

US 6/Wadsworth



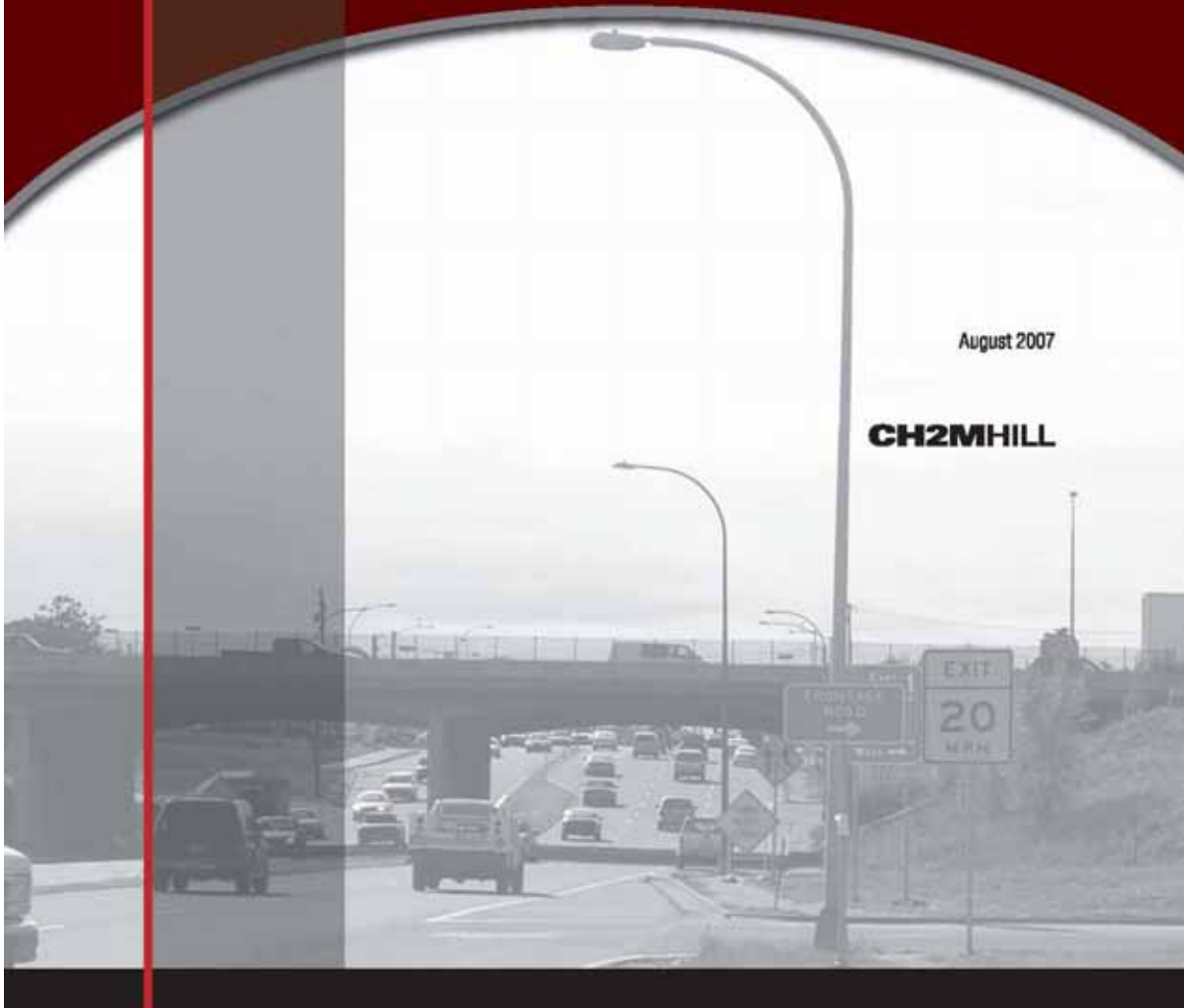
Environmental
Assessment

Summary of Existing Conditions

US 6 and Wadsworth Boulevard Area

August 2007

CH2MHILL



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Appendix A Geometric Health Summary

Appendix B Environmental Resources Mapping

Acronyms and Abbreviations

APCD	Air Pollution Control Division
APE	Area of Potential Effect
ASTM	American Society for Testing and Materials
BMP	best management practice
CDOT	Colorado Department of Transportation
CDPHE	Colorado Department of Public Health and Environment
CFR	Code of Federal Regulations
CO	carbon monoxide
DRCOG	Denver Regional Council of Governments
EA	Environmental Assessment
EAC	Early Action Compact
EPA	U.S. Environmental Protection Agency
ESA	environmental site assessment
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FIRM	Flood Insurance Rate Map
GIS	geographic information system
GPS	global positioning system
LOS	level of service
LUST	leaking underground storage tank
NEPA	National Environmental Policy Act
NRHP	National Register of Historic Places
O ₃	ozone
OAHP	Office of Archaeology and Historic Preservation
PM ₁₀	particulate matter less than 10 microns in aerodynamic diameter
ROW	right-of-way
RTD	Regional Transportation District

SHPO	State Historic Preservation Office
TNM	Traffic Noise Model
USACE	U.S. Army Corps of Engineers

1.0 Introduction

The Colorado Department of Transportation (CDOT) and Federal Highway Administration (FHWA) are conducting an Environmental Assessment (EA) to study transportation improvements at the interchange of US 6 (also designated as Sixth Avenue) and Wadsworth Boulevard (also designated as Colorado State Highway 121), including improvements along Wadsworth Boulevard from approximately Third Avenue to 13th Avenue in Lakewood, Colorado.

Transportation improvements in the study area have been identified as a high priority for CDOT, the City of Lakewood, area residents, businesses, and commuters. Roadway improvements in the region's West Corridor have been identified in Lakewood's *Comprehensive Plan*, the Denver Regional Council of Governments' (DRCOG) *Regional Transportation Plan*, and the 1997 *West Corridor Major Investment Study* prepared by the Regional Transportation District (RTD). CDOT and the City of Lakewood also have conducted several safety assessments for the project area.

Improvements in the West Corridor, including improvements to the US 6 and Wadsworth Boulevard interchange, were identified as one set of 28 high-priority projects across the state that CDOT in 1996 committed to complete over the next approximately 25 years. In 1999, Colorado voters approved bonding CDOT's 28 high-priority projects against future gas tax revenues to complete the projects on an accelerated schedule. CDOT has completed nearly half of the projects of its Strategic Transportation Investment Program, otherwise known as the 7th Pot Program. The US 6 and Wadsworth Boulevard improvements have been identified as the roadway project for the West Corridor and, as such, improvements could be eligible for priority funding.

CDOT's goal is to complete an EA to determine if a Finding of No Significant Impact is appropriate or if an Environmental Impact Statement is required. The EA will evaluate a reasonable range of alternatives for improvements, including the No Action alternative. The EA and supporting documentation will comply with the National Environmental Policy Act (NEPA) and with regulations issued by the Council on Environmental Quality (Title 40 of the Code of Federal Regulations [CFR], Parts 1500-1508) and FHWA (23 CFR 771) for implementing the Act.

1.1 US 6 and Wadsworth Boulevard Corridor Overview

The US 6 and Wadsworth Boulevard study area encompasses an approximately 500-foot corridor from the centerline of Wadsworth Boulevard from Third to 13th avenues and along US 6 from generally Broadview Drive on the east to Allison Street on the west, within the City of Lakewood, Colorado. This study area was developed to focus the initial data collection, although the logical termini have not yet been finalized. The study area along US 6 may expand based on the outcome of traffic and operational analysis at the interchange.

The US 6 and Wadsworth Boulevard interchange is the gateway to Lakewood's downtown (Belmar) and city center (Lakewood Commons) areas. US 6 and Wadsworth Boulevard serve both local and regional travel needs that include daily commuter traffic in and through the City of Lakewood. RTD local, regional, and express bus services use these streets, and businesses and residents depend on these roads for access. Bicycle and pedestrian traffic occurs on Wadsworth Boulevard (although bicycle and pedestrian facilities are limited), and a future RTD light rail line and station will be constructed at 13th Avenue.

Some of the transportation problems in the study area include traffic congestion, neighborhood and business access issues, discontinuous local residential traffic circulation, poor interchange operations, high accident rates, undersized drainage facilities, and inadequate bicycle and pedestrian facilities. Section 2.0 of this report presents additional information on the purpose and need for the US 6 and Wadsworth Boulevard project.

1.2 Purpose of This Report

This report presents an overview of existing environmental conditions in the study area. The purpose of this report is to provide adequate information to help define the appropriate scope for environmental studies supporting the EA. The environmental data collected for this report also will inform alternatives selection criteria and the alternatives analysis to ensure consideration of environmental resources during project development. Environmental data are presented in Section 3.0 of this report.

For each resource, this report includes a discussion of the presence/absence of the resource, its distribution, the relative importance of the resource in the study area, and, if applicable, recommendations for future activities to characterize the resource. This information is not intended to comprehensively describe the resources in the study area but rather to serve as an overview to guide the analysis of environmental issues in the EA; that is, the full affected environment for those resources that are carried forward for detailed analysis will be included in the EA. Impact analyses will be conducted for those resources that are present in the study area. Information from this report will be used to guide discussion and presentation of environmental issues at the public and agency scoping meetings.

The assessment of environmental issues consisted of a team of resource specialists conducting field reconnaissance site visits, discussion with knowledgeable individuals, and/or review of secondary data (for instance, U.S. Census Bureau data). Additional information, including mapping, is included in the appendices of this report.

2.0 Purpose and Need for the US 6 and Wadsworth Boulevard Project

The following describes the draft purpose and need for the US 6 and Wadsworth Boulevard project. The purpose and need has been informed by review of previous plans and recommendations, field reconnaissance, and discussion with agencies and stakeholders familiar with the project area. The scoping process will help refine the project needs and direct the development of criteria by which reasonable alternatives can be evaluated.

Appendix A contains plan sheets that provide a graphical summary of the geometric “health” of the existing US 6 and Wadsworth Boulevard Corridor. In general, the following health ratings indicate how well the existing geometric elements meet current design criteria:

- Green bars indicate “good” segments where the geometric element meets design criteria.
- Yellow bars indicate “fair” segments where the specific geometric element is borderline in meeting the design criteria.
- Red bars indicate “poor” segments where the geometric element does not meet design criteria.

The key elements of those deficiencies are summarized in Section 2.2, Transportation Needs.

2.1 Purpose

The purpose of the US 6 (Sixth Avenue) and Wadsworth Boulevard project is to improve safety and mobility for automobile, truck, transit, bicycle, and pedestrian travel at the interchange and along Wadsworth Boulevard between Third Avenue and 13th Avenue.

2.2 Transportation Needs

The need for improvements to the US 6 and Wadsworth Boulevard interchange as well Wadsworth Boulevard between Third Avenue and 13th Avenue has been identified by local, regional, and statewide transportation planners. The City of Lakewood has identified this project as a high priority for the City. The project was added to DRCOG’s *2030 Metro Vision Regional Transportation Plan* and the long-range *Statewide Transportation Plan* as a project that should be completed within the next 20 years.

Some of the transportation needs associated with the US 6 and Wadsworth Boulevard interchange and Wadsworth Boulevard are described briefly below.

2.2.1 US 6 and Wadsworth Boulevard Interchange

The US 6 and Wadsworth Boulevard interchange was constructed in the early 1960s. In 1970, the center median of the original bridge was filled in to create two additional travel

lanes in the center of US 6. Other upgrades have involved resurfacing, replacement of the original guardrails, and installation of jersey barriers in the center medians, but no major improvements have occurred. Although the interchange was adequate for traffic volumes nearly 50 years ago, it does not have the capacity to carry present or expected future volumes of traffic. The tight cloverleaf design of the interchange no longer meets current or future needs, and geometric deficiencies with the interchange design create both safety and mobility concerns.

2.2.1.1 Improve Safety

The following briefly describe some of the key safety concerns at the US 6 and Wadsworth Boulevard interchange.

- The City of Lakewood has prepared safety assessments identifying the US 6 and Wadsworth Boulevard interchange as a location with some of the highest frequency and severity of accidents within the City during 2001, 2003, 2004, and 2005. The tight ramp curves, inadequate sight distance, and high traffic volumes contribute to frequent rear-end collisions, crashes with fixed objects, and sideswipe incidents at this location.
- At the northeast quadrant of the interchange, the westbound frontage road intersects with the westbound US 6 off-ramp to northbound Wadsworth Boulevard. Drivers on both the frontage road and off-ramp do not expect to merge with other traffic, and the situation where the ramp and frontage road traffic merge violates driver expectancy and creates the potential for accidents.
- The US 6 and Wadsworth Boulevard cloverleaf interchange consists of ramps with tight curves that require drivers to slow down to negotiate curves and then accelerate to enter the high-speed freeway. The acceleration lanes are too short to accelerate to the posted speed of 65 mph on US 6, and the high volume of traffic on US 6 does not provide adequate gaps for cars to enter the highway. The deceleration lanes are also too short to negotiate the curves of the off-ramps. The speed conflicts increase the potential for accidents, particularly sideswipes on the on-ramps and rear-end collisions on the off-ramps.
- There is a conflict between drivers entering and exiting the highway across the loop-ramp connections because of the short distance available to make those maneuvers. This conflict is exacerbated by the variable speeds of surrounding traffic. This situation presents a particular challenge to drivers unfamiliar with the interchange.
- CDOT routinely assigns Bridge Sufficiency Ratings to bridges on State highways. The US 6 and Wadsworth Boulevard bridge is rated as structurally deficient because of its poor deck condition. This rating means that the bridge is in an advanced stage of deterioration, which makes it eligible for federal funds for replacement or rehabilitation.

2.2.1.2 Improve Mobility

Due to high traffic volumes, the ramps at the interchange are highly congested during peak periods. West of the interchange, the on- and off-ramps for Carr/Garrison streets are also highly congested and too closely spaced to the Wadsworth Boulevard interchange for

efficient traffic operations. Inadequate acceleration or deceleration lengths contribute to congestion at all of these locations.

Both US 6 and Wadsworth Boulevard are designated by CDOT as truck routes, and truck movements at the interchange on- and off-ramps are difficult. The tight curves and constrained ramp geometry of the interchange ramps do not adequately provide for the turning maneuvers of today's larger trucks.

2.2.2 Wadsworth Boulevard

Wadsworth Boulevard is classified as an urban principal arterial, and it is the only continuous north-south travel route through the west Denver metropolitan area. In the project area, Wadsworth Boulevard consists of four travel lanes, two in each direction, and side-by-side, continuous left-turn lanes in the center of the roadway. There are three signalized and seven non-signalized intersections as well as numerous uncontrolled driveway accesses in the project area. Commercial businesses and a few residences front Wadsworth Boulevard, and established residential neighborhoods are located east and west of Wadsworth Boulevard beyond the commercial businesses.

2.2.2.1 Improve Safety

The following briefly describes some of the key safety concerns at along Wadsworth Boulevard between Third and 13th avenues.

- CDOT safety assessments indicate that total accidents along this segment of Wadsworth Boulevard in the study area are at least 25 percent higher than statewide averages for similarly classified roadways.
- Four of five major drainage structures in the project area are undersized, resulting in flooding of the roadways and/or surrounding properties. Based on Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRMs), Wadsworth Boulevard would experience substantial flooding or overtopping at Second Avenue, Highland Drive, and 12th Avenue during a 100-year flood event and possibly even during lesser storm events. The drainage structures are in fair condition but are also beginning to reach the end of their design life (50 years).
- Bicycle and pedestrian facilities in the study area are non-existent or limited and do not meet safety design standards. There is no space along Wadsworth Boulevard to provide for the safe movement of bicyclists riding in the street. The interchange area presents a particular challenge because the high-volume, free-flowing traffic at ramps does not provide adequate gaps for pedestrian or bicycle crossings. Ramp curves also limit visibility of vehicles to bicyclists crossing the street.
- Bus ridership on the Wadsworth Boulevard 76 bus route is among the highest in Lakewood and expected to increase with the opening of the new light rail station at 13th Avenue. Sidewalks at or accessing most of the eight bus stops in the study area are inadequate.

2.2.2.2 Improve Mobility

Automobiles, trucks, buses, bicyclists, and pedestrians travel along Wadsworth Boulevard. Heavy congestion and numerous design deficiencies of the roadway section present challenges to motorized travel. Bicyclists and pedestrians confront numerous problems traveling through the project area because Wadsworth Boulevard lacks adequate facilities to accommodate safe travel. Pedestrian and bicyclist use of Wadsworth Boulevard is expected to increase with the opening of the new West Corridor light rail station at 13th Avenue.

- The four-lane roadway section of Wadsworth Boulevard (north of US 6) operates at stop-and-go levels during peak periods and cannot adequately accommodate current or future traffic volumes. At the non-signalized intersections of local streets with Wadsworth Boulevard north of US 6, vehicles can wait as long as 3 minutes to make a left turn.
- High traffic volumes, combined with unrestricted access and uncontrolled center turn lanes, do not provide adequate gaps for vehicles to safely and efficiently enter Wadsworth Boulevard from driveways and side streets, or to access businesses or residences. These operational inefficiencies can contribute to driver confusion, congestion, and accidents along Wadsworth Boulevard.
- Pedestrian and bicyclist mobility is limited in the project area. Wadsworth Boulevard is a barrier to east-west mobility, while US 6 is a barrier to north-south movement. There are either no sidewalks or substandard sidewalks along approximately 50 percent of the east side of Wadsworth Boulevard and 85 percent of the west side of the thoroughfare.

3.0 Summary of Environmental Resources in the Project Area

The US 6 and Wadsworth Boulevard Corridor is a highly developed, urban setting. The important environmental resources present and of concern in the study area are those associated with human development; natural resources, such as wildlife, vegetation, and wetlands that are important in many corridors in Colorado, are absent or less relevant in this study area given the urban context.

3.1 Air Quality

3.1.1 Activities to Support Air Quality Overview

The air quality overview involved review of the regional air quality conditions and conformity status for criteria pollutants. Relevant activities included:

- Review of the *2030 Regional Transportation Plan* to verify project's inclusion in conforming plan
- Review of traffic data to determine where hot-spot modeling may be required
- Review of air quality monitoring data at nearby sensors

3.1.2 Air Quality Conditions in the Project Area

The Denver metropolitan area, including Jefferson County, is an attainment/maintenance area for particulate matter less than 10 microns in aerodynamic diameter (PM₁₀), carbon monoxide (CO), and the 1-hour ozone (O₃) standard, and currently is in attainment for the other criteria pollutants. Air quality conformity analysis is required to ensure that transportation plans, programs, and projects do not cause or contribute to an air quality violation. Because the US 6 and Wadsworth Boulevard project is included in DRCOG's conforming *2030 Regional Transportation Plan*, no further conformity analysis is required.

In 2002 and 2003, exceedances of the 8-hour O₃ standard occurred in the Denver metropolitan area. The Regional Air Quality Council, in conjunction with Colorado's Air Pollution Control Division (APCD), has initiated an Early Action Compact (EAC) process with the U.S. Environmental Protection Agency (EPA) to address the 8-hour O₃ standard exceedances before EPA declares the Denver metropolitan area nonattainment for the 8 hour O₃ National Ambient Air Quality Standard. The EAC is designed to bring the Denver metropolitan area back into attainment by the end of 2007. Until the region is redesignated, the Denver area is still a maintenance area for the 1-hour O₃ standard and is subject to provisions in the state implementation plan regarding the 1-hour O₃ standard.

The APCD operates a network of ambient air quality monitoring stations within the Denver metropolitan area. Four of the nearest monitoring stations, each located within 7 miles of the project, were selected to evaluate the existing air quality conditions of the study area. The

monitoring data indicated that O₃ 1-hour and 8-hour concentrations were exceeded at all three stations located in Jefferson County near the project site. However, there were no exceedances of the federal and state ambient air quality standard for CO and PM₁₀ during the past 5 years.

Localized air pollution would be expected in areas where vehicles are idling or traveling at lower speeds, typically near congested intersections. The most congested intersections in the study area are between the Highland Drive and 13th Street, with the level of service (LOS) mostly at F. Traffic also is congested at ramps of the US 6 and Wadsworth Boulevard interchange, mostly with LOSs of D or E.

3.1.3 Recommendations

Limited air quality analysis will be required for the US 6 and Wadsworth Boulevard project. Hot-spot modeling or assessment for localized CO and PM₁₀ will be required for intersections operating at LOS D or worse. Qualitative consideration of future O₃ violations and impacts of air toxics will need to be included.

Construction-related air quality impacts, including fugitive dust and emissions from additional construction vehicles in the corridor, will be evaluated based on the number of acres disturbed during construction.

3.2 Archaeology

3.2.1 Activities to Support Archaeological Overview

A file and literature search was conducted with the Colorado Historical Society Office of Archaeology and Historic Preservation (OAHP) to determine if any archaeological resources had been previously recorded in the project area. A field reconnaissance also was conducted to verify that no undisturbed areas with archaeological potential were present in the study area.

3.2.2 Archaeological Resources in the Project Area

The study area is developed and most natural areas have been disturbed. Therefore, it is unlikely that any important, intact archaeological resources would be located in the study area. The file and literature search conducted with the OAHP revealed no significant archaeological resources – that is, those that are listed, nominated, or are eligible to be nominated on the National Register of Historic Places (NRHP). Additionally, no archaeological resources were found during field reconnaissance.

3.2.3 Recommendations

Because no significant archaeological resources are likely to be present in the project area and, therefore, are not likely to be affected by the proposed project, no further archaeological investigation is warranted, and archaeological resources will not be analyzed in the EA.

3.3 Floodplains

3.3.1 Activities to Support Floodplains Overview

To characterize floodplain conditions in the corridor, CH2M HILL conducted the following activities:

- Reviewed current FEMA FIRMs for the 100-year floodplains in the study area
- Conducted a field reconnaissance review of drainage areas in the corridor to assess floodplain conditions
- Contacted the City of Lakewood and Urban Flood Control and Drainage officials to discuss floodplain management and conditions in the study area

3.3.2 Floodplains in the Project Area

Five FEMA-regulated 100-year floodplains are located within the study area: Lakewood Gulch, South Lakewood Gulch, McIntyre Gulch, Dry Gulch, and North Dry Gulch. The limits of 100-year floodplains intersect with both US 6 and Wadsworth Boulevard and are shown in Figure 1 in Appendix B.

US 6 does not appear to be within the 100-year floodplain but the McIntyre Gulch floodplain lies parallel to US 6 west of Wadsworth Boulevard from approximately Dover Street to its crossing under US 6 west of the existing interchange with Wadsworth Boulevard. The South Lakewood Gulch floodplain crosses under US 6 east of the Wadsworth interchange between Vance and Saulsbury streets. The City of Lakewood has expressed concern that changes to the on-ramp or frontage road in the northwest quadrant of the interchange could adversely affect McIntyre Gulch. The stretch of McIntyre Gulch between the frontage road and the storage facility is narrow, with minimal conveyance capacity. Any encroachments into the channel area will further reduce the open-channel capacity.

Wadsworth Boulevard is in the 100-year floodplain in four locations. A review of FEMA floodplain mapping suggests that the 100-year flood would overtop Wadsworth Boulevard near Second, Eighth, 11th, and Colfax avenues, as shown in Figure 1 in Appendix B. The City of Lakewood confirmed that flooding occurs at both Eighth and 11th avenues. The project is not expected to extend to Colfax Avenue and, therefore, it is unlikely that the North Dry Gulch floodplain would be affected by project improvements.

Officials with City of Lakewood and Urban Flood and Drainage Control District noted that drainage facilities lack adequate capacity throughout Lakewood, and several of the drainage facilities under Wadsworth Boulevard in the study area are substantially undersized.

Although floodplains can often provide other benefits, such as wildlife habitat and water quality treatment, the floodplains in the study area are of low value for wildlife. In many cases, flows are piped, channelized, contracted into culverts, or are otherwise modified from their natural states.

3.3.3 Recommendations

Drainage and floodplain impacts are expected to be important issues to be addressed in the EA. As part of alternatives analysis and environmental impact analysis, a Location Hydraulic Study will be prepared to better characterize the existing floodplains and their encroachments onto public and private properties. The study will include design alternative analyses for improving the drainage facilities and eliminating floodplain encroachment within the study area. Hydraulic results and effects of encroachments from proposed alternatives will also be included in the study.

3.4 Hazardous Material/Waste Sites

3.4.1 Activities to Support Hazardous Material/Waste Site Overview

A preliminary environmental site assessment (ESA) of the US 6/Wadsworth Boulevard project study area was completed to evaluate the potential for hazardous materials to impact the project. The preliminary assessment included a reconnaissance survey of the project study area to evaluate present conditions and an evaluation of historical study area use. Methods included reviewing:

- Historical U.S. Geological Survey (USGS) topographic and city planning maps
- Compliance history of project study area, as identified by a regulatory database search
- Records reasonably available from appropriate federal, state and local regulatory agencies for documented soil and/or groundwater contamination investigations conducted in and near the study area

The assessment was not intended to provide a comprehensive review of potential hazardous sites in the study area and was not performed in accordance with all of the requirements of the American Society for Testing and Materials (ASTM) standards for Phase I environmental site assessments, or with CDOT standards for initial site assessment or modified ESA

The preliminary assessment determined the general groundwater flow in the southern portion of the study area is expected to be to the north-northeast, towards Lakewood Gulch, while the groundwater flow on the northern portion of the project is to the southeast, toward Dry Gulch, and Lakewood Gulch. The depth to groundwater is anticipated to be between 10 and 20 feet (Hillier et al., 1983).

3.4.2 Hazardous Material/Waste Sites in the Project Area

Searches of regulatory databases identified 68 sites in proximity to the project with potential hazardous waste concerns. Sites were determined to have potential to affect the project if the facility identified in the database report was active with an event that had the potential for contamination, and groundwater flow could cause migration of the contaminants into the study area. Moreover, if a facility was observed to have monitoring wells during the site reconnaissance, then it was considered a concern.

Of the initial 68 sites identified, six met the criteria as sites that could potentially impact the project study area, as listed below and shown in Figure 2 in Appendix B.

- Diamond Shamrock (#4122), located at 715 Wadsworth Blvd., which is a known leaking underground storage tank (LUST) site.
- Circle S Mini Mart/Boonshow Gas, located at 495 Wadsworth Blvd., which is a known LUST site.
- Western Convenience/Diamond Shamrock, located at 7603 West 13th Ave., which is a known LUST site.
- Wal-Mart, located at 440 Wadsworth Blvd., which may have been an historical LUST site, with incomplete information provided by the database search report.
- Merchants Oil/Bradley, located at 401 Wadsworth Blvd., which is a known LUST site.
- Grease Monkey/USA Auto Tech, located at 395 Wadsworth Blvd., which was a former LUST site where contamination may have impacted the study area.

3.4.3 Recommendations

Hazardous material/waste site impacts are expected to be important issues to be addressed in the EA. Additional information on the six sites identified with potential to affect the project alternatives will be gathered from files maintained by the applicable regulatory agencies. Conclusions regarding the six sites will be made as alternatives are developed.

A full Phase I ESA, conducted according to ASTM 2005 standards, will be completed prior to any property transactions. Given the possibility of multiple property transactions, more than one ESA may be required. CDOT will also require a modified ESA of the study area.

3.5 Historic Resources

3.5.1 Activities to Support the Historic Resources Overview

A reconnaissance survey of the buildings, structures, and landscapes in the vicinity of the study area was conducted to provide context to the types and distribution of potential historic resources in and near the study area. The reconnaissance survey was supplemented by historical research conducted at the Denver Public Library, OAHP Library at the Colorado Historical Society, and the USGS Library in Lakewood.

The initial study area evaluated included the area approximately one-and-one-half blocks to the east and west of Wadsworth Boulevard between Third Avenue and 13th Avenue. The formal Area of Potential Effect (APE) will be defined in consultation with the Colorado State Historic Preservation Office (SHPO) once the extent of potential improvements is defined more clearly.

3.5.2 Historic Resources in the Project Area

The OAHP record search identified 118 recorded (previously surveyed) sites in the vicinity of the study area. Of these, 19 are located within the boundary of the study area.

Site 5JF.817.4, railroad remnants of the former Denver Intermountain Railroad, is the only property in the study area that previously has been determined eligible for listing to the NRHP. The railroad tracks have been removed by RTD as part of the West Corridor light rail project. It is unlikely that the resource retains historic integrity and, therefore, would no longer be eligible for the NRHP.

Potential historic properties in the study area can be effectively divided into five zones of development. The first zone consists of the transportation development, which includes all automobile roadways and the existing railroad line along 13th Avenue, at the north end of the study area. The second zone encompasses the non-transportation-oriented landscape features within the study area, primarily irrigation ditches and gulches, some of which include man-made elements. The third zone is the commercial corridor that flanks both sides of Wadsworth Boulevard throughout the study area. This zone includes development ranging from small “mom-and-pop” businesses to large, national retail chain stores. The fourth zone consists of the Jefferson County Open School complex of buildings, which occupies the block between 10th and 11th avenues on the west wide of Wadsworth Boulevard. The fifth zone comprises residential development that encompasses the east and west sides of Wadsworth Boulevard, just off the Wadsworth Boulevard Corridor and, in some cases, only one house back from the corridor.

3.5.3 Recommendations

Based on reconnaissance survey information and early engineering information, a draft APE has been established for the project. The boundaries of the APE are displayed in Figure 3 in Appendix B. It is recommended that buildings 42 years and older (that is, constructed in 1965 or before) within the APE be intensively surveyed.

3.6 Land Use

3.6.1 Activities to Support Land Use Overview

CH2M HILL conducted the following activities to support the characterization of existing land use in the project area:

- Reviewed applicable City of Lakewood and regional land use plans to determine if goals or objectives of these plans were relevant to potential project improvements
- Interviewed Lakewood planners to determine what future land use changes were likely to occur in the project area
- Reviewed and mapped Jefferson County Assessor data
- Conducted a field reconnaissance to verify existing land uses and complete land use mapping

3.6.2 Land Use in the Project Area

Current land use is a mix of commercial, residential, and industrial uses. There are no park or recreation resources present in or near the study area. Figure 4 in Appendix B illustrates current land use in the study area.

Land use adjacent to Wadsworth Boulevard from Colfax Avenue to 12th Avenue is commercial, while surrounding land uses are industrial and residential. From 12th Avenue to 10th Avenue, land use consists of the Jefferson County Open School grounds on the west side of Wadsworth Boulevard and commercial and residential land uses on the east side of the thoroughfare. From 10th Avenue to the US 6 interchange, land use along Wadsworth Boulevard consists of commercial development, while surrounding land uses are primarily residential, with a few scattered industrial sites. Residential developments consist primarily of medium- to high-density single-family homes.

The area south of US 6 on Wadsworth Boulevard continues the pattern of development north of the interchange. Land use along Wadsworth Boulevard consists of commercial development, surrounded by residential land use. A Wal-Mart store is located on Wadsworth Boulevard at 3rd Avenue, and is surrounded by a variety of businesses, restaurants, and gas stations. Surrounding residential development consists of medium-density single detached homes and apartment complexes.

Land use along Wadsworth Boulevard in the study area is expected to undergo extensive change in the future. This change is spurred by redevelopment projects north and south of the study area (Belmar and Creekside, respectively) and by the future West Corridor light rail line and transit station along 13th Avenue. The City of Lakewood is considering a major rezoning effort to support future redevelopment of the area.

Commercial land use will continue to predominate along Wadsworth Boulevard. Densities, however, will increase, driven in part by high-density residential development planned around the future light rail station. Land uses surrounding Wadsworth Boulevard within the study area consist primarily of single-family residences, with some industrial and public uses. These land uses are expected to change in the area surrounding the light rail station, as industrial and residential sites are redeveloped into office, retail, and higher-density residential uses. In other areas, residential land uses are not expected to change.

Several City of Lakewood and regional plans are relevant to the US 6 and Wadsworth Boulevard project. These include the *Wadsworth Boulevard Strategic Plan*, *Wadsworth Boulevard Station Area Plan*, *the Wadsworth Boulevard Station Area Implementation Plan*, *Lakewood Bicycle System Master Plan: Planning for Pedaling*, *DRCOG Regional Transportation Plan*, and neighborhood area plans for three of the four neighborhoods in the study area.

3.6.3 Recommendations

There are a number of land use changes proposed in the project area. The review of relevant plans for the project area did not identify any conflicts between the goals of the US 6 and Wadsworth Boulevard project and the goals and objectives of other projects in the area. No land use changes are proposed as part of the US 6 and Wadsworth Boulevard project; under all potential alternatives, US 6 and Wadsworth Boulevard would remain highly traveled roadways. However, the project does have an important interaction with land use changes driven by other development plans in the area. These land uses are expected to be an important consideration for the project and should be fully evaluated in the EA.

3.7 Noise

3.7.1 Activities to Support Noise Conditions

Noise conditions in the study area were evaluated by measuring existing sound levels in the study area. These evaluations were conducted for 1 week at two locations and for 20-minute periods at nine locations, as well as the execution of modeling noise contours for the entire study area using the Traffic Noise Model (TNM).

3.7.2 Noise in the Project Area

Measured loudest-hour noise levels range from approximately 60 to 74 dBA, with the loudest levels measured along US 6. The actual noise measurements were used to validate a noise model of the site, which was used to predict the location of the 66-dBA noise level contours for the study area.

The 66-dBA noise level contour characterizes existing traffic noise conditions within the US 6 and Wadsworth Boulevard study area, as shown in Figure 5 of Appendix B. The contour lies approximately 150 feet on either side of Wadsworth Boulevard, and encompasses the first row of commercial properties. West of the interchange, the predicted 66-dBA noise level contour lies approximately 350 to 650 feet on either side of US 6, and encompasses the first three to four rows of residential properties. East of the interchange, along which a noise wall already exists, the predicted 66-dBA noise level contour lies approximately 180 feet on either side of US 6, and encompasses the first row of residences.

3.7.3 Recommendations

Existing noise levels in the project area are high, and noise is a long-standing community concern for neighborhoods in the project area. Noise is expected to be a very important consideration for the EA and should be fully analyzed. Analysis should include prediction of future traffic noise levels for final alternatives that have passed the screening process (using TNM), determination of noise impacts, and identification and evaluation of feasibility and reasonableness of noise abatement measures.

3.8 Paleontology

3.8.1 Activities to Support Paleontological Resource Overview

A field reconnaissance was conducted to determine if any natural, undisturbed areas were present.

3.8.2 Paleontological Resources in the Project Area

The study area is developed, and most natural areas have been disturbed. Therefore, it is unlikely that any important paleontological resources would be located in the study area.

3.8.3 Recommendations

The project team will consult with the CDOT paleontologist to confirm that no further analysis of paleontological resources is required in the EA.

3.9 Right-of-Way

3.9.1 Activities to Support Right-of-Way Overview

The project team met with CDOT right-of-way (ROW) staff to discuss data collection, impact analysis, and public involvement as it applies to the presentation of ROW information. As-built drawings were reviewed to characterize the existing ROW.

3.9.2 ROW in the Project Area

ROW widths in the study area vary from approximately 80 to 95 feet, as shown in Table 1. The average width of the US 6 ROW at the Wadsworth Boulevard interchange is 780 feet. The widths, which were collected from CDOT ROW plans, include the paved surface and CDOT-owned land beyond the pavement of US 6 and Wadsworth Boulevard.

TABLE 1
Wadsworth Boulevard Existing ROW Width (north to south)

Segment	Average Width
15th Avenue to 10th Avenue	80 feet
10th Avenue Southern Quadrants	90 feet
Below 10th Avenue to North Quadrants of Eighth Avenue	80 feet
Eighth Avenue Southern Quadrants to Seventh Avenue	95 feet
Fifth Avenue to Second Avenue	85 feet

Source: CDOT ROW Plans

3.9.3 Recommendations

It is likely that the existing CDOT ROW is insufficient to support project improvements and that additional land will need to be acquired. It is possible that businesses or residences would need to be relocated. ROW will be an important consideration in the EA and should be fully analyzed. ROW analysis should include an estimate of the partial and total acquisitions that would be required for the preferred alternative. The EA will list all potentially affected properties and estimated areas of impacts for each alternative that passes the screening process. A cost estimate for acquisition and relocations, if applicable, will be prepared.

3.10 Section 4(f) and 6(f) Resources

3.10.1 Activities to Support Section 4(f) and 6(f) Overview

The following activities were conducted to determine the potential for Section 4(f) and 6(f) resources in the project area:

- Conducted a field reconnaissance to identify parks within the project area
- Interviewed City of Lakewood planners to identify parks that might qualify for Section 4(f) resources in the project area

- Reviewed project grants for the Land and Water Conservation Fund to determine if any Section 6(f) properties are located near the project area

3.10.2 Section 4(f) and 6(f) Resources in the Project Area

There are no parks or wildlife areas in the study area that qualify as Section 4(f) resources. The nearest parks, which are shown in Figure 6 in Appendix B, are distant from the project area. There is some potential, however, for historic properties to exist in the corridor, as described in Historic Resources above.

There are no Section 6(f) resources in the study area.

3.10.3 Recommendations

If NRHP-eligible historic properties that require transportation use are identified in the corridor, a Section 4(f) evaluation will be conducted. As noted in the Historic Resources section, an intensive survey of the properties constructed in or before 1965 within the APE will be conducted to identify NRHP-eligible properties. If present, an assessment of potential use of the Section 4(f) historic properties will be conducted.

Because there are no Section 4(f) park or wildlife areas or Section 6(f) resources in the study area, impacts to these resources will not be analyzed in the EA.

3.11 Socioeconomics and Community Resources

3.11.1 Activities to Support Socioeconomic and Community Resources Overview

To characterize socioeconomic and community resources in the project area, CH2M HILL reviewed and analyzed available demographic data, including U.S. Census Bureau 2000 data, Jefferson County public school district demographics for school year 2005-2006, and DRCOG's updated transportation analysis zone population and employment data. Interviews were conducted with City planning staff, public school officials, RTD, neighborhood organizations, business organizations, elected officials, and emergency service providers. Finally, several reconnaissance field visits were conducted.

3.11.2 Socioeconomic and Community Resources in the Project Area

The study area consists of a mix of residences and businesses. Residential areas consist of primarily single-family housing with some multi-family housing, particularly in the northern ends of the study area. Population is relatively stable, although development plans are likely to increase density in the study area following redevelopment resulting from the West Corridor light rail. Age distribution in the study area neighborhoods is similar to greater Lakewood, although the Creighton neighborhood has a higher percentage of both elderly (over 65) and young (under 15) populations. Median income in three of the four study area neighborhoods is lower than the rest of Lakewood; median income in Creighton is higher than the other neighborhoods and than the median income for Lakewood as a whole.

According to U.S. Census Bureau statistics, minority populations are generally higher than the rest of Jefferson County in most census block groups surrounding the project site. Some census block groups have minority populations greater than the rest of Lakewood, although the minority population numbers are generally similar to the rest of Lakewood. A much higher-than-average percentage of household residents in the North Alameda neighborhood speak Spanish at home. School statistics for the elementary, middle, and high schools in the study area show very high percentages of minorities as compared with the census statistics. A large percentage of area students are also eligible for free or reduced-rate lunch programs, although the census statistics indicate that none of the census tracts in the study area would be considered low-income under CDOT's definition (using Housing and Urban Development poverty thresholds).

Neighborhoods are established, and most of the neighborhood organizations in the corridor are active. The project team has either met with or is scheduled to meet with all neighborhood organizations in the study area. Transportation concerns identified by these groups include neighborhood cut-through traffic, traffic congestion and capacity along Wadsworth Boulevard, increased growth and density of development, traffic noise, and safety of the US 6 and Wadsworth Boulevard interchange.

Public transportation is an important feature of the study area. Several existing bus routes serve the area, as shown in Figure 7 in Appendix B, and transit use is expected to increase with the opening of RTD's West Corridor, which includes a station at Wadsworth Boulevard within the study area.

There are a number of businesses in the study area, as shown in Figure 8 in Appendix B. Most of the properties adjacent to Wadsworth Boulevard are commercial properties used by area businesses to provide an array of professional and retail services.

The Jefferson County Open School is located at the intersection of Wadsworth Boulevard and 10th Avenue. Several other public and private educational institutions serving school-aged children are located in or near the study area, including the New America School at Wadsworth Boulevard and 10th Avenue, which is a public charter high school dedicated to providing intensive English language instruction to non-native-English-speaking adults between the ages of 16 and 21. Other elementary, middle, and high schools serve the project area residents.

3.11.3 Recommendations

The project area is densely populated and socioeconomic and community resources will be an important consideration in developing project alternatives. Understanding of neighborhood demographics, business operations, and employment in the project area will be refined with additional community outreach and interviews. Public involvement activities should continue to be used to understand issues of importance to the community, and community values should be considered when developing alternatives evaluation criteria. Potential impacts to socioeconomic and community resources will be fully analyzed in the EA.

3.12 Visual/Aesthetic Considerations

3.12.1 Activities to Support Visual/Aesthetic Overview

A field reconnaissance was conducted to characterize existing visual and aesthetic conditions in the study area. The reconnaissance involved photographing views throughout the study area, reviewing topographic data, and conducting an inspection of visual trends and conditions in the study area.

3.12.2 Visual/Aesthetic Resources in the Project Area

Visual resources along US 6 are limited due to the 65-mph speeds of the highway and presence of noise walls that block views east of Wadsworth Boulevard. US 6 does provide good views of the foothills to the west and Denver to the east. Views from the interchange to foothills or city views are limited by drivers' attention to negotiating the tight curves of the ramps.

Current land uses along the Wadsworth Boulevard Corridor are predominately one- to two-story commercial and retail buildings that are fronted with parking facilities, which dominate the street edge of Wadsworth Boulevard. Building setbacks, combined with a minimal street tree canopy and six lanes of uninterrupted traffic, give the corridor a very wide and exposed character that makes it uncomfortable for pedestrians and lacks aesthetic distinction from other major collector streets within Lakewood. The streetscape of the Wadsworth Boulevard corridor is loosely defined by low-profile, sporadic building mass and streetlights that are not visually strong enough to create a sense of spatial enclosure or distinct streetscape character. Currently, the corridor does not have well-defined spaces (that is, the corridor lacks spatial enclosure and definition). However, in specific cases along the corridor, such as 12th Avenue, there is good spatial enclosure due primarily to taller buildings and street trees occupying the street edge.

Several landscape features influence the street rhythm, scale, and spatial quality of the corridor. The first and most obvious is the US 6 interchange. The interchange creates a visual break and spatial definition for motorists and pedestrians passing northward and southward. The green landscape character of the interchange is in stark contrast to the urban and paved character of the rest of the boulevard and serves to break the monotony of the street's development pattern. McIntyre Gulch crosses the Wadsworth Boulevard Corridor north of Highland drive and Eighth Avenue. In its current condition, this riparian corridor creates some visual interruption in the urban character of the boulevard, but it is overgrown and tends to blend into the visual clutter of the streetscape. The Dry Creek corridor crosses Wadsworth Boulevard adjacent to 12th Avenue. This feature currently contributes very little to the overall visual quality of the corridor in part because the watercourse west of Wadsworth Boulevard is piped under a gravel parking area.

Although Wadsworth Boulevard is in relative proximity to the foothills and downtown Denver, the views to both are virtually non-existent. The tree canopies east and west of the corridor define north-south-oriented viewsheds that offer distant views of the foothills to the south and Lakewood neighborhoods to the north. In both directions, the foreground and mid-ground to these distant views are relatively homogenous and lack focal interest, with the exception of the US 6 interchange.

In contrast to the limited east-west views from Wadsworth Boulevard, the varied topography creates varied views north to south. Generally, the high point of the corridor plateaus from 10th to 12th avenues, creating good southern views to the Belmar area and the foothills beyond. While Third Avenue marks the high ground of the project corridor south of US 6, the US 6 underpass marks the low point of the project corridor. The underpass condition creates a visual “bowl” as viewed from both the northbound and southbound lanes of Wadsworth Boulevard. This creates a strong visual emphasis on this portion of the corridor from both directions. However, from the northbound lanes at Third Avenue, the interchange is set low relative to the high ground of 10th and 12th avenues, thus making the interchange the mid-ground feature of this viewshed, which places visual emphasis on the high ground of 10th and 12th avenues. Currently, the area from 10th and 12th avenues lacks a strong visual element that would provide focus to the overall view. Between Second and Ninth avenues, the views both north and south are focused on the interchange area.

Although the project area generally lacks visual and aesthetic focus, the US 6 and Wadsworth Boulevard project, along with other developments in the project area, have the potential to dramatically change views and aesthetic qualities of Wadsworth Boulevard.

3.12.3 Recommendations

Current views in the project area are limited by mature trees, walls, and large buildings, and the project area generally lacks visual focus. There are not important views requiring protection or preservation in the project area, but the US 6 and Wadsworth Boulevard project has an opportunity to improve visual qualities. Aesthetic considerations will be an important consideration in developing alternatives that support community values for the corridor, but impacts to existing visual resources in the corridor are not expected to be significant.

3.13 Water Quality

3.13.1 Activities to Support Water Quality Overview

Water bodies in the study area were characterized from USGS topographic maps, FEMA floodplain maps, and review of the Colorado Department of Public Health and Environment (CDPHE) list of impaired water bodies in the state.

3.13.2 Water Quality in the Project Area

The study area is located in the Upper South Platte River basin. The South Platte River is the primary drainage for the study area; several smaller creeks and drainages in or adjacent to the study area may be impacted by the proposed project, including Lakewood Gulch, McIntyre Gulch, and Dry Gulch. During much of the year, these tributaries are dry and experience periodic high flows. Current CDPHE regulations were reviewed to determine surface water classifications, beneficial uses, and water quality concerns.

Tributaries in the study area are not listed as impaired on the Water Quality Control Division 303(d) List of Impaired State Waters; however, selenium is of concern in other

nearby tributaries of the South Platte River. Sediment and other typical roadway pollutants are a general concern.

3.13.3 Recommendations

Water quality treatment is expected to be an important component of the project, and impacts to water quality are recommended to be fully analyzed in the EA. Water pollutants may influence the selection of stormwater best management practices (BMPs) to treat roadway runoff from the interchange. Based on the “sensitive” water criteria for the New Development Program established by CDOT, the US 6 and Wadsworth Boulevard project would need to be evaluated in order to determine if it is a significant highway modification requiring permanent BMPs.

The City of Lakewood falls under a State general permit and is in the process of developing programs that address permit requirements for Clean Water Act compliance. Of the programs’ six permit elements, the construction stormwater runoff control and post-construction stormwater management requirements are expected to have the greatest effect on the project. The construction stormwater control element will require attention during the construction phase of the project, while the post-construction stormwater management element will require careful consideration during the project’s planning phase.

3.14 Wetlands

3.14.1 Activities to Support Wetlands Overview

Wetlands and waters of the United States were evaluated through a field visit, and an assessment of the jurisdiction of the waters at the site was made using topographic maps (USGS, 1984). The field visit consisted of walking a majority of the study area and driving the perimeter and surrounding areas of the study area.

3.14.2 Wetlands in the Project Area

Three potential waters of the United States and/or wetlands were identified in the study area. These are located along Lakewood Gulch, McIntyre Gulch, and Dry Gulch, and are shown in Figure 9 in the Appendix. The U.S. Army Corps of Engineers (USACE) was unable to provide guidance at this time regarding the jurisdiction of these features; however, CDOT policy provides for mitigation for affected wetlands regardless of jurisdictional status. If the wetlands are determined to be under the jurisdiction of the USACE and if they are affected by the project, a Section 404 Permit may be required.

3.14.3 Recommendations

A formal wetlands delineation should be completed once a project footprint has been generally established. Wetlands could be affected and, therefore, impacts to wetlands should be evaluated in the EA. The limited extent and value of wetlands in the project area suggest that wetlands will not be a deciding factor in developing project alternatives.

3.15 Wildlife and Vegetation, including Threatened and Endangered Species

3.15.1 Activities to Support Wildlife and Vegetation Overview

A field reconnaissance was conducted by CH2M HILL and CDOT biologists. The field team examined all natural areas in the project area that had potential to support plants, wildlife, or wildlife habitat.

3.15.2 Wildlife and Vegetation Resources in the Project Area

The evaluation for this report concentrated on two drainages, Lakewood Gulch and Dry Gulch, which cross under Wadsworth Boulevard. Subjects of concern included potential habitat for federally listed threatened and endangered plant and wildlife species, potential habitat for migratory birds, and wetlands.

Lakewood Gulch is a deeply channelized stream with steep, 12- to 15-foot-high banks near the Wadsworth Boulevard crossing. Chunks of asphalt and concrete have been placed in the drainage, possibly in an attempt to armor the stream banks. Dry Gulch is a smaller stream, and a portion of stream bank has been armored with cemented riprap. Vegetation along both drainages near Wadsworth Boulevard consists of an overstory of native trees (plains cottonwood, peachleaf willow, box elder), non-native trees (Chinese elm, green ash), and an understory comprising a diverse array of weedy grasses and forbs. The presence of smooth brome suggests that attempts may have been made to stabilize these disturbed areas.

Common urban wildlife species, including house sparrow, mourning dove, black-billed magpie, common grackle, American crow, American robin, fox squirrel, red fox, raccoon, house cat, mouse, and skunk likely occur in study area. No bird nests were identified within the study area along the two gulches, and no swallow nests were observed in the culverts.

No potential habitat for federally listed species was identified in the study area. The project occurs within the Denver metro block clearance area (within which the U.S. Fish and Wildlife Service [USFWS] has determined that the species is not likely to exist) for Preble's meadow jumping mouse.

3.15.3 Recommendations

No additional field survey is recommended. Limited impact analysis of effects to riparian areas, migratory birds, and noxious weeds should be conducted for alternatives that pass the screening criteria.

A Senate Bill 40 Wildlife Certification through the Colorado Division of Wildlife will be required if the proposed construction involves a new stream crossing or a permanent stream realignment, or if the project will result in bank stabilization or stream encroachment greater than 500 feet of stream length. Construction permits or modified practices may be required for activities affecting migratory birds or their nests.

The project team and CDOT staff concluded that federally listed threatened and endangered species may be dismissed from detailed analysis for this project. The team will assess the

potential suitability of the study area as habitat for Colorado species of special concern at a future stage in the environmental review.

3.16 Cumulative Impact Analysis

As noted in the Land Use discussion (Section 3.6), a number of changes are expected in the project area, including substantial development and redevelopment efforts along Wadsworth Boulevard at Colfax Avenue with the Creekside development, at Alameda Avenue with the Belmar development, and at 13th Avenue with the planned RTD light rail station and rail line. Changing land use is the driver for potential cumulative impacts. The cumulative impact analysis will include a review of past, present, and planned projects that have the potential to combine with effects of the US 6 and Wadsworth Boulevard project to contribute to cumulative effects. Based on the review of land use and other environmental resources in the study area, cumulative impacts could occur to transportation, community, and business resources. These areas will be included in the cumulative impact assessment.

4.0 Recommendations and Conclusions

The purpose of the existing conditions summary is to provide context for the transportation problems and environmental conditions in the project area. Table 2 presents a summary of the environmental resources considered in this overview, recommendations for which resources should be carried forward for more detailed impact analysis in the EA, and a summary of the basis for the recommendation. Proposed methodologies for environmental impact analysis are included after Table 2. All impact analysis will be in accordance with FHWA Technical Advisory T 6640.8A, Guidance for Preparing and Processing Environmental and Section 4(F) Documents, and CDOT NEPA Manual, Chapter 4, Resource Considerations.

TABLE 2
Resources Considered for Detailed Analysis in EA

Resource	Recommended for Detailed Analysis	Basis for Recommendation
Air Quality	Yes	Air quality could be affected by project improvements.
Archaeological Resources	No	No further evaluation recommended.
Floodplains	Yes	Floodplain encroachments and flooding are problems in project area.
Hazardous Materials/Waste Sites	Yes	Six sites with potential to affect project in project area.
Historic Resources	Yes	Resources potentially eligible for the NRHP are present in the project area.
Land Use	Yes	Land use changes in the project area likely, and impacts from the project to existing and future land uses will need to be evaluated.
Noise	Yes	Existing noise levels are high, and the project is likely to affect noise conditions in the project area.
Paleontology	No	No further evaluation is recommended.
Socioeconomic and Community Resources	Yes	Urban project area with established neighborhoods and businesses.
Right-of-Way	Yes	Additional ROW will likely be required to support transportation improvements.
Visual/Aesthetic Resources	No	Important viewsheds are not present in project area.
Wetlands	Yes	Several wetland areas are present in the project area.
Wildlife and Vegetation	Yes	Natural areas in project area are limited but potential impacts could occur to riparian areas, migratory birds, and noxious weeds. Limited impact analysis will be required.
Water Quality	Yes	Water quality treatment will be an important issue to be addressed by the project.

4.1 Air Quality Methodology

Air quality analysis will include an evaluation and description of the existing air quality conditions, regulatory status of the study area, and determination of air quality conformity. Hot-spot modeling for CO will be conducted for up to three intersections using the Transportation Air Quality Dispersion Model (CAL3QHC). MOBILE6.2 emission factors will be obtained from the Colorado APCD. A qualitative analysis of PM₁₀ impacts will be conducted according to current EPA and FHWA guidance (March 2006). A qualitative analysis of mobile source air toxics will be conducted using current guidance from FHWA.

4.2 Floodplains

Floodplain impact analysis will be performed in accordance with 23 CFR 650, Subpart A; Executive Order 11988, Floodplain Management; and DOT Order 5650.2. The project will coordinate with FEMA and the Urban Flood Control and Drainage regarding methodology for floodplain modeling. The analysis will include a determination of the probable encroachments of each final alternative.

4.3 Hazardous Materials/Waste Sites

Appropriate regulatory records for the six sites identified with potential to affect project design will be researched and summarized. Depending on the results of the records review, additional investigation may be required to support impact analysis for the EA. For properties that may be acquired to support the project, the potential for lead-based paint and asbestos-containing materials contamination will be assessed.

A full Phase I ESA, conducted according to ASTM 2005 standards, will be completed prior to any property transactions. Given the possibility of multiple property transactions, more than one ESA may be required.

4.4 Historic Resources

CDOT will coordinate the APE with SHPO and conduct a Class III or intensive historic survey of properties older than 1966 in the project area in accordance with requirements of the *OAHP Colorado Cultural Resource Survey Manual* (revised 2006). A comprehensive survey report will be prepared according to guidelines established by the OAHP.

An archaeological survey will not be conducted.

4.5 Land Use

Direct land use impacts will be evaluated based on the compatibility of the US 6 and Wadsworth Boulevard alternatives with the goals and objectives of existing and planned future land use, including development plans for the area.

4.6 Noise

Noise analysis will include a technical noise assessment for the final alternatives in accordance with *CDOT Noise Analysis and Abatement Guidelines* (revised December 1, 2002); the FHWA publication, *Highway Traffic Noise Analysis and Abatement Policy and Guidance*; and FHWA noise regulations in 23 CFR 772. Existing noise conditions have been modeled and noise contours are presented in Figure 5 in Appendix B. Analysis of future noise conditions for the final alternatives will be modeled using FHWA's Traffic Noise Model (TNM v2.5). The analysis will include an identification and evaluation of feasibility and reasonableness of noise abatement measures and development of recommendations regarding noise abatement measures.

4.7 Socioeconomics and Community Resources

Working with the City of Lakewood and the stakeholders, the effects of the final alternatives on community cohesion, safety and security, neighborhood impacts, and accessibility of facilities and services will be identified and documented. Public meetings will be used to verify potential impacts to community resources. Business impacts will be identified based on interviews with potentially affected businesses, which will include an assessment of ROW, access, and business operations.

Potential environmental justice concerns will continue to be evaluated through community outreach. Public involvement activities will be modified as necessary to accommodate minority or low-income groups that may be present in the project area. All efforts to reach out to minority and low-income populations will be documented.

4.8 ROW

For each final alternative, the EA will identify partial acquisitions, complete acquisitions, and relocations that may be required to implement a final alternative. ROW impacts will be identified by comparing the limits of the final alternatives with the aerial photograph of the project area. Estimates of land area that may be required will be determined by geographic information system (GIS) analysis.

4.9 Wetlands

Wetlands and waters of the United States in the project area will be formally delineated using the U.S. Army Corps of Engineers *Wetlands Delineation Manual*. Global positioning system (GPS) software will be used to map delineated wetlands. A Wetlands Finding Report will be prepared to assess permanent and temporary impacts and mitigations. Impacts will be evaluated using GIS overlays of the final alternatives with delineated wetland boundaries.

4.10 Water Quality

Water quality analysis will be conducted in accordance with FHWA Publication No. FHWA-PD-96-032, *Evaluation and Management of Highway Runoff Water Quality*, and the *CDOT Erosion Control and Stormwater Quality Guide*. The final alternatives will address Municipally Separate Storm Sewer System (MS4) design and permitting issues.

4.11 Wildlife and Vegetation

A limited analysis of impacts to wildlife and vegetation will be conducted. Analysis will include assessment of potential impacts to migratory birds, noxious weeds, and riparian areas during construction. Standard mitigation measures will be identified and included in the EA.

No further analysis of impacts to threatened or endangered species is warranted because none is expected to be in the project area.

4.12 Cumulative Impacts

Continued public and agency outreach will be conducted to identify any projects with the potential, in combination with the US 6 and Wadsworth Boulevard project, to cause cumulative environmental impacts. Based on the early review of land use and proposed changes in the project area, it is anticipated that the large developments of Creekside, Belmar, and the West Corridor light rail have the potential to significantly change the environment of the project area (with or without the US 6 and Wadsworth Boulevard project). Resources that could be cumulatively affected include transportation, community, and business resources. A final assessment of the resources to include in the cumulative impact analysis will be completed after all impacts of the US 6 and Wadsworth Boulevard project have been identified.

APPENDIX A

Geometric Health Summary

← SOUTHBOUND

RATING BAR CODES FOR SOUTHBOUND

DESIGN CRITERIA FOR SOUTHBOUND

GEOMETRIC FEATURES	HORIZONTAL ALIGNMENT	
	VERTICAL ALIGNMENT	
	VERTICAL SIGHT STOPPING DISTANCE	
	ACCESS CONTROL/ MEDIAN TREATMENT	
OPERATIONAL FEATURES	SPACING OF INTERSECTING STREETS	
	EXIT AND ENTRANCE DESIGN	
	RAMP DESIGN	
	WEAVE DISTANCE	
PERFORMANCE MEASURES	LEVEL OF SERVICE (AM/PM)	
	ACCIDENT RATES	
PEDESTRIAN	CONNECTIVITY	
STRUCTURAL	CLASSIFICATION	
DRAINAGE	MAJOR	

LEGEND

●#7 GEOTECH BORING LOCATION

ACCIDENT DATA
 ACCIDENTS/MILE/YEAR FOR US6
 X.XX VEHICLES TRAVELED FOR W/VEHICLE
 X.XX VEHICLES TRAVELED FOR W/O VEHICLE

LEVEL OF SERVICE DATA
 INTERSECTION OR RAMP LEVEL OF SERVICE (AM/PM PEAK HOUR)
 US GOOD - A-C, FAR - D, POOR - E-F

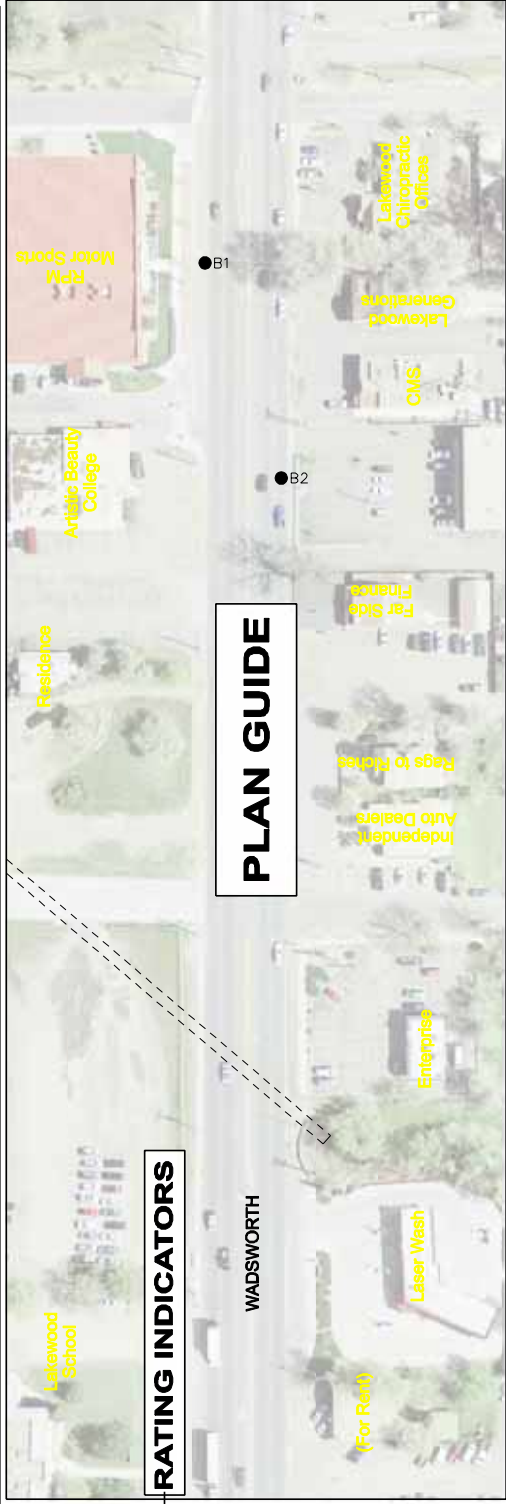
CRITERIA RATING LEGEND

GOOD (Green) 13
 FAR (Yellow) 12
 POOR (Red) 11
 N/A (White) 10
 9
 8
 7

KEY MAP NOT TO SCALE

US 6

STRUCTURE CLASSIFICATION
 (ND): NEITHER FUNCTIONALLY STRUCTURALLY DEFICIENT
 (SD): STRUCTURALLY DEFICIENT
 (SD) AND/OR (FC): STRUCTURALLY DEFICIENT AND/OR FUNCTIONALLY OBSOLETE CLEARANCE AVAILABLE
 (FC): FUNCTIONALLY OBSOLETE CLEARANCE AVAILABLE



RATING INDICATORS

→ NORTHBOUND

RATING BAR CODES FOR NORTHBOUND

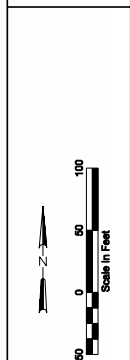
DESIGN CRITERIA FOR NORTHBOUND

GEOMETRIC FEATURES	HORIZONTAL ALIGNMENT	
	VERTICAL ALIGNMENT	
	VERTICAL SIGHT STOPPING DISTANCE	
	ACCESS CONTROL/ MEDIAN TREATMENT	
OPERATIONAL FEATURES	SPACING OF INTERSECTING STREETS	
	EXIT AND ENTRANCE DESIGN	
	RAMP DESIGN	
	WEAVE DISTANCE	
PERFORMANCE MEASURES	LEVEL OF SERVICE (AM/PM)	
	ACCIDENT RATES	
PEDESTRIAN	CONNECTIVITY	
STRUCTURAL	CLASSIFICATION	
DRAINAGE	MAJOR	

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 Golden, CO 80401
 Phone: (720) 497-6955

REGION 6



US 6 AND WADSWORTH ENVIRONMENTAL ASSESSMENT
EXHIBIT 4-1

ANALYSIS OF EXISTING US 6 AND WADSWORTH 1ST AVENUE TO 14TH AVENUE
 PROJECT NO. 358660
 SHEET 1 OF 13

← WESTBOUND

HORIZONTAL ALIGNMENT
HORIZONTAL SIGHT STOPPING DISTANCE
VERTICAL ALIGNMENT
VERTICAL ALIGNMENT CRITICAL LENGTHS
VERTICAL SIGHT STOPPING DISTANCE
ACCESS CONTROL/MEDIAN TREATMENT
CROSS-SECTIONAL ELEMENTS
SPACING OF INTERSECTING STREETS
EXIT AND ENTRANCE DESIGN
RAMP DESIGN
WEAVE DISTANCE
LEVEL OF SERVICE (AM/PM)
ACCIDENT RATES
CONNECTIVITY
CLASSIFICATION
MAJOR

OPERATIONAL FEATURES
PERFORMANCE MEASURES
PEDESTRIAN
STRUCTURAL CLASSIFICATION
DRAINAGE
MAJOR



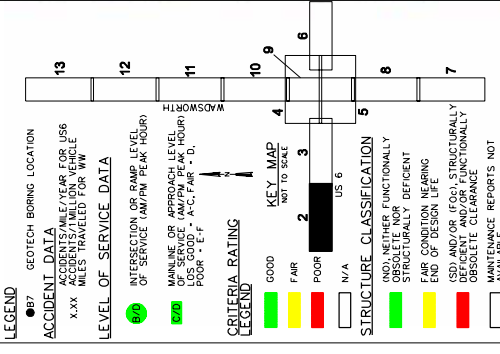
→ EASTBOUND

HORIZONTAL ALIGNMENT
HORIZONTAL SIGHT STOPPING DISTANCE
VERTICAL ALIGNMENT
VERTICAL ALIGNMENT CRITICAL LENGTHS
VERTICAL SIGHT STOPPING DISTANCE
ACCESS CONTROL/MEDIAN TREATMENT
CROSS-SECTIONAL ELEMENTS
SPACING OF INTERSECTING STREETS
EXIT AND ENTRANCE DESIGN
RAMP DESIGN
WEAVE DISTANCE
LEVEL OF SERVICE (AM/PM)
ACCIDENT RATES
CONNECTIVITY
CLASSIFICATION
MAJOR

OPERATIONAL FEATURES
PERFORMANCE MEASURES
PEDESTRIAN
STRUCTURAL CLASSIFICATION
DRAINAGE
MAJOR

HORIZONTAL ALIGNMENT
HORIZONTAL SIGHT STOPPING DISTANCE
VERTICAL ALIGNMENT
VERTICAL ALIGNMENT CRITICAL LENGTHS
VERTICAL SIGHT STOPPING DISTANCE
ACCESS CONTROL/MEDIAN TREATMENT
CROSS-SECTIONAL ELEMENTS
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EXIT AND ENTRANCE DESIGN
RAMP DESIGN
WEAVE DISTANCE
LEVEL OF SERVICE (AM/PM)
ACCIDENT RATES
CONNECTIVITY
CLASSIFICATION
MAJOR

OPERATIONAL FEATURES
PERFORMANCE MEASURES
PEDESTRIAN
STRUCTURAL CLASSIFICATION
DRAINAGE
MAJOR



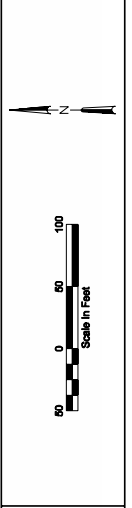
HORIZONTAL ALIGNMENT
HORIZONTAL SIGHT STOPPING DISTANCE
VERTICAL ALIGNMENT
VERTICAL ALIGNMENT CRITICAL LENGTHS
VERTICAL SIGHT STOPPING DISTANCE
ACCESS CONTROL/MEDIAN TREATMENT
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LEVEL OF SERVICE (AM/PM)
ACCIDENT RATES
CONNECTIVITY
CLASSIFICATION
MAJOR

OPERATIONAL FEATURES
PERFORMANCE MEASURES
PEDESTRIAN
STRUCTURAL CLASSIFICATION
DRAINAGE
MAJOR

PROJECT NO.
358660
SHEET 2 OF 13

ANALYSIS OF EXISTING US 6 AND WADSWORTH AND WADSWORTH 1ST AVENUE TO 14TH AVENUE
EXHIBIT 4-2

US 6 AND WADSWORTH ENVIRONMENTAL ASSESSMENT

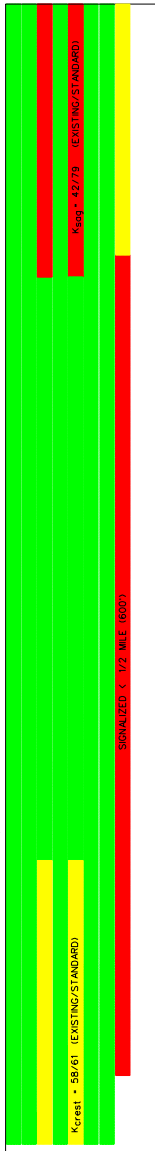


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REGION 6

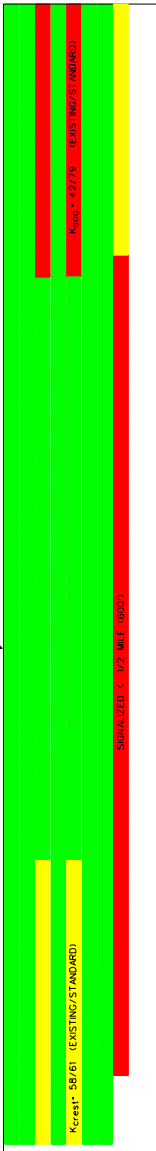
← SOUTHBOUND



HORIZONTAL ALIGNMENT	
VERTICAL ALIGNMENT	
VERTICAL SIGHT STOPPING DISTANCE	
ACCESS CONTROL/ MEDIAN TREATMENT	
SPACING OF INTERSECTING STREETS	
EXIT AND ENTRANCE DESIGN	
RAMP DESIGN	
WEAVE DISTANCE	
LEVEL OF SERVICE (AM/PM)	
ACCIDENT RATES	
CONNECTIVITY	
CLASSIFICATION	
MAJOR	



→ NORTHBOUND



HORIZONTAL ALIGNMENT	
VERTICAL ALIGNMENT	
VERTICAL SIGHT STOPPING DISTANCE	
ACCESS CONTROL/ MEDIAN TREATMENT	
SPACING OF INTERSECTING STREETS	
EXIT AND ENTRANCE DESIGN	
RAMP DESIGN	
WEAVE DISTANCE	
LEVEL OF SERVICE (AM/PM)	
ACCIDENT RATES	
CONNECTIVITY	
CLASSIFICATION	
MAJOR	

HORIZONTAL ALIGNMENT	
VERTICAL ALIGNMENT	
VERTICAL SIGHT STOPPING DISTANCE	
ACCESS CONTROL/ MEDIAN TREATMENT	
SPACING OF INTERSECTING STREETS	
EXIT AND ENTRANCE DESIGN	
RAMP DESIGN	
WEAVE DISTANCE	
LEVEL OF SERVICE (AM/PM)	
ACCIDENT RATES	
CONNECTIVITY	
CLASSIFICATION	
MAJOR	

HORIZONTAL ALIGNMENT	
VERTICAL ALIGNMENT	
VERTICAL SIGHT STOPPING DISTANCE	
ACCESS CONTROL/ MEDIAN TREATMENT	
SPACING OF INTERSECTING STREETS	
EXIT AND ENTRANCE DESIGN	
RAMP DESIGN	
WEAVE DISTANCE	
LEVEL OF SERVICE (AM/PM)	
ACCIDENT RATES	
CONNECTIVITY	
CLASSIFICATION	
MAJOR	

LEGEND

●97 GEOTECH BORING LOCATION

ACCIDENT DATA
X.XX ACCIDENTS/MILE/YEAR FOR US6
X.XX ACCIDENTS/MILE/YEAR FOR WADSWORTH
X.XX MILES TRAVELED FOR WADSWORTH

LEVEL OF SERVICE DATA

INTERSECTION OR RAMP LEVEL OF SERVICE (AM/PM PEAK HOUR)

MAJOR OR APPROX. LEVEL OF SERVICE (AM/PM PEAK HOUR)

LOS GOOD = A-C, FAIR = D, POOR = E-F

CRITERIA RATING

GOOD (Green)
FAIR (Yellow)
POOR (Red)
N/A (White)

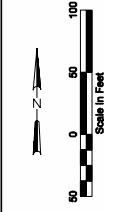
KEY MAP
NOT TO SCALE

STRUCTURE CLASSIFICATION

(ND): NEITHER FUNCTIONALLY OR STRUCTURALLY DEFICIENT
(F): FAIR CONDITION NEARING END OF DESIGN LIFE
(SD) AND/OR (FO): STRUCTURALLY DEFICIENT AND/OR FUNCTIONALLY OBSOLETE CLEARANCE
(A): AVAILABILITY REPORTS NOT AVAILABLE

HORIZONTAL ALIGNMENT	
VERTICAL ALIGNMENT	
VERTICAL SIGHT STOPPING DISTANCE	
ACCESS CONTROL/ MEDIAN TREATMENT	
SPACING OF INTERSECTING STREETS	
EXIT AND ENTRANCE DESIGN	
RAMP DESIGN	
WEAVE DISTANCE	
LEVEL OF SERVICE (AM/PM)	
ACCIDENT RATES	
CONNECTIVITY	
CLASSIFICATION	
MAJOR	

HORIZONTAL ALIGNMENT	
VERTICAL ALIGNMENT	
VERTICAL SIGHT STOPPING DISTANCE	
ACCESS CONTROL/ MEDIAN TREATMENT	
SPACING OF INTERSECTING STREETS	
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LEVEL OF SERVICE (AM/PM)	
ACCIDENT RATES	
CONNECTIVITY	
CLASSIFICATION	
MAJOR	



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US 6 AND WADSWORTH ENVIRONMENTAL ASSESSMENT

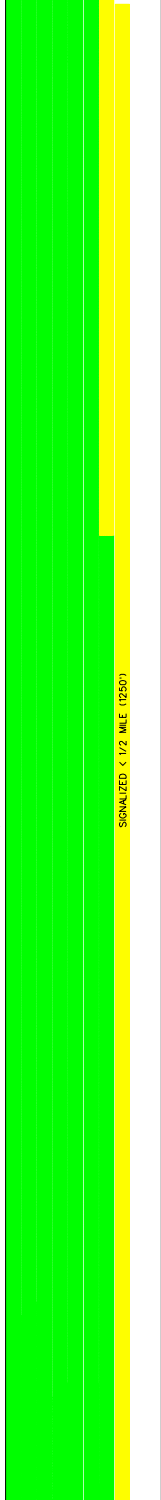
ANALYSIS OF EXISTING US 6 AND WADSWORTH 1ST AVENUE TO 14TH AVENUE

EXHIBIT 4-7

PROJECT NO.
358660

SHEET 7 OF 13

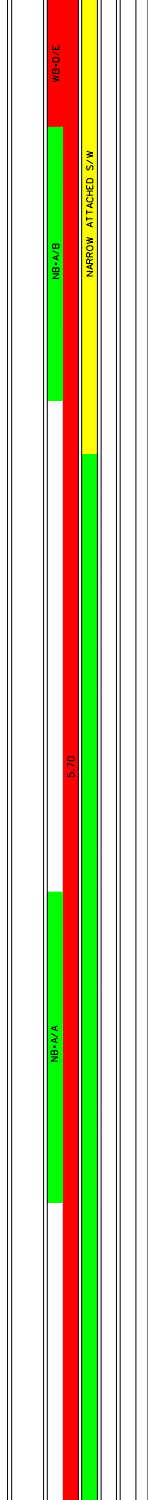
← SOUTHBOUND



HORIZONTAL ALIGNMENT	
VERTICAL ALIGNMENT	
VERTICAL SIGHT STOPPING DISTANCE	
ACCESS CONTROL/MEDIAN TREATMENT	
SPACING OF INTERSECTING STREETS	
EXIT AND ENTRANCE DESIGN	
RAMP DESIGN	
WEAVE DISTANCE	
LEVEL OF SERVICE (AM/PM)	
ACCIDENT RATES	
CONNECTIVITY	
CLASSIFICATION	
MAJOR	



HORIZONTAL ALIGNMENT	
VERTICAL ALIGNMENT	
VERTICAL SIGHT STOPPING DISTANCE	
ACCESS CONTROL/MEDIAN TREATMENT	
SPACING OF INTERSECTING STREETS	
EXIT AND ENTRANCE DESIGN	
RAMP DESIGN	
WEAVE DISTANCE	
LEVEL OF SERVICE (AM/PM)	
ACCIDENT RATES	
CONNECTIVITY	
CLASSIFICATION	
MAJOR	



HORIZONTAL ALIGNMENT	
VERTICAL ALIGNMENT	
VERTICAL SIGHT STOPPING DISTANCE	
ACCESS CONTROL/MEDIAN TREATMENT	
SPACING OF INTERSECTING STREETS	
EXIT AND ENTRANCE DESIGN	
RAMP DESIGN	
WEAVE DISTANCE	
LEVEL OF SERVICE (AM/PM)	
ACCIDENT RATES	
CONNECTIVITY	
CLASSIFICATION	
MAJOR	

HORIZONTAL ALIGNMENT	
VERTICAL ALIGNMENT	
VERTICAL SIGHT STOPPING DISTANCE	
ACCESS CONTROL/MEDIAN TREATMENT	
SPACING OF INTERSECTING STREETS	
EXIT AND ENTRANCE DESIGN	
RAMP DESIGN	
WEAVE DISTANCE	
LEVEL OF SERVICE (AM/PM)	
ACCIDENT RATES	
CONNECTIVITY	
CLASSIFICATION	
MAJOR	

HORIZONTAL ALIGNMENT	
VERTICAL ALIGNMENT	
VERTICAL SIGHT STOPPING DISTANCE	
ACCESS CONTROL/MEDIAN TREATMENT	
SPACING OF INTERSECTING STREETS	
EXIT AND ENTRANCE DESIGN	
RAMP DESIGN	
WEAVE DISTANCE	
LEVEL OF SERVICE (AM/PM)	
ACCIDENT RATES	
CONNECTIVITY	
CLASSIFICATION	
MAJOR	

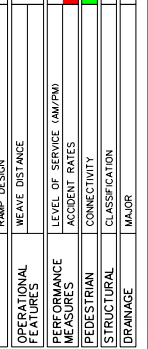
●B7 GEOTECH BORING LOCATION
 ACCIDENT DATA
 X.XX ACCIDENTS/MILE/YEAR FOR US6
 X.XX ACCIDENTS/MILE/YEAR FOR WADSWORTH
 X.XX MILES TRAVELED FOR WHEEL
 LEVEL OF SERVICE DATA
 INTERSECTION OR RAMP LEVEL OF SERVICE (AM/PM PEAK HOUR)
 13
12
11
10
9
8
7
 4
3
2
1
 WADSWORTH
 5th Avenue
 4th Avenue
 B6
 B5
 Mini Mart
 Deser Centre
 Community Hair
 Staples
 Home Building
 447
 Lakewood Veterinary Hospital
 Insurance Uninsured
 B's Graphics
 Grease Monkey
 Hotel 6
 Englewood Plaza
 MATCHLINE

CRITERIA RATING
 GOOD
 FAIR
 POOR
 N/A
 US 6

KEY MAP NOT TO SCALE

STRUCTURE CLASSIFICATION
 (NO): NEITHER FUNCTIONALLY STRUCTURALLY DEFICIENT
 (NF): FUNCTIONALLY DEFICIENT
 (F): FAIR CONDITION NEARING END OF DESIGN LIFE
 (SD) AND/OR (FO): STRUCTURALLY DEFICIENT AND/OR FUNCTIONALLY OBSOLETE CLEARANCE
 (AVAIL): AVAILABILITY REPORTS NOT AVAILABLE

HORIZONTAL ALIGNMENT	
VERTICAL ALIGNMENT	
VERTICAL SIGHT STOPPING DISTANCE	
ACCESS CONTROL/MEDIAN TREATMENT	
SPACING OF INTERSECTING STREETS	
EXIT AND ENTRANCE DESIGN	
RAMP DESIGN	
WEAVE DISTANCE	
LEVEL OF SERVICE (AM/PM)	
ACCIDENT RATES	
CONNECTIVITY	
CLASSIFICATION	
MAJOR	



HORIZONTAL ALIGNMENT	
VERTICAL ALIGNMENT	
VERTICAL SIGHT STOPPING DISTANCE	
ACCESS CONTROL/MEDIAN TREATMENT	
SPACING OF INTERSECTING STREETS	
EXIT AND ENTRANCE DESIGN	
RAMP DESIGN	
WEAVE DISTANCE	
LEVEL OF SERVICE (AM/PM)	
ACCIDENT RATES	
CONNECTIVITY	
CLASSIFICATION	
MAJOR	

PROJECT NO. 358660

ANALYSIS OF EXISTING US 6 AND WADSWORTH 1ST AVENUE TO 14TH AVENUE

EXHIBIT 4-8

SHEET 8 OF 13

US 6 AND WADSWORTH ENVIRONMENTAL ASSESSMENT

SCALE IN FEET

0 50 100

REGION 6

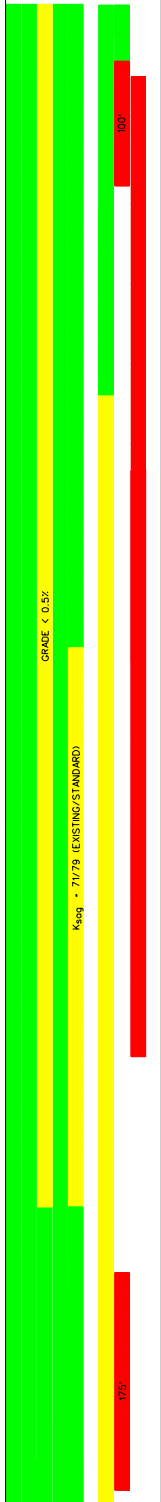
CH2M HILL

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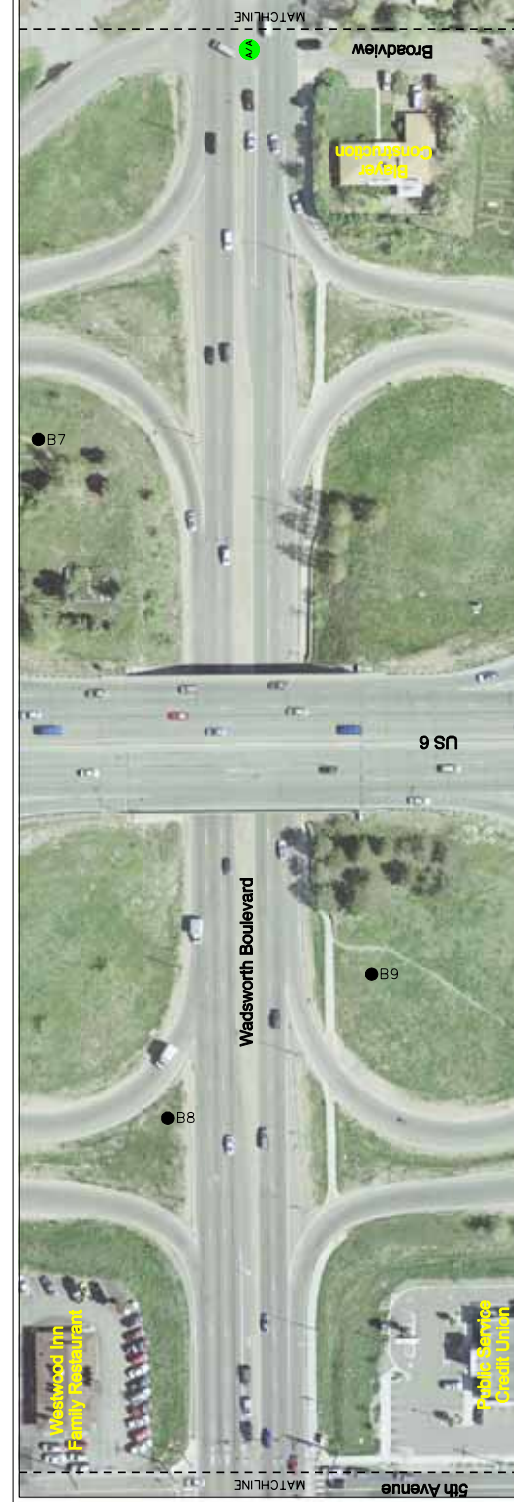
4258 Corporate Circle
 Golden, CO 80401
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← SOUTHBOUND

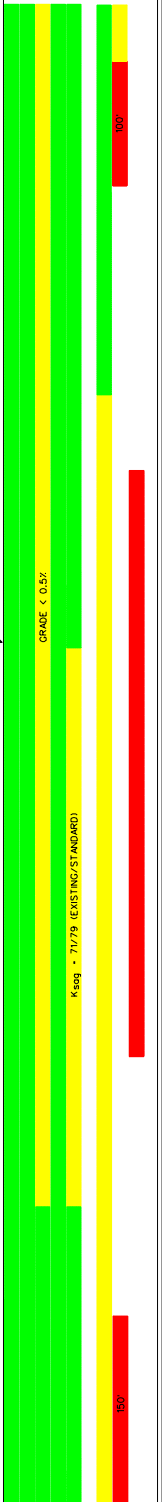


OPERATIONAL FEATURES	WEAVE DISTANCE
PERFORMANCE MEASURES	LEVEL OF SERVICE (AM/PM)
PEDESTRIAN	ACCIDENT RATES
STRUCTURAL	CONNECTIVITY
DRAINAGE	CLASSIFICATION
MAJOR	NO. PED. FACILITIES

LEGEND	● B7
ACCIDENT DATA	● B9
LEVEL OF SERVICE DATA	● B8
CRITERIA RATING	● B6



→ NORTHBOUND



OPERATIONAL FEATURES	WEAVE DISTANCE
PERFORMANCE MEASURES	LEVEL OF SERVICE (AM/PM)
PEDESTRIAN	ACCIDENT RATES
STRUCTURAL	CONNECTIVITY
DRAINAGE	CLASSIFICATION
MAJOR	CROSSINGS OF HIGH VOLUME, FREE FLOW RAMP NARROW S/W UNDER BRIDGE

LEGEND	● B7
ACCIDENT DATA	● B9
LEVEL OF SERVICE DATA	● B8
CRITERIA RATING	● B6

OPERATIONAL FEATURES	WEAVE DISTANCE
PERFORMANCE MEASURES	LEVEL OF SERVICE (AM/PM)
PEDESTRIAN	ACCIDENT RATES
STRUCTURAL	CONNECTIVITY
DRAINAGE	CLASSIFICATION
MAJOR	CROSSINGS OF HIGH VOLUME, FREE FLOW RAMP NARROW S/W UNDER BRIDGE

LEGEND	● B7
ACCIDENT DATA	● B9
LEVEL OF SERVICE DATA	● B8
CRITERIA RATING	● B6

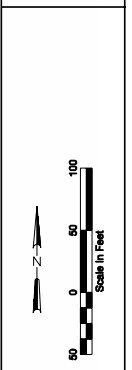
OPERATIONAL FEATURES	WEAVE DISTANCE
PERFORMANCE MEASURES	LEVEL OF SERVICE (AM/PM)
PEDESTRIAN	ACCIDENT RATES
STRUCTURAL	CONNECTIVITY
DRAINAGE	CLASSIFICATION
MAJOR	CROSSINGS OF HIGH VOLUME, FREE FLOW RAMP NARROW S/W UNDER BRIDGE

LEGEND	● B7
ACCIDENT DATA	● B9
LEVEL OF SERVICE DATA	● B8
CRITERIA RATING	● B6

OPERATIONAL FEATURES	WEAVE DISTANCE
PERFORMANCE MEASURES	LEVEL OF SERVICE (AM/PM)
PEDESTRIAN	ACCIDENT RATES
STRUCTURAL	CONNECTIVITY
DRAINAGE	CLASSIFICATION
MAJOR	CROSSINGS OF HIGH VOLUME, FREE FLOW RAMP NARROW S/W UNDER BRIDGE

LEGEND	● B7
ACCIDENT DATA	● B9
LEVEL OF SERVICE DATA	● B8
CRITERIA RATING	● B6

OPERATIONAL FEATURES	WEAVE DISTANCE
PERFORMANCE MEASURES	LEVEL OF SERVICE (AM/PM)
PEDESTRIAN	ACCIDENT RATES
STRUCTURAL	CONNECTIVITY
DRAINAGE	CLASSIFICATION
MAJOR	CROSSINGS OF HIGH VOLUME, FREE FLOW RAMP NARROW S/W UNDER BRIDGE



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REGION 6

ANALYSIS OF EXISTING US 6 AND WADSWORTH ENVIRONMENTAL ASSESSMENT

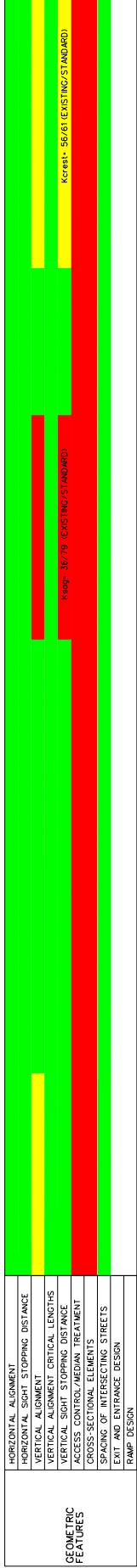
1ST AVENUE TO 14TH AVENUE

EXHIBIT 4-9

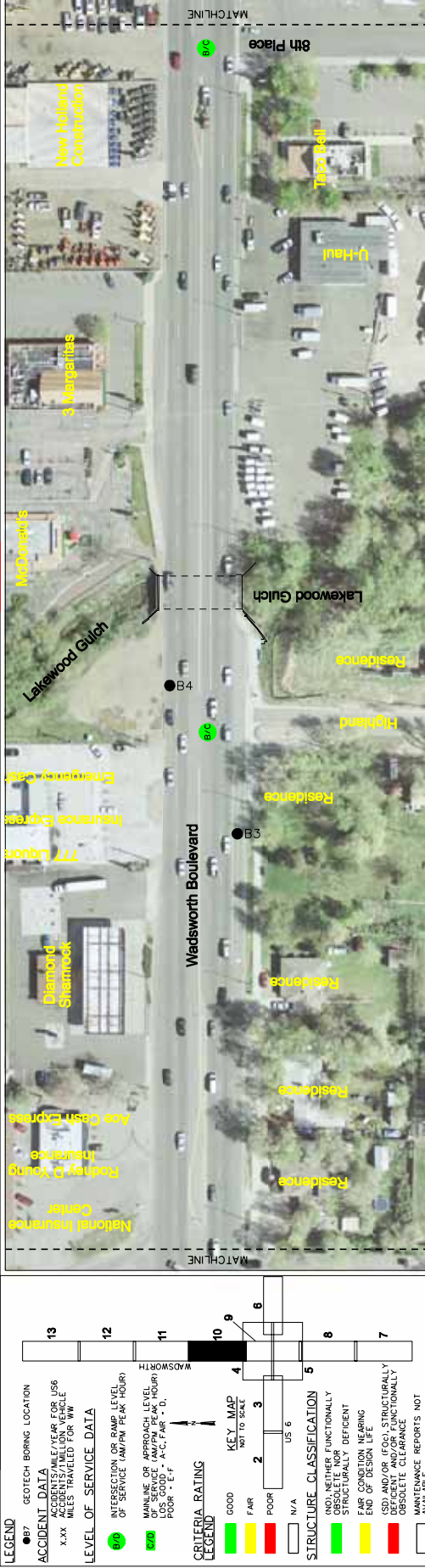
PROJECT NO. 358660

SHEET 9 OF 13

← SOUTHBOUND



HORIZONTAL ALIGNMENT	NO. RED FACILITY
VERTICAL ALIGNMENT	RETAINING WALL
VERTICAL ALIGNMENT CRITICAL LENGTHS	
VERTICAL SIGHT STOPPING DISTANCE	
ACCESS CONTROL/ MEDIAN TREATMENT	
CROSS-SECTIONAL ELEMENTS	
SPACING OF INTERSECTING STREETS	
EXIT AND ENTRANCE DESIGN	
RAMP DESIGN	
WEAVE DISTANCE	
LEVEL OF SERVICE (AM/PM)	
ACCIDENT RATES	
PEDESTRIAN CONNECTIVITY	
STRUCTURAL CLASSIFICATION	
MAJOR	



HORIZONTAL ALIGNMENT	NO. RED FACILITY
VERTICAL ALIGNMENT	RETAINING WALL
VERTICAL ALIGNMENT CRITICAL LENGTHS	
VERTICAL SIGHT STOPPING DISTANCE	
ACCESS CONTROL/ MEDIAN TREATMENT	
CROSS-SECTIONAL ELEMENTS	
SPACING OF INTERSECTING STREETS	
EXIT AND ENTRANCE DESIGN	
RAMP DESIGN	
WEAVE DISTANCE	
LEVEL OF SERVICE (AM/PM)	
ACCIDENT RATES	
PEDESTRIAN CONNECTIVITY	
STRUCTURAL CLASSIFICATION	
MAJOR	

HORIZONTAL ALIGNMENT	NO. RED FACILITY
VERTICAL ALIGNMENT	RETAINING WALL
VERTICAL ALIGNMENT CRITICAL LENGTHS	
VERTICAL SIGHT STOPPING DISTANCE	
ACCESS CONTROL/ MEDIAN TREATMENT	
CROSS-SECTIONAL ELEMENTS	
SPACING OF INTERSECTING STREETS	
EXIT AND ENTRANCE DESIGN	
RAMP DESIGN	
WEAVE DISTANCE	
LEVEL OF SERVICE (AM/PM)	
ACCIDENT RATES	
PEDESTRIAN CONNECTIVITY	
STRUCTURAL CLASSIFICATION	
MAJOR	

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US 6 AND WADSWORTH ENVIRONMENTAL ASSESSMENT

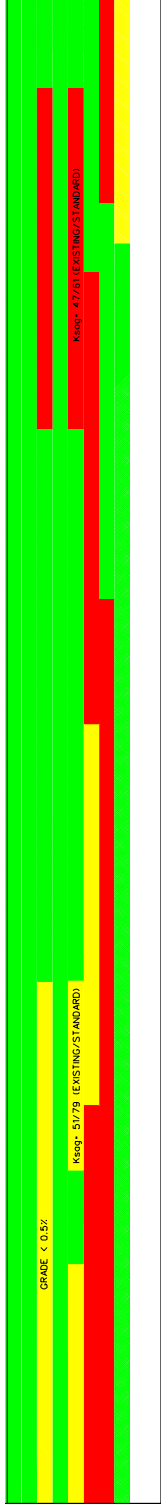
ANALYSIS OF EXISTING US 6 AND WADSWORTH 1ST AVENUE TO 14TH AVENUE

EXHIBIT 4 - 10

PROJECT NO.
358660

SHEET 10 OF 13

← SOUTHBOUND

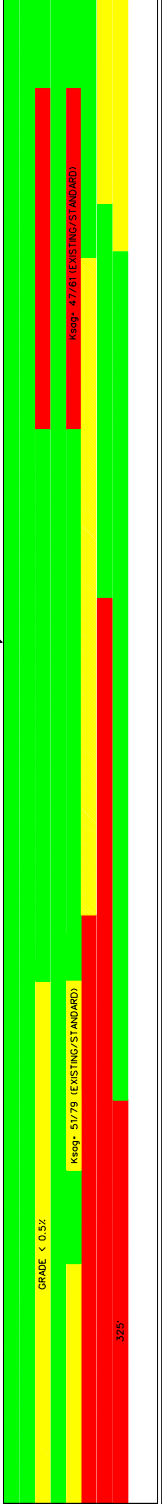


OPERATIONAL FEATURES	WEAVE DISTANCE
PERFORMANCE MEASURES	LEVEL OF SERVICE (AM/PM)
PEDESTRIAN	ACCIDENT RATES
STRUCTURAL	CONNECTIVITY
DRAINAGE	CLASSIFICATION
MAJOR	

SB-A/A	SB-A/A	SB-A/A	SB-A/A	SB-A/C
MISSING S/W	NON-ADA CURB RAMP	MISSING S/W	MISSING S/W	NARROW S/W CROSSWALK MARKINGS IN PARK CONDITION

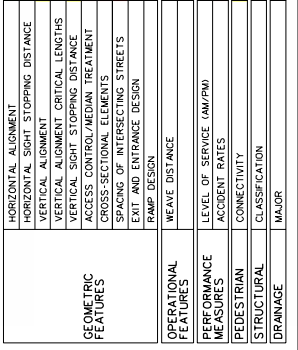
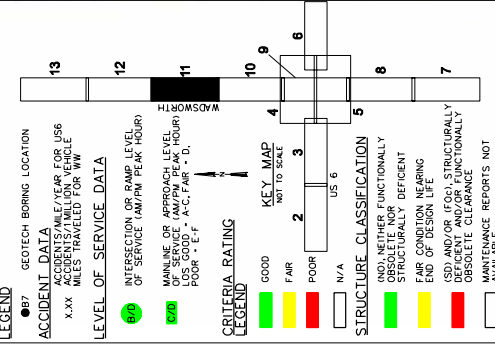


← NORTHBOUND



OPERATIONAL FEATURES	WEAVE DISTANCE
PERFORMANCE MEASURES	LEVEL OF SERVICE (AM/PM)
PEDESTRIAN	ACCIDENT RATES
STRUCTURAL	CONNECTIVITY
DRAINAGE	CLASSIFICATION
MAJOR	

NB-A/A	NB-B	NB-E/F	NB-E/F
MISSING S/W	MISSING S/W	DRIVEWAY ISLAND OBSTRUCTS PED/BIKES	NARROW, ATTACHED S/W



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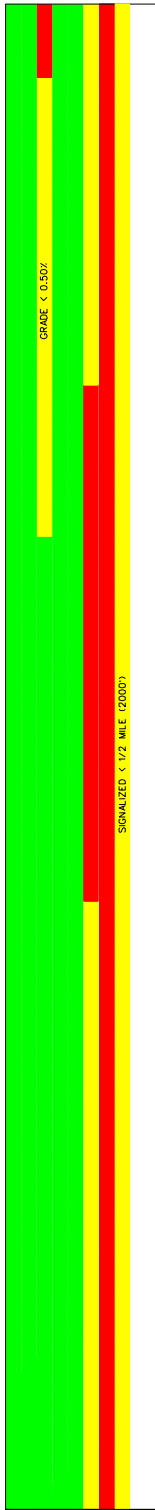
ANALYSIS OF EXISTING US 6 AND WADSWORTH AND WADSWORTH 1ST AVENUE TO 14TH AVENUE
EXHIBIT 4-11

PROJECT NO.
358660

US 6 AND WADSWORTH ENVIRONMENTAL ASSESSMENT

SHEET 11 OF 13

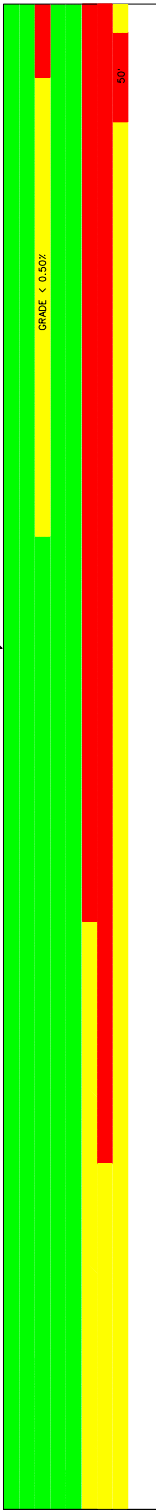
← SOUTHBOUND



OPERATIONAL FEATURES	WEAVE DISTANCE
PERFORMANCE MEASURES	LEVEL OF SERVICE (AM/PM)
PEDESTRIAN	ACCIDENT RATES
STRUCTURAL CLASSIFICATION	CONNECTIVITY
DRAINAGE	MAJOR



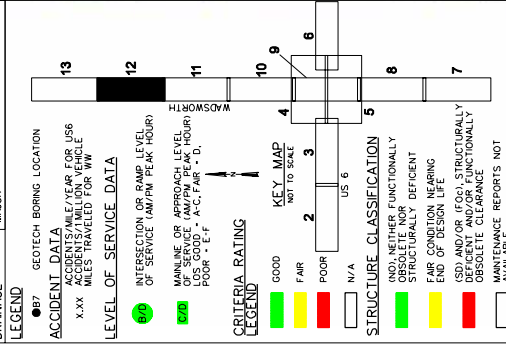
→ NORTHBOUND



OPERATIONAL FEATURES	WEAVE DISTANCE
PERFORMANCE MEASURES	LEVEL OF SERVICE (AM/PM)
PEDESTRIAN	ACCIDENT RATES
STRUCTURAL CLASSIFICATION	CONNECTIVITY
DRAINAGE	MAJOR

HORIZONTAL ALIGNMENT	MISSING S/W
VERTICAL ALIGNMENT	MISSING S/W
VERTICAL ALIGNMENT CRITICAL LENGTHS	MISSING S/W
ACCESS CONTROL/ADRIAL TREATMENT	MISSING S/W
SPACING OF INTERSECTING STREETS	MISSING S/W
EXIT AND ENTRANCE DESIGN	MISSING S/W
RAMP DESIGN	MISSING S/W

HORIZONTAL ALIGNMENT	MISSING S/W
VERTICAL ALIGNMENT	MISSING S/W
VERTICAL ALIGNMENT CRITICAL LENGTHS	MISSING S/W
ACCESS CONTROL/ADRIAL TREATMENT	MISSING S/W
SPACING OF INTERSECTING STREETS	MISSING S/W
EXIT AND ENTRANCE DESIGN	MISSING S/W
RAMP DESIGN	MISSING S/W



HORIZONTAL ALIGNMENT	MISSING S/W
VERTICAL ALIGNMENT	MISSING S/W
VERTICAL ALIGNMENT CRITICAL LENGTHS	MISSING S/W
ACCESS CONTROL/ADRIAL TREATMENT	MISSING S/W
SPACING OF INTERSECTING STREETS	MISSING S/W
EXIT AND ENTRANCE DESIGN	MISSING S/W
RAMP DESIGN	MISSING S/W

HORIZONTAL ALIGNMENT	MISSING S/W
VERTICAL ALIGNMENT	MISSING S/W
VERTICAL ALIGNMENT CRITICAL LENGTHS	MISSING S/W
ACCESS CONTROL/ADRIAL TREATMENT	MISSING S/W
SPACING OF INTERSECTING STREETS	MISSING S/W
EXIT AND ENTRANCE DESIGN	MISSING S/W
RAMP DESIGN	MISSING S/W

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REGION 6

ANALYSIS OF EXISTING US 6 AND WADSWORTH ENVIRONMENTAL ASSESSMENT

US 6 AND WADSWORTH ENVIRONMENTAL ASSESSMENT

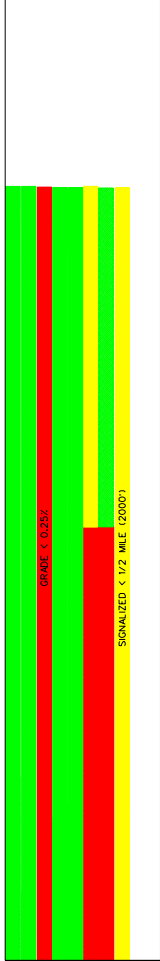
EXHIBIT 4-12

Scale in Feet

PROJECT NO.
358660

SHEET 12 OF 13

← SOUTHBOUND

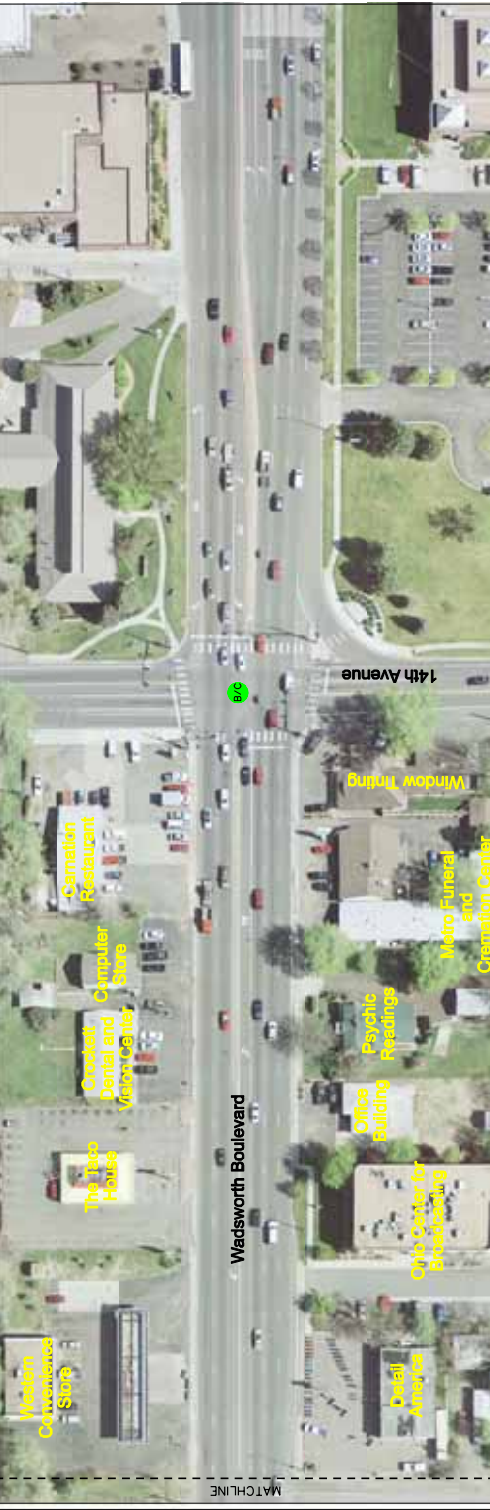


OPERATIONAL FEATURES	WEAVE DISTANCE
PERFORMANCE MEASURES	LEVEL OF SERVICE (AM/PM)
PEDESTRIAN CONNECTIVITY	ACCIDENT RATES
STRUCTURAL CLASSIFICATION	MAJOR
DRAINAGE	

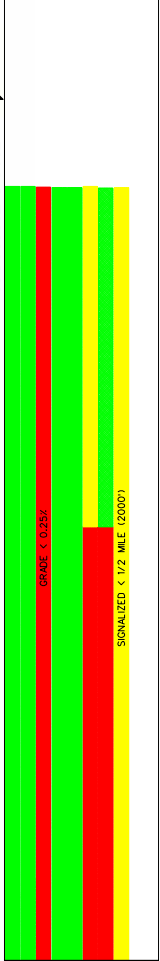
EB-C/D 5B-B/B

6-40

NARROW ATTACHED S/W



→ NORTHBOUND



OPERATIONAL FEATURES	WEAVE DISTANCE
PERFORMANCE MEASURES	LEVEL OF SERVICE (AM/PM)
PEDESTRIAN CONNECTIVITY	ACCIDENT RATES
STRUCTURAL CLASSIFICATION	MAJOR
DRAINAGE	

NB-B/B NB-C/D

6-40

MISSING S/W

NARROW ATTACHED S/W

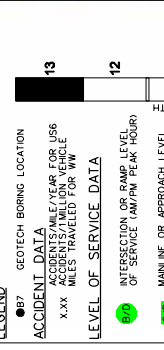
HORIZONTAL ALIGNMENT	HORIZONTAL SIGHT STOPPING DISTANCE
VERTICAL ALIGNMENT	VERTICAL SIGHT STOPPING DISTANCE
ACCESS CONTROL/MEDIAN TREATMENT	SPACING OF INTERSECTING STREETS
EXIT AND ENTRANCE DESIGN	RAMP DESIGN

WEAVE DISTANCE	LEVEL OF SERVICE (AM/PM)
ACCIDENT RATES	STRUCTURAL CLASSIFICATION
MAJOR	

097 GEOTECH BORING LOCATION

ACCIDENT DATA

LEVEL OF SERVICE DATA



GOOD	FAR	POOR	N/A
US 6			

GOOD	FAR	POOR	N/A
US 6			

HORIZONTAL ALIGNMENT	HORIZONTAL SIGHT STOPPING DISTANCE
VERTICAL ALIGNMENT	VERTICAL SIGHT STOPPING DISTANCE
ACCESS CONTROL/MEDIAN TREATMENT	SPACING OF INTERSECTING STREETS
EXIT AND ENTRANCE DESIGN	RAMP DESIGN

OPERATIONAL FEATURES	WEAVE DISTANCE
PERFORMANCE MEASURES	LEVEL OF SERVICE (AM/PM)
PEDESTRIAN CONNECTIVITY	ACCIDENT RATES
STRUCTURAL CLASSIFICATION	MAJOR
DRAINAGE	

NB-B/B NB-C/D

6-40

MISSING S/W

NARROW ATTACHED S/W

CH2M HILL

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REGION 6

US 6 AND WADSWORTH ENVIRONMENTAL ASSESSMENT

ANALYSIS OF EXISTING US 6 AND WADSWORTH 1ST AVENUE TO 14TH AVENUE

EXHIBIT 4-13

PROJECT NO.
358660

SHEET
13 OF 13

APPENDIX B

Environmental Resources Mapping

FIGURE 1
Floodplains

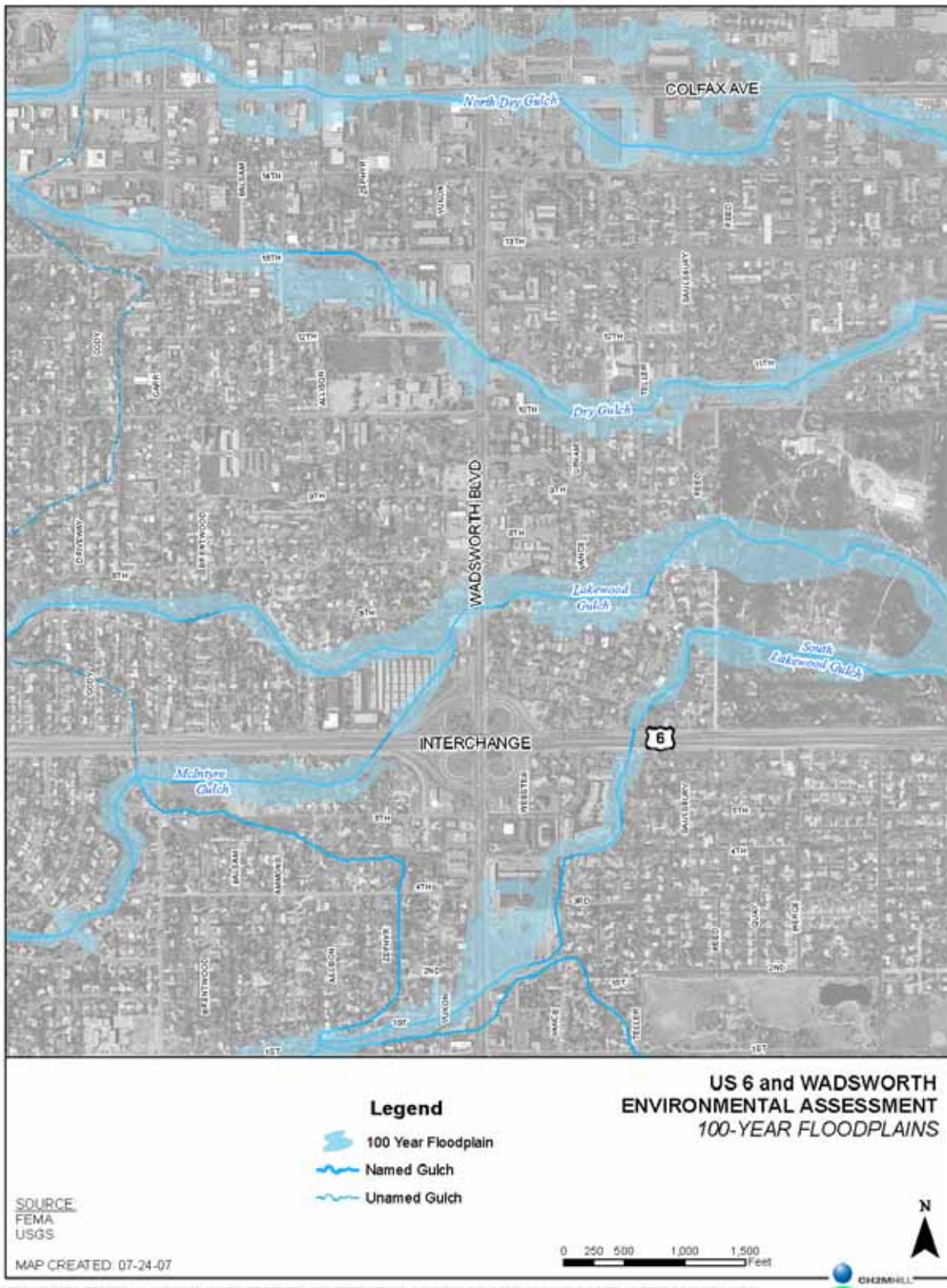


FIGURE 2
Hazardous Material Sites

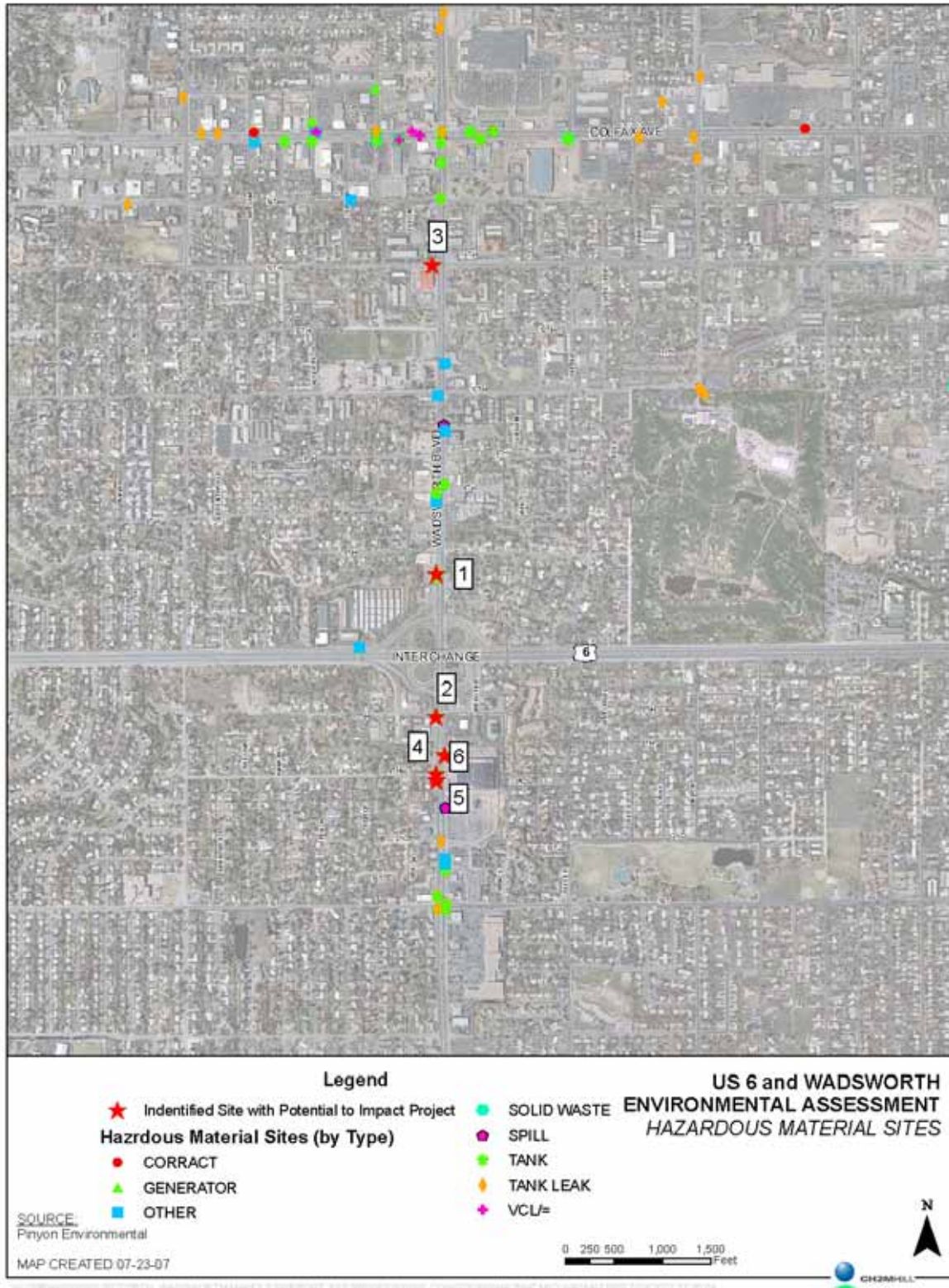


FIGURE 3
Area of Potential Effects, Historic Resources

In preparation

FIGURE 4
Land Use

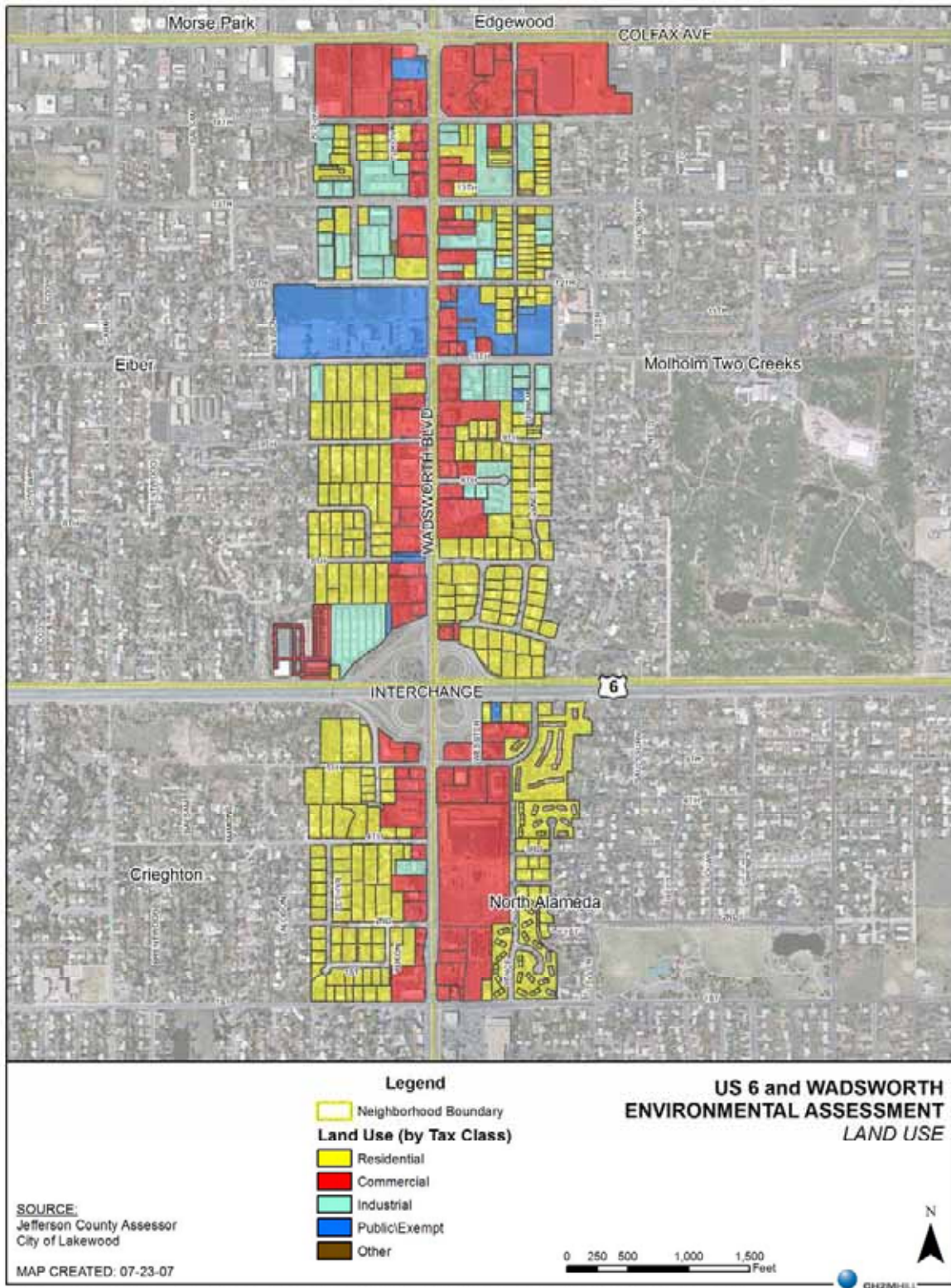


FIGURE 5
Noise



FIGURE 6
Parks and Recreation Sites

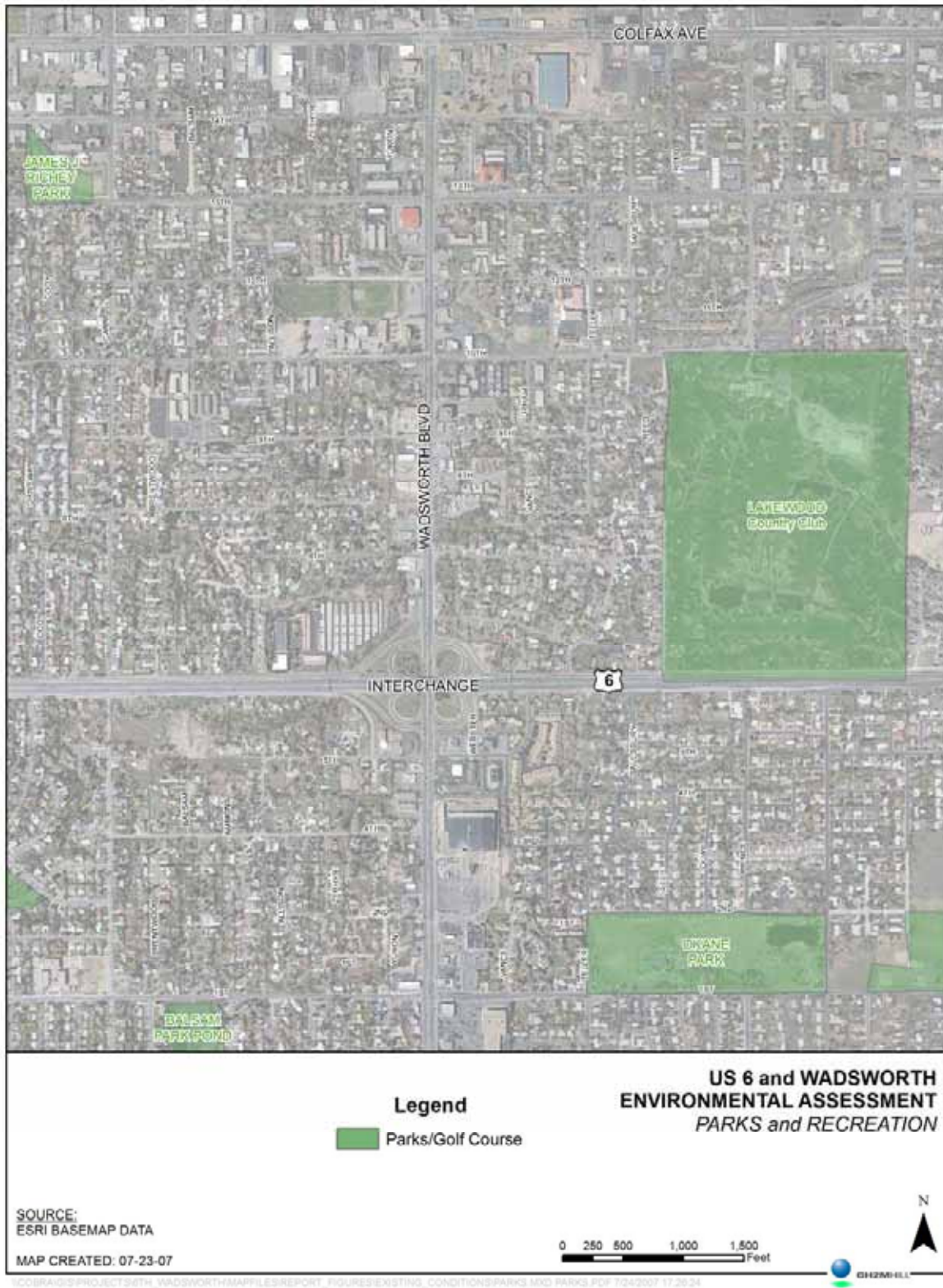


FIGURE 7
Bus Routes and Stops



FIGURE 8
Businesses by Business Type

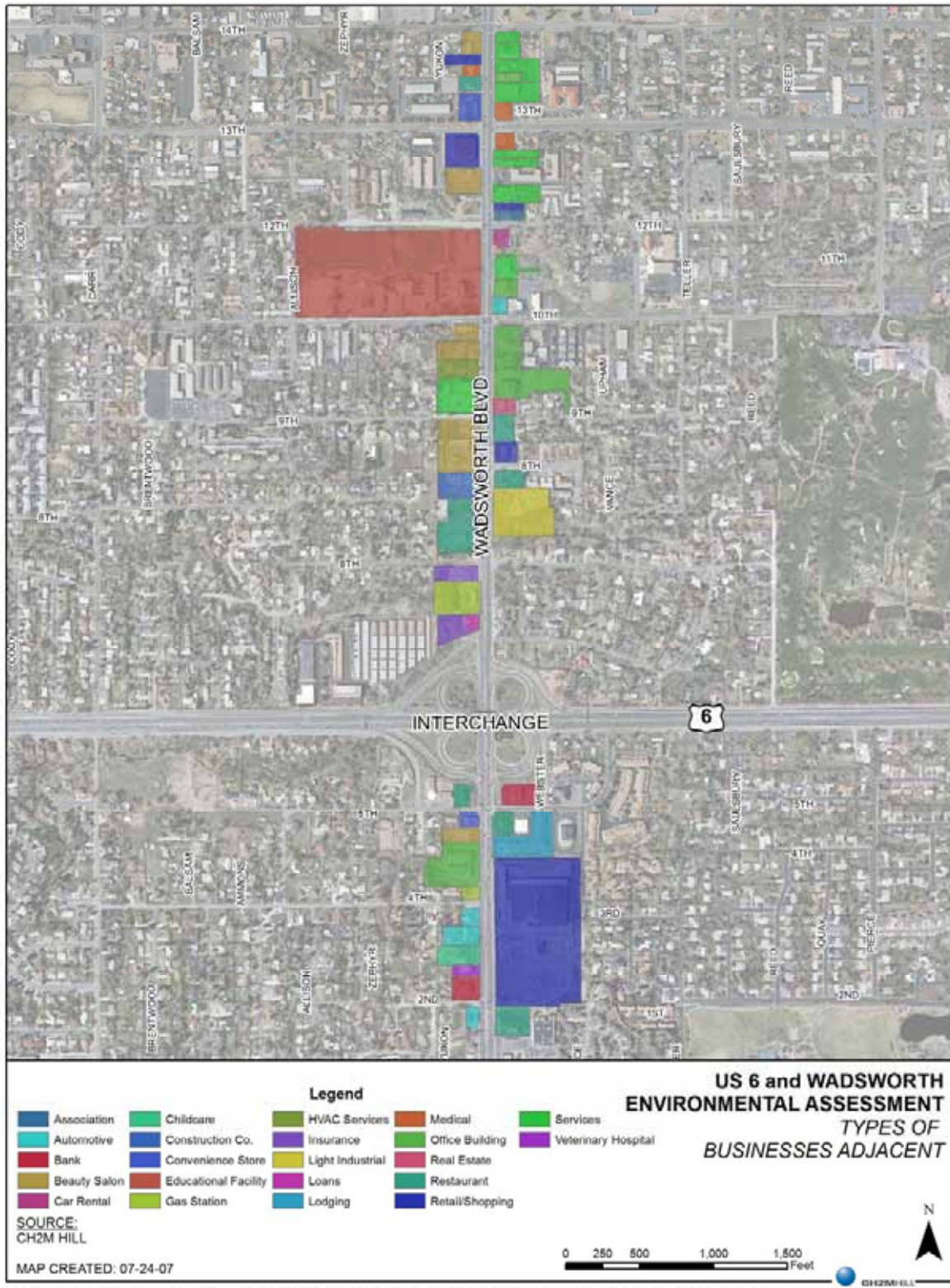


FIGURE 9
Wetlands and Waters of the U.S.

