sup>	2035 <sup>[2]</sup>	Growth 2010-2035	CAGR <sup>[4]</sup> 2010-2035
<b>Population</b>				
Wheat Ridge	30,166	39,930	9,764	1.1%
Arvada	106,433	126,739	20,306	0.7%
Jefferson County	534,543	720,087	185,544	1.2%
<b>Households<sup>[3]</sup></b>				
Wheat Ridge	13,976	18,920	4,944	1.2%
Arvada	42,701	51,700	8,999	0.8%
Jefferson County	218,160	304,660	86,500	1.3%
<b>Employment</b>				
Wheat Ridge	17,012	23,616	6,604	1.3%
Arvada	26,620	38,871	12,251	1.5%
Jefferson County	207,841	375,433	167,592	2.4%

Source: US Census, DRCOG

[1] 2010 US Census

[2] 2035 DRCOG forecasts

[3] 2035 household data estimated from the DRCOG COMPASS 4.0 model (2009 Cycle 2 land use data)

[4] Compound Annual Growth Rate

Future land uses are depicted in **Figure 10**. The land uses represented in the map summarize the land use visions for the area for the Cities of Arvada and Wheat Ridge. In addition to respective Comprehensive Plans, other local government plans (in coordination with the Comprehensive Plans) guide future land uses in the area. Portions of the study area in Wheat Ridge lie within the I-70/Kipling Corridors Urban Renewal Area. The land uses recommended in the Urban Renewal Area are reflected in the City of Wheat Ridge's Comprehensive Plan Land Use map. In Arvada, portions of the study area are in the Ralston Fields Urban Renewal Area. Desired land uses are reflected in the Arvada Transit Station Framework Plan.

Future land uses around the interchange area are primarily planned for mixed use commercial. South of I-70, Wheat Ridge calls for commercial/mixed use for properties adjacent to the Kipling Street corridor. Land uses north of I-70 are planned for mixed use employment, employment/industrial and residential uses in addition to mixed use commercial.

**Figure 10: Future Land Uses in I-70 and Kipling Interchange PEL Study Area**



Source: Metro Vision 2035 (DRCOG, February 2011)  
 City of Wheat Ridge Comprehensive Plan “Envision Wheat Ridge” (February 2009)  
 City of Arvada Comprehensive Plan (Adopted 2005. Land use plan updated June 2008)  
 I-70/Kipling Corridors Urban Renewal Plan (Wheat Ridge, 2009)  
 Ralston Fields Urban Renewal Plan (Arvada, October 2003)  
 Arvada Transit Station Framework Plan (Arvada, 2007)

## Community Barrier Effect

### Existing Conditions

Potential impacts could include removal or relocation of businesses, community facilities and services, or impeded mobility of residents to move freely through their community.

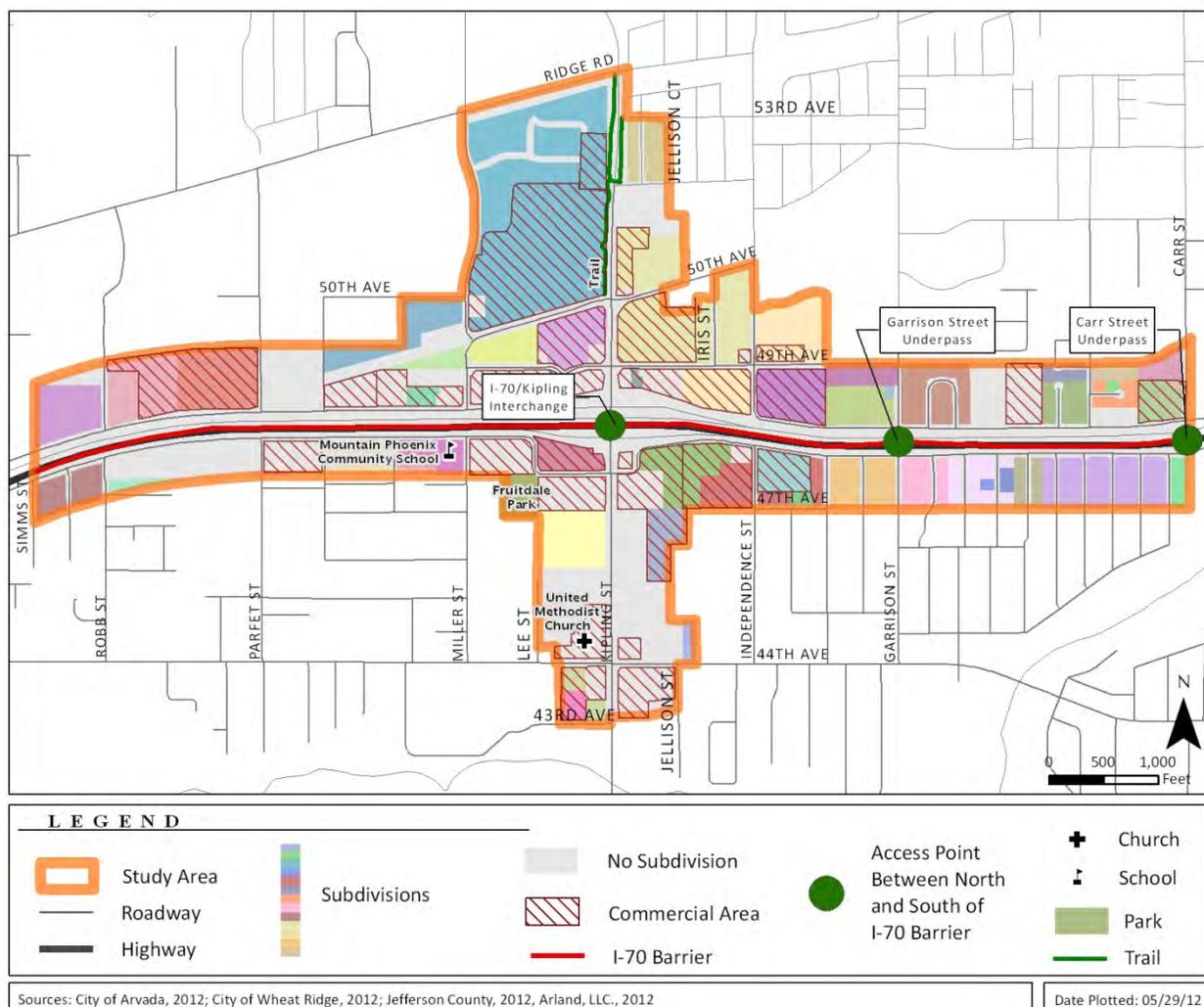
Transportation projects can have negative impacts on a community by introducing a “barrier effect.” For example, construction or widening of a roadway may isolate or cut off one section of a neighborhood, separating residents from their neighbors and the businesses and community facilities or services they use. Transportation projects can also have beneficial impacts, by reducing the amount of residential cut-through traffic, improved pedestrian and bicycle facilities, improved mobility (both motorized and non-motorized), increased opportunity for neighbor interactions, and relocation of community facilities or services to a more accessible location.

Existing and future land use data was reviewed for indicators of barrier effects, such as neighborhoods divided by transportation facilities, or isolation of a neighborhood from a community facility.

Several neighborhoods and subdivisions are present within the study area. The major existing transportation barrier in the area is I-70, which was constructed through the area in the late 1960s (CDOT, 2009). The interstate does not divide any subdivisions. However, the interstate did create a barrier effect to residents in the community who wish to easily access areas north or south of the interstate. There are limited access points at which residents can cross the interstate: the I-70 and Kipling Street interchange, the Garrison Street underpass, and the Carr Street underpass. These access points are identified in **Figure 11**.

Businesses are primarily clustered around the I-70 and Kipling Street interchange, although businesses and commercial enterprises are located throughout the study area. Community facilities in the study area include one school, located southwest of the interchange; two churches, located southwest and northeast of the interchange; one park, located southwest of the interchange; and one trail, located north of the interchange.

**Figure 11: Subdivisions, Commercial Areas, Community Facilities, and Barriers in Study Area**



## Next Steps

Mitigation measures will be identified for each particular land use, business, or residence affected by the projects recommended by the study, to be evaluated in a future NEPA process. To the extent possible, impacts will be avoided or minimized by rerouting of road alignments, bridging or other methods to avoid direct impacts. Where avoidance is not technically or economically feasible, mitigation measures will be implemented.

Because land use planning is under the purview of local agencies, ongoing coordination with local planners and other city officials is an important part of the process and will be an essential part of future project development to ensure that changes resulting from any recommendations are compatible with the intent of the Cities' visions for the area. Ongoing conversations with property owners, businesses, and residences potentially affected will also be a critical part of future project development. A more detailed assessment of the businesses or residences potentially affected will be needed. During the final planning and design process, this information can be used to identify avoidance options or mitigation measures to assist with concerns as a result of construction and ongoing operations.

Next steps for identifying community barrier effects could include:

- Alternatives development and evaluation
- Community outreach efforts, such as public meetings, to identify residents' concerns
- A plan addressing barrier effect mitigation measures warranted by, or incorporated into the project design
- Coordination with local planners and other city officials.

Strategies to avoid or mitigate barrier effects within a community include the following:

- Modify alternatives during alternatives evaluation so that the alternative footprint does not create a new barrier, exacerbate an existing barrier, or separate community facilities from the neighborhood;
- Minimize the project footprint to reduce the level of impact to the community; and
- Identify existing barriers and incorporate mitigation of the barriers into the alternative; for example, improving crosswalks or adding refuge islands at a wide intersection.

## Neighborhood/Business Displacement

### Existing Conditions

Right-of-way (ROW) comprises the land use to operate and maintain transportation facilities in the study area. A community could be impacted if land were acquired for ROW from privately owned property as part of the proposed project. ROW

widths were identified using assessor parcel data provided by Jefferson County, 2012.

ROW within the study area is generally owned by CDOT and local municipalities. Approximate existing ROW widths for segments of I-70 and arterial and collector roadways within the study area are identified in **Table 7**.

**Table 7: Existing ROW Within the Study Area**

Roadway Segment (within study area)	Approximate Width
I-70	Ranges 250 - 300 feet
I-70 North Frontage Road	80 feet
Kipling Street	Ranges 90 – 190 feet
West 50 <sup>th</sup> Ave	100 feet
West 49 <sup>th</sup> Ave	70 feet
West 48 <sup>th</sup> Ave	50 feet
West 44 <sup>th</sup> Ave	70 feet
Ridge Road	60 feet
Miller Street (north of West 48 <sup>th</sup> Ave)	70 feet
Independence Street (north of West 48 <sup>th</sup> Ave)	Ranges 50 – 60 feet
Garrison Street	70 feet

## Next Steps

The following steps can be taken to avoid or mitigate private property acquisition and associated residential or business relocations:

- Potential impacts to private properties can be minimized or avoided during the alternative development process by shifting roadway or adding walls to limit acquisition. Preliminary alternative footprints will be overlaid with recent aerial images and parcel data to identify potential impacts.
- If property acquisition is required for ROW, acquisition proceedings will conform to the requirements set forth in the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (as amended) and the Uniform Relocation Act Amendments of 1987 (as amended). For all real property acquired, the property owner will be paid just compensation.
- Opportunities for the participation and consultation of communities affected by the proposed project should be provided at each stage of the project development process

The next step will be to develop and evaluate alternatives. During this process, potential impacts to neighborhoods, businesses, and individual residences will be identified and alternative design will be modified to minimize or avoid impacts. The local community and stakeholders will be provided with opportunities to provide input and express concerns related to the project.



Kipling Street under I-70 bridges

## Cumulative Impacts

Cumulative impacts can result from the incremental impact of the proposed action when added to other related past, present and reasonably foreseeable future actions. Cumulative impacts can result from individually minor actions taking place over time when considered with the impacts of the project.

The nature and magnitude of cumulative impacts is best determined when the range of physical alternatives has been identified, and is beyond the scope of this PEL. As such, analysis of past, present and reasonably foreseeable actions have not been detailed. As discussed in the land use section, Arvada and Wheat Ridge have planned for future land uses near the I-70 Kipling interchange area to fill in and redevelop.

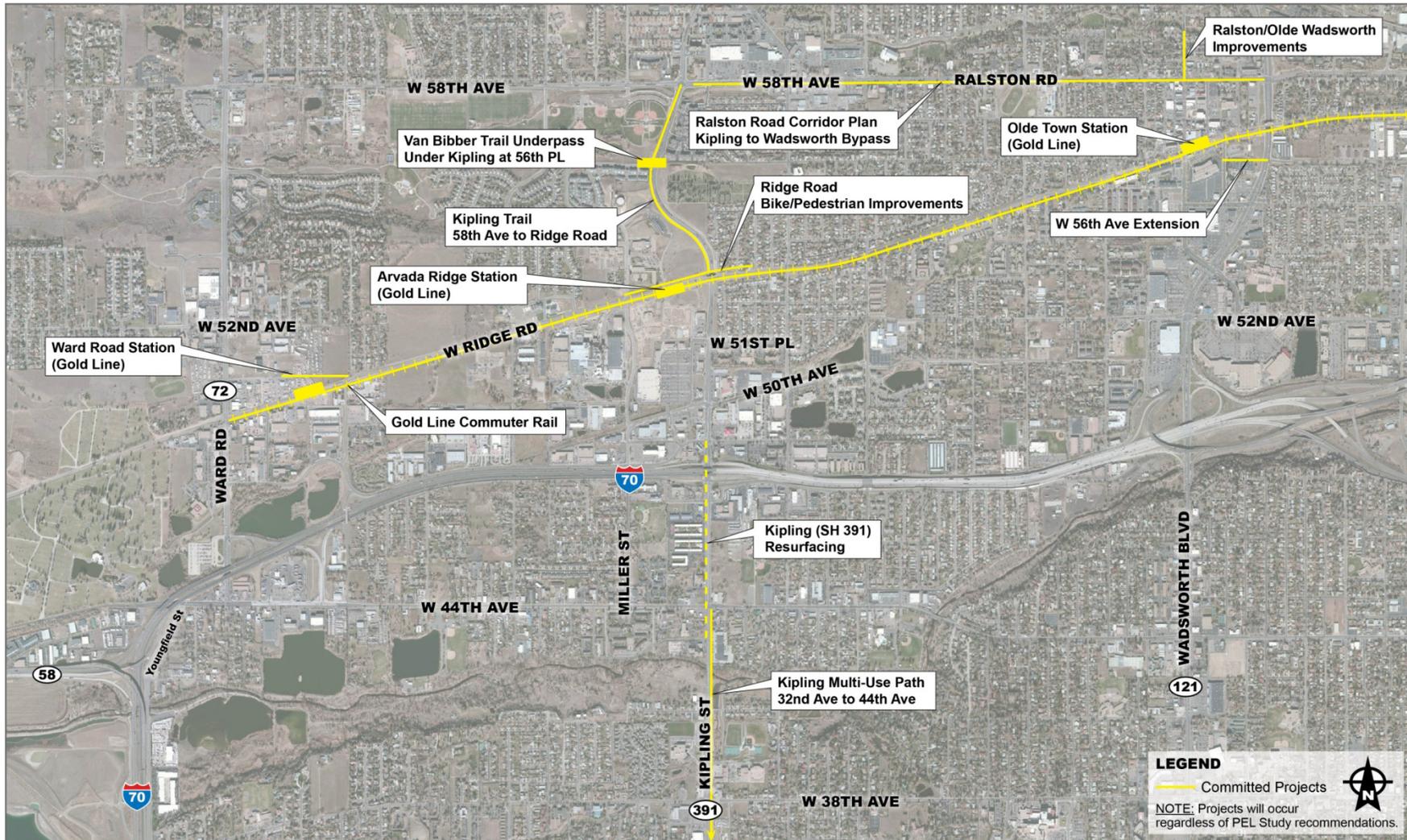
### Past

The history of Jefferson County extends back to the first documented gold strike in Colorado in 1850 at the confluence of Clear Creek and Ralston Creek (Arvada Historical Society, 2011). Settlers arrived shortly thereafter in Arvada and Wheat Ridge. By the early 1860's agriculture was the primary activity in both Arvada and Wheat Ridge. During the late 1940's, agriculture gave way to suburban development in these areas, with an increasing number of commercial areas and residences.

### Present

There are a number of planned and funded transportation projects taking place in the near term within the study area. Each of these programmed improvements is shown in **Figure 12**. The projects shown include only those improvements that have committed funding sources.

Figure 12: Committed Area Transportation Projects



## Reasonably Foreseeable

Portions of the study area in Wheat Ridge lie within the I-70/Kipling Corridors Urban Renewal Area. The land uses recommended in the Urban Renewal Area are reflected in the City of Wheat Ridge's Comprehensive Plan Land Use map. In Arvada, portions of the study area are in the Ralston Fields Urban Renewal Area.

Future land uses immediately around the interchange area are primarily planned for mixed use commercial. South of I-70, Wheat Ridge calls for commercial/mixed use for properties adjacent to the Kipling corridor. Land uses north of I-70 are planned for mixed use employment, employment/industrial and residential uses in addition to mixed use commercial. Many of these are likely associated with the RTD's planned Gold Line commuter rail project. It is likely that this will expedite the development in this area from industrial commercial to mixed use.

Based on the findings of this PEL and a cursory look at past, present and reasonably foreseeable actions it is unlikely that improvements to the interchange would result in cumulative impacts to community and/or environmental resources. There are not a lot of sensitive resources within the study area. It is fairly developed, although some vacant areas still exist. Interchange improvements at the existing interchange in the same or similar location may expedite planned growth in the study area, but is unlikely to induce growth that would cause a cumulative impact to area resources.

## Next Steps

During the NEPA process, should additional analysis be performed, additional coordination with the resource agencies will occur to determine a cumulative impacts study area for each resource. These may vary in size and location depending on the type and nature of the impact. Based on this initial scan conducted for the PEL, resources that may be cumulatively affected and will likely require further investigation include:

- Noise impacts to local residents due to increased traffic volumes adjacent to residential developments
- Economic impacts to local businesses due to changes in access, traffic diversion to alternate route or increased/decreased traffic volumes
- Direct/indirect loss of wetlands due to surface disturbance and increased impervious surface area
- Wildlife habitat loss due to planned development

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**APPENDIX A**  
**Sites with Potential for Recognized Environmental Conditions**



**Table A-1: Agency Database Sites with the Potential to Impact the Study Area**

Agency Database Number	Facility Name	Facility Address	Distance (feet) / Direction	Type <sup>1</sup>	Status	Potential to Impact Project Area
1	Rocky Mountain Bank Note	4990 Iris St	~0 Northwest	RCRAGN, NFRAP	Open, Closed	Low
2	Abra Auto Body And Glass - Wheat R	10501 West 48Th Ave	~0 Northwest	UST, RCRAGN	Closed, Open	Low
3	Accellent Cardiology (Gandd Inc, D)	5000 Independence St	~0 Northwest	RCRAGN	Open	Low
4	Ampex Switcher Company	10640 West 48Th Ave	~0 Northwest	RCRAGN, RCRANLR	Open, Closed	Low
5	Chem Assay Inc	4955 Iris St	~0 Northwest	RCRAGN, RCRANLR	Closed, Closed	Low
6	Environmental Resource Technologies	4920 Iris St	~0 Northwest	RCRAGN	Open	Low
7	Global Collision - Wheat Ridge	4790 Independence St	~0 Northwest	RCRAGN	Open	Low
8	Mountain High Cleaners	4880 Robb St	~0 Northwest	RCRAGN, RCRANLR, RCRANLR	Closed, Closed, Closed	Medium
9	Medved Chevrolet Inc	11001 West W. I-70 Frontage Road	~0 Northwest	RCRAGN	Open	Low
10	Shell Oil	4885 Kipling St	~0 Northwest	LUST, LUST, SPILLS, UST, RCRANLR, LUST, ERNS, RCRAGN, LUST	Closed, Closed, Closed, Open, Closed, Closed, Closed, Open, Closed	Medium
11	Amoco Oil 5487	4901 Kipling St	~0 Northwest	UST, LUST, LUST, RCRAGN, RCRANLR, LUST	Open, Closed, Closed, Closed, Closed, Closed	Medium
12	Target 20221	5071 Kipling St	~0 Northwest	RCRAGN	Open	Low
13	Volant Incorporated	10601 West I-70 Frontage Road	~0 Northwest	RCRAGN, RCRANLR	Closed, Closed	Low
14	Actlabs	11485 West 170 Frontage Road	~0 Northwest	RCRANLR	Closed	Low

Agency Database Number	Facility Name	Facility Address	Distance (feet) / Direction	Type <sup>1</sup>	Status	Potential to Impact Project Area
15	Buy Back Computers	4390 Kipling	~0 Northwest	RCRANLR	Closed	Low
16	C-G Construction	4900 Iris St	~0 Northwest	RCRANLR	Closed	Low
17	Cooper Compression	South I-70 Svc Road	~0 Northwest	UST, RCRANLR	Closed, Closed	Low
18	Kresco Industrial Coatings	4975 Miller Unit St	~0 Northwest	RCRANLR	Closed	Low
19	Conoco Phillips Company	9995 West 44Th Ave	~0 Northwest	RCRANLR, UST, LUST	Closed, Open, Closed	Medium
20	Precambrian Exploration Inc	4965 Iris St	~0 Northwest	RCRANLR	Closed	Low
21	Psi	4765 Independence St	~0 Northwest	RCRANLR	Closed	Low
22	Ram Line Inc	10601 West 48Th Ave	~0 Northwest	RCRANLR	Closed	Low
23	Scott Equipment Company	4990 Miller St	~0 Northwest	RCRANLR	Closed	Low
24	Williams Shop Equipment Company	4915 Iris St	~0 Northwest	RCRANLR	Closed	Low
27	I-70 Self Storage	I-70 Self-Storage / I-70 And Garri	~0 Northwest	ERNS	Closed	Low
38	4590 Kipling Ave Property (Vacant L	4590 Kipling Ave	~0 Northwest	SWL	Open	Medium
39	Stapleton Filing 18 Asbestos (Paul)	4890 Kipling St	~0 Northwest	SWL	Open	Medium
40	Conocophillips Site 6523	4750 North Kipling St	~0 Northwest	LUST, UST	Closed, Open	Medium
41	Denver West Bank And Trust	4725 Independence St	~0 Northwest	UST	Closed	Low
42	George T Sanders Co	10201 West 49Th Ave	~0 Northwest	LUST, UST	Closed, Closed	Medium
43	Jock S Sports Saloon	10051 East Frontage Road	~0 Northwest	UST, LUST, UST	Open, Closed, Closed	Medium
44	Ketelsen Campers	9870 West I-70 Frontage Road	~0 Northwest	UST	Closed	Low
45	Oman Ltd Property	4925 Kipling St	~0 Northwest	UST, LUST	Closed, Closed	Medium
46	Diamond Shamrock 657	4795 Kipling St	~0 Northwest	UST, LUST	Closed, Closed	Medium
47	Unknown Owner	4400 Kipling	~0	UST	Closed	Low

Agency Database Number	Facility Name	Facility Address	Distance (feet) / Direction	Type <sup>1</sup>	Status	Potential to Impact Project Area
			Northwest			
48	Go Green Recycling Llp Dba Sustaina	4930 Iris St	~0 Northwest	RCRANLR	Closed	Low
49	Colorado Space Solutions	11427 Frontage Rd	~0 Northwest	SPILLS	Closed	Low
51	Coors	10619 West 50Th	<100" Northeast	UST, RCRAGN, SPILLS	Open, Open, Closed	Low
52	Coors Brewing Company	10619 West 50Th Ave	<100" Northwest	ERNS, ERNS	Open, Open	Low
61	Continental Water Systems	11771 West 49Th Ave	~500 Northwest	RCRANLR, RCRANLR, UST, LUST	Closed, Closed, Closed, Closed	Low
68	US West Communications	4980 Tabor St	~800 Northwest	UST, LUST, LUST	Closed, Closed, Closed	Low

## Notes:

<sup>1</sup> If type is listed more than once for the facility there are more than one of that type at the facility.

LUST= Leaking Underground Storage Tank

UST= Underground Storage Tank

RCRANLR= Resource Conservation and Recovery Act No Longer Reporting

RCRAGN= Resource Conservation and Recovery Act Generators of Hazardous Waste

NFRAP= No Further Remedial Action Plan

SPILLS= Reported Spills

ERNS= Emergency Response Notification System

SWL= Solid Waste Landfill

Source: Environmental Firstsearch Report, I-70 and Kipling St, Wheat Ridge CO 80033, 2012



**APPENDIX B**  
**Potential Wetland and WUS Features**



**Table B-1: Potential Wetland and Waters of the U.S. Identified in the Study Area**

Name or Nearby Streets	General Location	Type*	Flow Direction*	Source	Notes
<b>Northwest</b>					
Swadley Ditch	Northwest corner of the study area (west of Robb Street (St.) and north of Wadsworth Ditch).	Irrigation	East	Unknown	Approximately 2-foot (ft) wide ditch with an 8 ft wetland fringe dominated by reed canary grass ( <i>Phalaris arundinacea</i> ) and common teasel ( <i>Dipsacus fullonum</i> ).
Wadsworth Ditch	Northwest corner of the study area (west of Robb St.).	Irrigation	East	Unknown	Approximately 4-ft wide ditch with a 2-3-ft wetland fringe dominated by reed canary grass.
Pond – Robb & Frontage Rd	Northwest of the I-70 Frontage Road (Rd) and Robb St. intersection.	Stormwater	Unknown	Stormwater	Stormwater detention area. Appears to receive runoff from the adjacent parking area. No wetland vegetation observed.
Slough Ditch – Robb Segment	Ditch segment northwest of the I-70 Frontage Rd and Robb St. intersection. Runs along north side of Frontage Rd.	Irrigation	East	Unknown	Concrete-lined ditch along Frontage Rd. No flow at time of site visit and no wetland vegetation.
Slough Ditch & 50 <sup>th</sup> and Oak Field	In a field north of I-70 Frontage Rd between Oak St. and Parfet St.. Includes Slough Ditch and unnamed ditches.	Irrigation	East	Unknown	There are several irrigation ditches, including a segment of the Slough Ditch, within a field. There appears to be wetland vegetation along the ditches and in lower areas of the field. The field may be grazed and/or mowed.
Slough Ditch – Oak to Miller	Segment from Oak St. to Miller St.	Irrigation	East	Unknown	Between Miller St. and Oak St., the ditch is located within a densely vegetated powerline easement. Vegetation includes patches of weeds and wetland species including poison hemlock ( <i>Conium maculatum</i> ) and sandbar willow ( <i>Salix exigua</i> ).

Name or Nearby Streets	General Location	Type*	Flow Direction*	Source	Notes
Pond –50 <sup>th</sup> Ave. and Oak St.	Unnamed pond east of Oak St. and South of West (W) 50 <sup>th</sup> Ave.	Stormwater	Likely to the south	Stormwater	May receive runoff from the adjacent commercial development. Possible small wetland fringe around the pond. Appears to drain into the Slough Ditch to the south.
Slough Ditch – Miller to Kipling	Segment from Miller St. to Kipling St., parallel to W 50 <sup>th</sup> Ave.	Irrigation	East	Unknown	Between Miller St. and Kipling St., the ditch is an approximately 4-ft wide concrete-lined drainage with no wetland fringe.
Pond –50 <sup>th</sup> and Miller	Unnamed Pond south of W 50 <sup>th</sup> Ave. and west of Miller St.	Stormwater	Likely to the south	Stormwater	May receive runoff from the adjacent commercial development. Possible small wetland fringe around the pond. Appears to drain into the concrete-lined Slough Ditch to the south.
Detention pond –50 <sup>th</sup> and Target	South of Target, north of W 50 <sup>th</sup> Ave.	Stormwater	East	Stormwater	Small 10-ft by 20-ft cattail ( <i>Typha latifolia</i> ) area in a large stormwater detention feature.
Wetlands - 50 <sup>th</sup> and Blue Grass Terrace	South of W 50 <sup>th</sup> Ave., east of Blue Grass Terrace, near Burger King.	Stormwater	None	Stormwater	Two small wetland area dominated by cattails. Scattered sandbar willows in western area.
<b>Northeast</b>					
Slough Ditch – Kipling to Independence	South of W 50 <sup>th</sup> Ave. between Kipling St. and Independence St.	Irrigation	Unknown	Unknown	Concrete-lined ditch.
Aqueduct– 50 <sup>th</sup> and Johnson	Approximately 500 ft. north of W 50 <sup>th</sup> Ave., between Kipling and Independence.	Irrigation	Unknown	Unknown	This is an elevated irrigation ditch with a riparian fringe dominated by cottonwoods ( <i>Populus deltoides</i> ). Nearby vegetation includes sandbar willow and common teasel.

Name or Nearby Streets	General Location	Type*	Flow Direction*	Source	Notes
Sayre and Lees Ditch	Runs along the north side of W 49th Ave. between Kipling St. and Estes Court.	Irrigation	Unknown	Unknown	Roughly 2-ft wide concrete-lined ditch between Kipling and Independence. Mostly underground or dirt east to Garrison. Inaccessible east of Garrison, but large trees visible along it. Appears to end in a weedy field east of Field Court.
Pond – 49 <sup>th</sup> and Independence	Unnamed pond northeast of the W 49th St. and Independence Ave. intersection.	Unknown	Unknown	Unknown	Pond with no visible wetland fringe during the site visit. No access to confirm vegetation. Possible old borrow pit and/or irrigation storage.
<b>Southwest</b>					
Brown and Baugh Ditch	Runs north-south from I-70 S. Service Rd to roughly W 47 <sup>th</sup> Ave.	Irrigation	None	Unknown	Approximate 1-ft wide ditch with an Ordinary High Water Mark (OHWM) but no visible wetland fringe.
Ditch – I-70 S. Service Rd to 47 <sup>th</sup>	Runs north-south along the west side of Oak St. from I-70 South Service Rd to roughly W 47th Place	Irrigation	North	Unknown	Approximate 1-ft wide ditch with OHWM but no visible wetland vegetation.
Ditch – I-70 S Service Rd and Miller	Runs east-west along the south side of the Frontage Rd, between Nelson St. and Miller St.	Stormwater	None	Unknown	Approximate 8-ft wide ditch with no OHWM and possible wetland vegetation (smooth brome and switchgrass ( <i>Panicum virgatum</i> ))
Detention Pond – 47 <sup>th</sup> and Nelson	West of Miller, south I-70 S Service Rd, and north of W 47 <sup>th</sup> Place.	Stormwater	None	Stormwater	Landscaped detention pond with approximately three inches of standing water and possible OHWM. No wetland vegetation.
Detention Pond – 47 <sup>th</sup> and Miller	Northeast of W 47 <sup>th</sup> Place and Miller St. Behind the Comfort Suites	Stormwater	None	Stormwater	Cattail-dominated wetland area in stormwater detention pond.
Ditch – 44 <sup>th</sup> and Lee	In vacant field north of W 44 <sup>th</sup> Ave.	Irrigation	Unknown	Unknown	Approximately 5-ft wide ditch with no visible wetland fringe. Located in an open field with larger trees around.
<b>Southeast</b>					
Swale – 48 <sup>th</sup> and Kipling	Between W 48th Ave. (Frontage Rd) and the east bound entrance ramp to I-70.	Stormwater	West	Stormwater	Drainage swale mostly vegetated with smooth brome, with a weak ordinary high water mark about two ft wide.

Name or Nearby Streets	General Location	Type*	Flow Direction*	Source	Notes
Ditch – 43 <sup>rd</sup> and Jellison	Between Kipling St and Jellison St. at approximately W. 43 <sup>rd</sup> Ave. (the south boundary of the study area).	Irrigation	West	Stormwater	Approximately 2-ft wide concrete-lined irrigation ditch. No water at time of site visit. Potential outlet to Clear Creek.

Source: Pinyon 2012, DEA 2012 and USGS 1994a, 1994b

\*Type and flow direction are based on field observations, existing GIS Data and USGS topographic maps