

WATER QUALITY AND FLOODPLAINS TECHNICAL REPORT

FOR THE

I-25 (US 36 to 104th Avenue)
Environmental Assessment

Prepared for:



Colorado Department of Transportation
Region 1
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List of Acronyms and Abbreviations

BOD	Biological Oxygen Demand
CDOT	Colorado Department of Transportation
CDPHE	Colorado Department of Public Health and Environment
CDPS	Colorado Discharge Permit System
CLOMR	Conditional Letter of Map Revision
CM	Control Measure
CWA	Clean Water Act
DNR	Colorado Department of Natural Resources
EA	Environmental Assessment
FHAD	Flood Hazard Area Delineation
FIRM	Flood Insurance Rate Map
FIS	Flood Insurance Study
FHU	Felsburg Holt and Ullevig
FHWA	Federal Highway Administration
I-25	Interstate 25
LOMA	Letter of Map Amendment
LOMC	Letter of Map Changes
LOMR	Letter of Map Revisions
MDP	Major Drainageway Planning
M&E	Monitoring and Evaluation list
MHFD	Mile High Flood District
MS4	Municipal Separate Storm Sewer System
PWQ	Permanent Water Quality
RTD	Regional Transportation District
SFHA	Special Flood Hazard Areas
SWMP	Stormwater Management Plan
TMDL	Total Maximum Daily Load
MHFD	Mile High Flood District
US 36	United States Highway 36
VOC	Volatile Organic Compound
WQCC	Colorado Water Quality Control Commission
WQCD	Water Quality Control Division

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1.0 Project Description

A water quality and floodplains evaluation was completed for the Interstate 25 (I-25) North, United States Highway 36 (US 36) to 104th Avenue project. Colorado Department of Transportation (CDOT), in cooperation with the Federal Highway Administration (FHWA), is preparing a template Environmental Assessment (EA) for the I-25 North, US 36 to 104th Avenue project. The Regional Transportation District (RTD) is a cooperating agency.

The I-25 North, US 36 to 104th Avenue project includes improvements to relieve congestion and improve safety on I-25 from US 36 to 104th Avenue in Adams County and the City of Thornton, Colorado (**Figure 1** and **Figure 2**). The project will provide improvements to an approximately 4-mile segment of I-25 between US 36 and 104th Avenue. The current cross section of I-25 between US 36 and 104th Avenue generally includes three general-purpose lanes and one Express Lane along the inside shoulder with an auxiliary lane between 84th Avenue and Thornton Parkway. The inside shoulder varies in size between 2 and 12 feet, and the outside shoulder varies between 10 and 12 feet. There is a 2-foot inside shoulder and a 2-foot buffer between the Express Lane and the nearest general-purpose lane.

Proposed improvements associated with this project are as follows:

- ▶ Adding a fourth general-purpose lane in each direction from 84th Avenue to Thornton Parkway with the northbound general-purpose lane extending to 104th Avenue,
- ▶ Constructing continuous acceleration and deceleration lanes between the I-25/84th Avenue interchange and the I-25/Thornton Parkway interchange,
- ▶ Widening the inside and outside shoulders to a consistent 12-foot width,
- ▶ Accommodating a proposed median transit station and pedestrian bridge for the Thornton Park-n-Ride just south of 88th Avenue, and
- ▶ Replacing the 88th Avenue bridge.

The proposed typical section on I-25 will consist of four 12-ft general purpose lanes, a 12-ft Express Lane along the inside traveled way, and a 12-ft outside auxiliary lane between each interchange. Additionally, the inside and outside shoulders will be widened to 12 feet, the Express Lane buffer will be widened to 4 feet, and a two-foot barrier will separate the northbound and southbound lanes of I-25. Surrounding the median station will be a 2-foot concrete barrier separating the Express Lanes from the bus station and bus lanes.

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I-25 (US 36 to 104th Avenue) Environmental Assessment

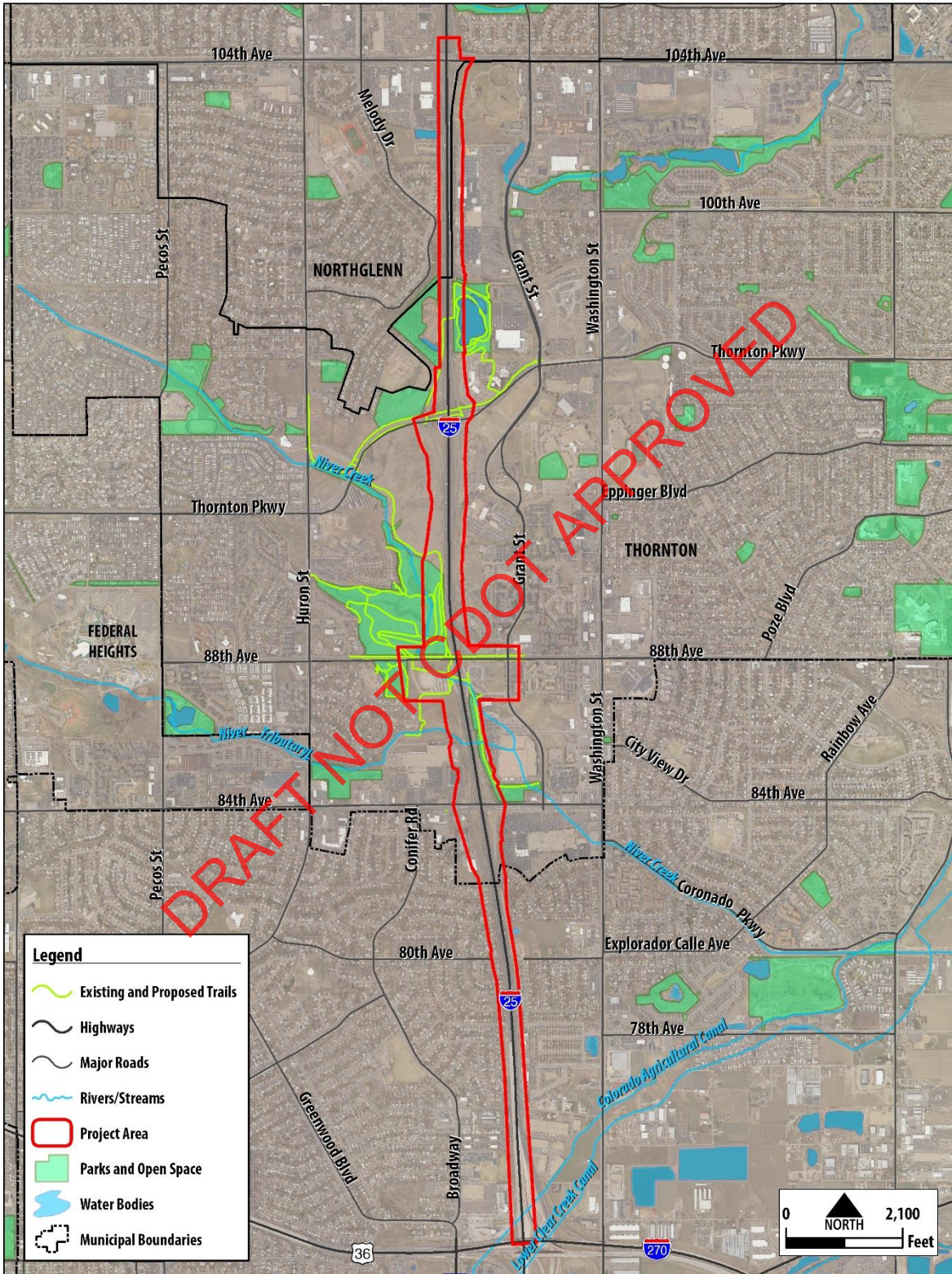
Figure 1. Project Vicinity



Source: FHU, 2019



Figure 2. Project Area



Source: FHU, 2019



2.0 Water Quality

The following analysis was conducted in compliance with the Clean Water Act (CWA) and the Colorado Department of Public Health and Environment (CDPHE) Total Maximum Daily Loads (TMDLs) database was consulted. All Municipal Separate Storm Sewer System (MS4) and New Development and Redevelopment guidelines were followed.

2.1 *Applicable Statutes, Regulations, and Permits*

2.1.1 Federal Water Quality

The following identify relevant federal statutes, regulations, and permits that apply to this project:

- ▶ The Clean Water Act
- ▶ Regulation Section 303(d) (state designation of waterbodies that do not meet water quality standards for their designated uses and to develop TMDLs to bring the waterbody up to the required water quality standard)
- ▶ Regulation Section 401 (certification by states that federally permitted activities comply with state water quality standards)
- ▶ Regulation Section 402 (National Pollution Discharge Elimination System, or NPDES, administered by Colorado under the Colorado Discharge Permit System, or CDPS)

2.1.2 State Water Quality

In Colorado, the Water Quality Control Division (WQCD) within CDPHE administers the CWA Sections 401, 402, and 303(d). The Colorado Water Quality Control Commission (WQCC) implements these regulations and sets the water quality standards for waterbodies throughout Colorado.

CWA Section 402 is implemented through WQCC Regulation Number 61 (5 Colorado Code of Regulation 1002-61) under the CDPS. This regulation includes Construction Stormwater permits (COR040000) and Construction Dewatering permits (COG070000).

A Remediation Activities for Discharges to Surface Water or Groundwater (COG315000 or COG316000) permit is required for projects with hazardous materials concerns.

In compliance with the provisions of the Colorado Water Quality Control Act and the Federal Water Pollution Control Act, CDPHE manages a CDOT MS4 general permit (COS000005) and the rest of the Phase II MS4 Permits of the Cities and Counties in the project area (CDPHE, 2015). Coverage is issued to cities and counties throughout the state of Colorado that apply for certification for stormwater discharges associated with MS4s. This statewide general MS4 permit functions under the CDPS.

As noted, CDOT is an MS4 permittee under the COS000005 general permit managed through the CDPS by CDPHE. This permit is modified occasionally to address program concerns prior to reissuing a new permit. The currently effective CDOT MS4 permit is the COS000005 Modification 3 (made effective September 1, 2017 and set to expire on July 27, 2020) (CDPHE, 2017). The CDOT MS4 permit requires the permittee to implement a program to reduce the discharge of pollutants to the MS4; this is accomplished through the Permanent Water Quality Management program, additional details of which can be found in the permit document. The permit identifies the specific pollutants of concern, which includes total suspended solids, cadmium, chromium, copper, iron, lead, magnesium, manganese, nickel, zinc, total inorganic nitrogen, total phosphorus, chloride, sodium, oil and grease.

Surface waterbodies throughout the project area flow toward the South Platte River. Water quality classifications and standards for the South Platte River Basin are implemented through Regulation Number 38 (5 Colorado Code of Regulation 1002-38). This regulation establishes the classification and numeric standards for the South Platte River, as well as relevant tributaries and standing bodies of water.

2.1.3 Local Water Quality

Adams County

Adams County is an MS4 permittee under the statewide MS4 General Permit (COR090000). Per the map provided by the Adams County Stormwater Quality Division, the project area is partially located within the Adams County MS4 Permitted Area. Any Adams County MS4 Permitted Area within the project area is located south of 84th Avenue. A map of the MS4 jurisdictional boundaries within or adjacent to the project area is provided in **Figure 3**.



City of Thornton

The City of Thornton is an MS4 permittee under the statewide MS4 General Permit (COR090000). Additionally, to obtain a City of Thornton construction permit, the owner/contractor must obtain a CDPHE permit for stormwater discharges associated with construction activity, as discussed under the CDPS (City of Thornton, 2018a). The City of Thornton's CDPS MS4 Phase II Stormwater Management Program documentation can be obtained from their city website. This program outlines a wide array of standards and requirements, including the implementation of erosion and sediment controls (City of Thornton, 2018b). A map of the MS4 jurisdictional boundaries within or adjacent to the project area is provided in **Figure 3**.

The City of Thornton also provides documentation about the inspection and maintenance of detention ponds used for post-construction runoff. If detention ponds are to be designed within the City of Thornton's jurisdiction, these documents would need to be used.

City of Northglenn

The City of Northglenn is an MS4 permittee under the statewide MS4 General Permit (COR090000). In association with this permit, construction stormwater site plans, sediment and erosion control plans, stormwater pollution prevention plans, drainage reports, drainage plans, and SWMPs may be required. The City of Northglenn also requires a project to be permitted under the CDPS if the project would disturb 1 or more acres of land. A map of the MS4 jurisdictional boundaries within or adjacent to the project area is provided in **Figure 3**.

A detailed account of all storm water quality related city ordinances can be located in Chapter 16 - Article 17 of the City's Municipal Code (City of Northglenn, 2018).

2.2 Existing Conditions and Context Summary

2.2.1 Watersheds and Receiving Waterbodies of Interest

Throughout the project corridor, the topography and the flow of water are observed as flowing generally from the northwest to the southeast,

toward the South Platte River. The South Platte River flows southwest to northeast in the project vicinity, located approximately 2 to 3 miles east of the project area. The Mile High Flood District's (MHFD) Watershed Delineation indicates the project area would cross through four watersheds, all of which flow primarily to the east-southeast, toward the South Platte River (MHFD, 2018). The four watersheds, from south to north, are Clear Creek, Niver Creek, South Grange Hall Creek (sometimes referred to as the Grange Hall Creek Tributary South), and Grange Hall Creek - Upper watersheds; each watershed is associated with a primary waterbody flowing through the delineated area.

Figure 4 displays the receiving waterbodies, the approximate watershed basin boundaries, and the general watershed flow direction near the project.

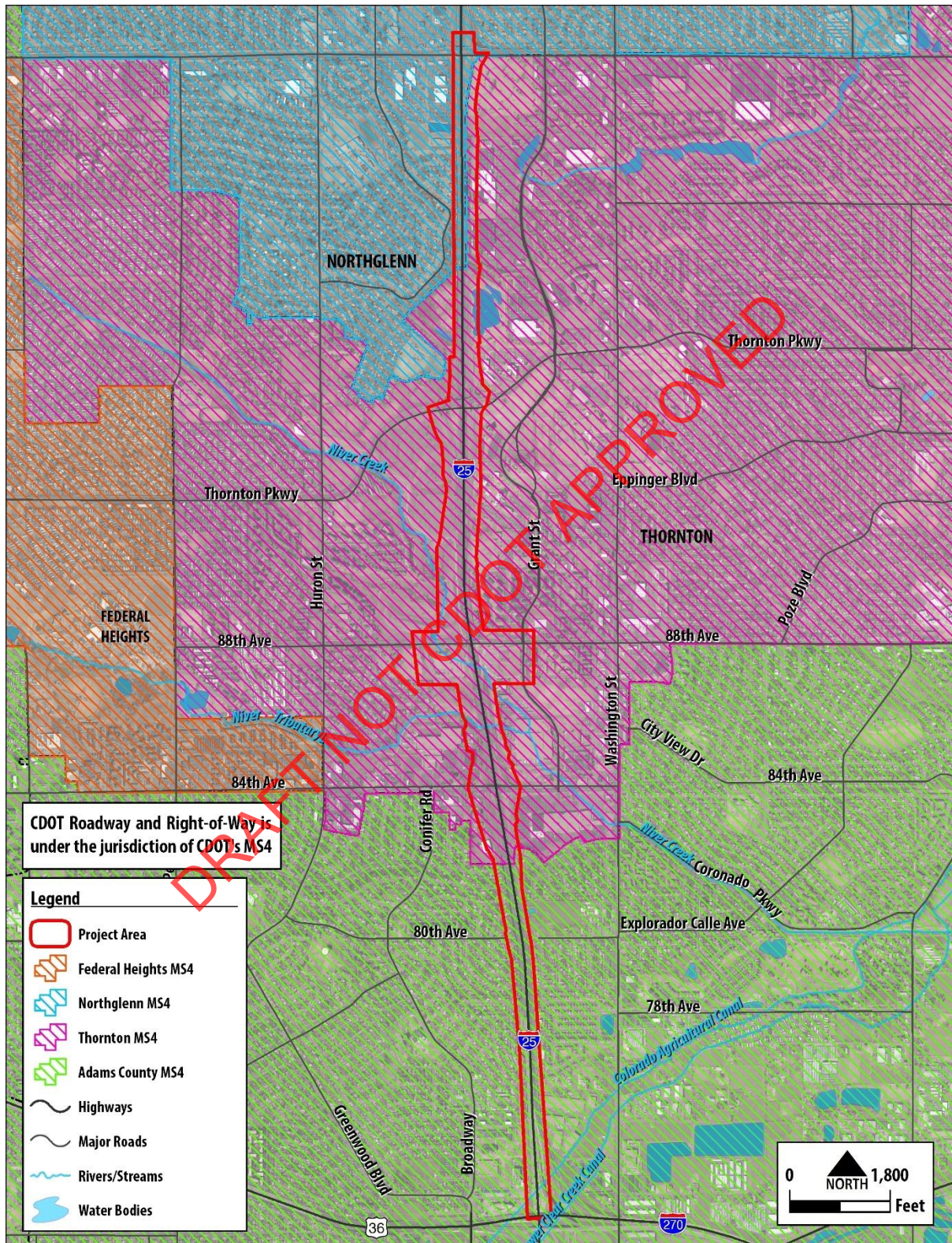
Based on preliminary designs, most of the project work would be within the two central watersheds (Niver Creek and South Grange Hall Creek). The associated waterbodies in these watersheds will be the primary receiving waters from project activities. The main receiving waterbodies from the project area would be Niver Creek, Niver Creek Tributary L, and South Grange Hall Creek. A small portion of project work would extend to the north of the South Grange Hall Creek watershed, resulting in the Grange Hall Creek also being a minor receiving waterbody for the project area. All waterbodies near the project flow toward an eventual confluence with the South Platte River. Therefore, the South Platte River would also be considered a receiving waterbody for the project.

Other waterbodies near the project include Clear Creek, Niver Creek Tributary M, Thornton HS Tributary, Hoffman Drainageway, and other minor and unnamed waterbodies. Based on current preliminary designs, no water from the proposed limits of disturbance would be anticipated to have an impact on these waterbodies. If the proposed limits of disturbance change or expand, these listed waterbodies may need to be reevaluated as receiving waterbodies.

Niver Creek generally flows from the northwest to the southeast, toward the South Platte River. Niver Creek crosses the project area, via a culvert, just south of 88th Avenue at the proposed location of the RTD transit station. Niver Creek Tributary L generally flows west to east toward a confluence with the Niver Creek main stem.

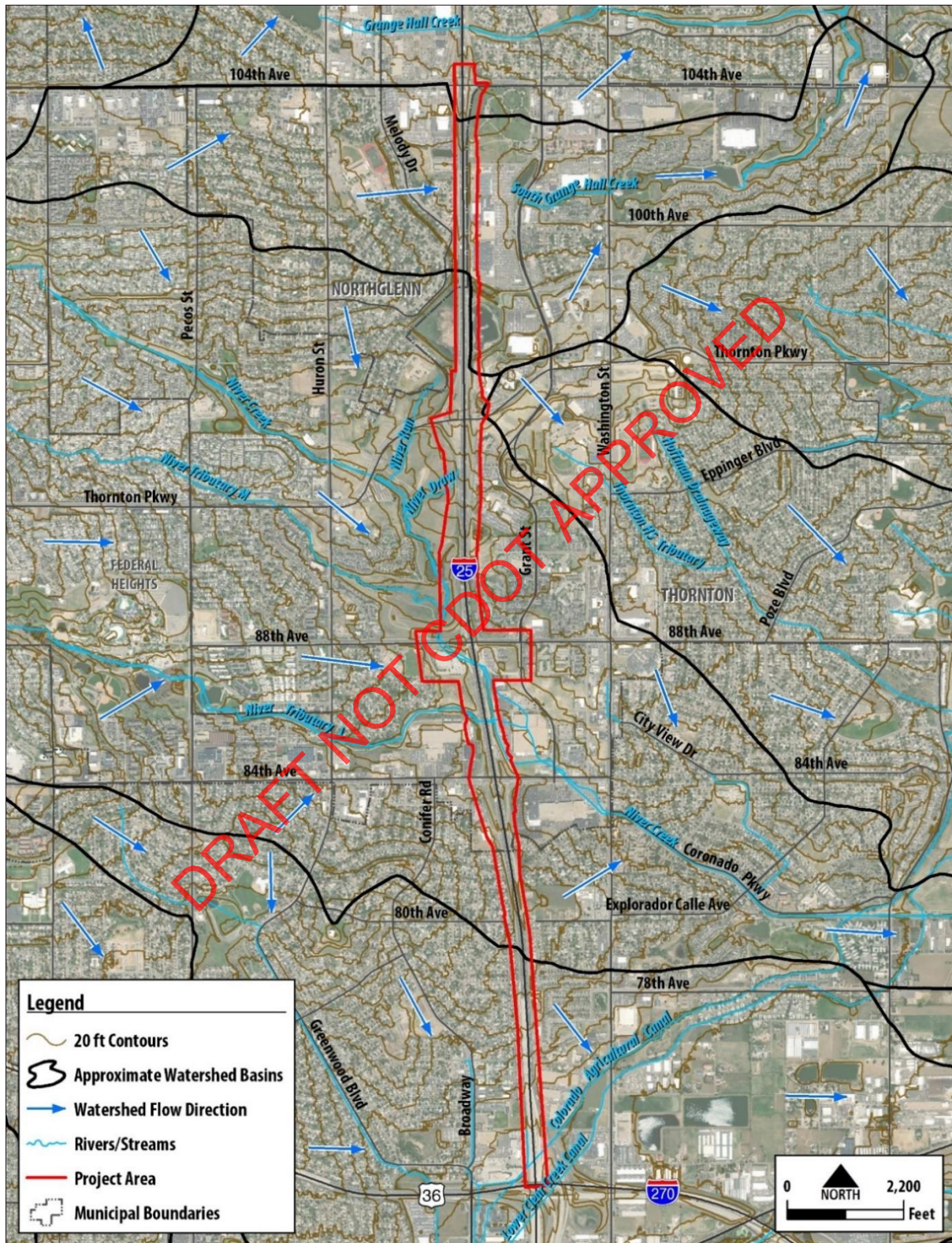


Figure 3. MS4 Area Map



Source: FHU, 2019

Figure 4. Water Resources and Drainage Map



Source: FHU, 2019



Niver Creek Tributary L crosses the project area, via a culvert, approximately 1,200 feet south of the Niver Creek culvert crossing and converges with Niver Creek on the eastern side of this culvert. Niver Creek and Tributary L primarily flow through well-defined channels and drainage structures near the project. Niver Run and Niver Draw, as shown on **Figure 4**, are both small tributaries that flow from northeast to southwest to a convergence with the Niver Creek main stem. Both Niver Run and Niver Draw are down-gradient and adjacent to the proposed project activities.

South Grange Hall Creek generally flows from the west to the northeast, toward a confluence with the Grange Hall Creek main stem. South Grange Hall Creek crosses the project area, via two non-adjacent culverts, just south of 104th Avenue. South Grange Hall Creek flows through ditches, channels, and drainage structures and passes through detention basins/ponds. Grange Hall Creek generally flows from west to east, toward the South Platte River. Grange Creek crosses I-25 just north of the project area, via a culvert from the Croke Reservoir. Grange Hall Creek flows through ditches, channels, and drainages structures, primarily in open space and recreational lands.

A few small lakes/ponds/reservoirs, such as Badding Reservoir, Croke Lake, and several unnamed detention basins, are located near the project and may also be considered receiving waterbodies of interest.

Additionally, two irrigation ditches, Colorado Agricultural Canal and Lower Clear Creek Canal, were identified at the southern end and just south of the project area, respectively. Both irrigation canals generally flow from southwest to northeast. Both Niver Creek and the main stem of Grange Hall Creek cross these two irrigation ditches east of the project area while flowing toward the South Platte River. Irrigation ditches are treated as hydraulically separate from the natural flow of water in the area and are not considered receiving waterbodies of interest.

2.2.2 Impaired Waters

The CDPHE WQCC's Regulation 93 - *Colorado's Section 303(d) List of Impaired Waters and Monitoring and Evaluation List* (WQCC, 2018) and the WQCD's *Integrated Water Quality Monitoring and Assessment Report 2018* (WQCD, 2018) were obtained and reviewed to evaluate the impaired

status of waterbodies near the project. The following subsections discuss the project's primary receiving waterbodies listed with impaired statuses in the CDPHE documentation.

Niver Creek and Tributaries

Niver Creek and its associated tributaries are not specifically noted as impaired by the CDPHE's *Section 303(d) List of Impaired Waters and Monitoring and Evaluation List*. However, Niver Creek and its associated tributaries are listed as impaired under the segment code **COSPUS16c**, described as "All tributaries to the South Platte River, including all wetlands, from the outlet of Chatfield Reservoir, to a point immediately below the confluence with Big Dry Creek...." The listing applies to approximately 250 miles of waterbodies throughout the described region.

The *Integrated Water Quality Monitoring and Assessment Report 2018* classified the Use Attainment, 303(d) Listing, and Monitoring and Evaluation Listing for the described South Platte River tributaries, **COSPUS16c**, as follows:

- ▶ **Integrated Report (IR) Category 5** - Indicates that, based on existing and readily available data and/or information, technology-based effluent limitations, more stringent effluent limitations, and other pollution control requirements are not sufficient to implement an applicable water quality standard and a TMDL is needed. This category constitutes the Section 303(d) list of waters impaired by a pollutant. When more than one pollutant is associated with the impairment of a single waterbody, the waterbody will remain in Category 5 until TMDLs for all pollutants have been completed and approved by the United States Environmental Protection Agency (EPA) (WQCD, 2018).
- ▶ **Aquatic Life Warm Water Class 2** - Waters that cannot sustain a wide variety of cold or warm water biota, including sensitive species, due to physical habitat, water flows or levels, or uncorrectable water quality conditions that result in substantial impairment of the abundance and diversity of species.
- ▶ **Recreational Tier E / Recreational Use N** - The Recreational Tier is listed as E, indicating existing use (i.e., surface waters are used for primary contact recreation). However, the Recreational Use is listed as N, indicating recreational use is not supported.



- ▶ **Categorized Specific Conditions from the Integrated Water Quality Monitoring and Assessment Report 2018**
 - **Recreational Use (E. Coli) - 5 (303(d))**
 - **Water Supply Use (Selenium (Dissolved)) - 5 (303(d))**

Grange Hall Creek, South Grange Hall Creek, and Tributaries

Grange Hall Creek, South Grange Hall Creek, and associated tributaries are not specifically noted as impaired by the CDPHE's *Section 303(d) List of Impaired Waters and Monitoring and Evaluation List*. However, identical to the Niver Creek and tributaries, Grange Hall Creek and associated tributaries are listed as impaired under the segment code **COSPUS16c**, as previously described. The impaired conditions for Grange Hall Creek, South Grange Hall Creek, and associated tributaries are identical to the conditions listed in the previous section for **Niver Creek and Tributaries**.

South Platte River

The South Platte River is listed as impaired by the CDPHE's *Section 303(d) List of Impaired Waters and Monitoring and Evaluation List*. Due to the size of the South Platte River, the river has been segmented by the 303(d) list to identify impairments on a smaller scale. The segment of the South Platte River that will receive flow from the project vicinity is noted as **COSPUS15_C**, described as "Mainstem of the South Platte River from Sand Creek to 180 meters below 120th Avenue." South Platte River tributaries, **COSPUS16c**, are also included in the segments that receive flow from the project vicinity.

The *Integrated Water Quality Monitoring and Assessment Report 2018* classified the Use Attainment, 303(d) Listing, and Monitoring and Evaluation Listing for this segment of the South Platte River, **COSPUS15_C**, as follows:

- ▶ **IR Category 4a** - The TMDL process has been completed, indicating the EPA has approved or established a state developed TMDL for any segment - pollutant combination. The waterbody is expected to result in full attainment of the standard once implementation of the TMDL is complete. Monitoring shall occur to verify the water quality standard is met when the TMDL is implemented.

- ▶ **Aquatic Life Warm Water Class 2** - Waters that cannot sustain a wide variety of cold or warm water biota, including sensitive species, due to physical habitat, water flows or levels, or uncorrectable water quality conditions that result in substantial impairment of the abundance and diversity of species.
- ▶ **Recreational Tier E / Recreational Use T** - The Recreational Tier is listed as E, indicating existing use (i.e., surface waters are used for primary contact recreation). However, the Recreational Use is labeled as T, indicating recreational use does have an imposed TMDL due to water conditions.
- ▶ **Categorized Specific Conditions from the Integrated Water Quality Monitoring and Assessment Report 2018**
 - **Aquatic Life Use (Temperate) - 3b** (Monitoring and Evaluation [M&E] List)
 - **Aquatic Life Use (Dissolved Oxygen) - 4a** (TMDL)
 - **Aquatic Life Use (Cadmium [Dissolved]) - 4a** (TMDL)
 - **Aquatic Life Use (Ammonia) - 4b** (Alternative plan for attaining water quality standard without TMDLs)
 - **Recreational Use (E. Coli) - 4a** (TMDL) [The Regulation #93 - 303(d) List notes this impaired parameter to be delisted due to approved TMDL]
 - **Water Supply Use (Nitrate) - 4b** (Alternative plan for attaining water quality standard without TMDLs)

Non-Receiving Waters Near the Project

Other waterbodies noted as non-receiving waters in **Section 2.2.1** will primarily fit into the same impaired water category as the Niver Creek, Grange Hall Creek, and their associated tributaries, as the flow from these waterbodies is toward the South Platte River. If the proposed limits of disturbance change resulting in one of these non-receiving waterbodies becoming receiving waterbodies, they will be assumed to be impaired under **COSPUS16c** and evaluated for impacts as such.



2.2.3 Existing Permanent Water Quality Control Measures

Using CDOT’s Online Transportation Information System (OTIS), the existing permanent water quality control measures in the project area were identified. The existing PWQ control measures in the project vicinity, from south to north, include:

- ▶ At the interchange of US-36 and I-25, an extended detention basin is located in the northeast quadrant within the on/off-ramps
- ▶ At the I-25 and 84th Avenue interchange, two extended detention basins are located between the I-25 roadway and the on/off-ramps on the northern side of the interchange (in the northeast and northwest quadrants of the interchange)
- ▶ At the I-25 and 104th Avenue interchange, several roadside swales are located around the interchange. Swales are located between the I-25 roadway and the on/off-ramps in each quadrant of the interchange. Additionally, swales are also located on the outer edge of on/off-ramps.

2.2.4 Beneficial Uses of Waterbodies Near the Project

Based on information obtained from CDPHE’s 303(d) related data, the waterbodies near the project would have a variety of beneficial uses, including recreational, agricultural, and the protection and propagation of terrestrial and aquatic life. Additionally, the South Platte River and Clear Creek are noted as being used for public water supply.

2.3 Impact Summary

Based on preliminary designs and decisions, water quality in receiving waterbodies (Niver Creek and its tributaries, Grange Hall Creek and its tributaries, and the South Platte River) would benefit from this project. Temporary impacts during construction may include working adjacent to and runoff potentially reaching Niver Creek, Grange Hall Creek, and their associated tributaries; impacts will be minimized by using a construction erosion and sediment control plan. Any impacts to receiving waterbodies in the project vicinity have the potential to affect the South Platte River, located down-gradient of the project area. However, because project designs

will include new permanent water quality control measures (CMs) in areas with limited existing permanent water quality CMs, an improvement in the water quality would be anticipated in receiving waterbodies in the project vicinity due to enhanced treatment and detention of water prior to discharge into receiving waterbodies. The Proposed Action would result in a substantial increase in impervious area through the project area. **Table 1** identifies the approximate increase in impervious area based on preliminary designs.

Table 1. Approximate Increase in Impervious Area

Location	Approximate Increase in Impervious Area
Southbound I-25	~12.4 Acres (~540,000 ft ²)
Northbound I-25	~7.9 Acres (~345,000 ft ²)
Entire Project	~20.3 Acres (~885,000 ft ²)

Source: FHU, 2019

The CDOT *National Environmental Policy Act (NEPA) Manual* provides a table identifying potential transportation project related contaminants that may have an impact on water resources near the project for both the construction phase and the operation (post-construction) phase. The *NEPA Manual* table is presented in **Table 2** (CDOT, 2017).

2.3.1 Method of Evaluation

Evaluation of the water quality for the Proposed Action included reviewing the previously conducted studies along the project corridor, including the *North I-25 Final EIS*, *North I-25 EIS Record of Decision*, *I-25 Managed Lanes Project ROD Re-evaluation*, and the *North I-25, US 36 to SH 7 Planning and Environmental Linkages Study*.

Evaluation was conducted under the context of the 15 pollutants of concern listed in the CDOT MS4 Permit Modification 3 (COS000005) (CDPHE, 2017). These pollutants include total suspended solids, cadmium, chromium, copper, iron, lead, magnesium, manganese, nickel, zinc, total inorganic nitrogen, total phosphorus, chloride, sodium, and oil and grease.

Analysis of the project area and receiving waterbodies near the project was conducted by accessing and reviewing available resources and



mapping from the Federal Emergency Management Agency (FEMA), MHFD, Colorado Department of Natural Resources (DNR), United States Geological Survey (USGS) and Google Earth.

Impact areas and the increase in impervious area as a result of the Proposed Action were reviewed and approximated using preliminary designs and the MicroStation program. **Table 1** presents the results.

Impaired water statuses were obtained and reviewed using the *Colorado Section 303(d) List of Impaired Waters and Monitoring Evaluation List* and the *Integrated Water Quality Monitoring and Assessment Report 2018* as previously noted. **Table 2** was used to identify potential contaminants that may have an impact on receiving waterbodies near the project as a result of project activities.

This evaluation did not include water quality sampling and modeling.

All information in this report was collected in August and September 2018.

2.3.2 Potential Construction and Post Construction Issues

Temporary impacts on water quality in the project area could occur during construction activities due to ground disturbance, potential for spills or accidental releases of pollutants, and additional runoff from the construction area. There is a potential increase in both pollutant runoff and sedimentation in nearby drainage structures and waterbodies during construction due to project activities.

Because project designs are preliminary at this time and likely to change, specific permanent water quality CMs have not yet been determined. However, because there will be an increase in impervious area due to project activities, it can be expected there will be an increase in sedimentation and pollutant runoff from the proposed limits of disturbance, which will need to be mitigated by permanent water quality CMs.

Table 2. Potential Contaminants from Transportation Projects that May Impact Water Resources

Construction Phase	
Source	Pollutants
Adhesives	Phenols, formaldehydes, asbestos, benzene, naphthalene
Cleaners	Metals* , acidity, alkalinity, chromium
Plumbing	Lead, copper, zinc, tin
Painting	Volatile Organic Compounds (VOCs), metals , phenolics, mineral spirits
Wood	Biological Oxygen Demand (BOD), formaldehyde, copper , creosote
Masonry/concrete	Acidity, sediment, metals , asbestos
Demolition	Asbestos, aluminum, zinc , dusts, lead
Yard operations and maintenance	Oils, grease , coolants, benzene and derivatives, vinyl chloride, metals, BOD, sediment, disinfectants, sodium arsenate, dinitro compounds, rodenticides, insecticides
Landscaping and earthmoving	Pesticides, herbicides, fertilizers , BOD, alkalinity, metals, sulfur, aluminum sulfate
Materials Storage	Spills, leaks, dust, sediment
Operation Phase	
Leaks, spills, accidents	Oil , gasoline, diesel, grease , VOCs, chemicals, other potentially hazardous materials
Vehicle traffic	Oils, grease , gasoline, diesel, benzene and derivatives, aromatic hydrocarbons, coolants, rust (iron), heavy metals (lead, zinc, iron, chromium, cadmium, nickel, copper) , rubber, asbestos
Winter sanding	Sediment
Deicing	Calcium, sodium, magnesium, chloride
Landscape maintenance	Herbicides, pesticides, fertilizers , BOD, alkalinity, metals, sulfur, aluminum sulfate
Adhesives	Phenols, formaldehydes, asbestos, benzene, naphthalene
Cleaners	Metals , acidity, alkalinity, chromium
Painting	VOCs, metals , phenolics, mineral spirits
Other	Cadmium, manganese, inorganic nitrogen

Source: FHU, 2019

***Bold Pollutants** indicate a roadway pollutant of concern per the CDOT MS4 Permit (CDPHE, 2017)



2.3.3 Impacts on Water Quality

Impacts of highway development on water quality result from the following:

- ▶ Proximity to the receiving waterbodies
- ▶ Erosion and sedimentation related to cut and fill slopes
- ▶ Increased concentrated runoff from impervious surfaces
- ▶ Increase in highway-related pollutants (potential contaminants listed in **Table 2**), particularly related to winter maintenance

Mitigation strategies will be required with the design goal of improving the water quality in nearby receiving waterbodies as a result of a more robust water quality and storm sewer system near the project, all while complying with multiple MS4 permits and water quality regulations.

Despite the large size of land disturbance associated with the proposed project and the approximate increase in impervious area of 20.3 acres within the proposed limits of disturbance, the mitigation measures to be designed and implemented are anticipated to reduce the pollutant and sedimentation impacts on nearby receiving waterbodies and provide an overall net benefit to the water quality near the project in comparison to existing conditions. Mitigation strategies are discussed in greater detail in the following section.

2.3.4 Mitigation Strategies

The following are preliminary strategies for mitigation of impacts and are subject to change. Final mitigation measures will be defined in the NEPA Decision Document.

Effort to Avoid/Minimize Impacts

The Proposed Action would avoid impacts by widening and improving the I-25 roadway to allow the implementation of permanent water quality mitigation near the project. Current conditions primarily allow roadway runoff to flow uninhibited into natural channels, roadside ditches, and culverts, impacting the nearby receiving waterbodies with pollutants and sedimentation. The proposed designs would allow additional water quality and erosion control CMs to avoid and minimize such impacts.

The expansion of the I-25 roadway will require a substantial amount of grading activities. Retaining walls will be used in several locations throughout the project area to reduce the amount of newly graded slopes required for the proposed designs. Steep cut and fill slopes can be a source of erosion; therefore, designs will attempt to reduce the occurrence of steep cut and fill slopes where applicable to reduce the potential for erosion.

The required landscaping activities for the Proposed Action would also be designed to minimize the need for fertilizers by using resilient native plant species, which will reduce potential pollutants from reaching nearby waterbodies. These design modifications to reduce the amount of fertilizer used on the project landscaping will minimize the potential impacts on receiving waterbodies, specifically reducing the potential to exacerbate already impaired conditions of the South Platte River.

Mitigation During Construction

A SWMP will be prepared to outline and detail erosion control within the project area during the initial (pre-construction), interim (during construction), and final (post-construction) project phases. The SWMP will identify the type and location of CMs to be installed before and during construction to mitigate potential water quality impacts due to erosion occurring during construction activities. Additionally, a spill prevention, control, and countermeasure plan will be developed and implemented for the project construction site to establish standard operating procedures and require employee training to minimize the accidental release of pollutants that could contaminate stormwater runoff.

Mitigation Post-Construction

Preliminary drainage designs are currently being developed; therefore, specific permanent water quality (PWQ) CMs have not been determined or designed for the project. However, due to the large increase in impervious area as a result of the Proposed Action (an estimated 20.3-acre increase based on preliminary designs), the installation of post-construction PWQ CMs is currently planned to meet MS4 permitting and other relevant water quality standards for any applicable jurisdictions impacted, primarily CDOT.



Post-construction PWQ CMs will be designed with the goal of reducing or eliminating pollutants and sedimentation flowing from the project area, improving the overall storm sewer system in the project area, and avoiding impacts on impaired natural waterbodies near the project.

Additionally, the potential presence of hazardous materials in the soil and/or groundwater in the project vicinity will be evaluated; this information will be coordinated with the design team to ensure any proposed infiltration PWQ CMs will avoid contaminated locations. Therefore, a net benefit to water quality near the project as a result of the project activities is anticipated in post-construction conditions.

2.4 Agency Coordination

As part of the N I-25, US 36 to SH 7 PEL, an initial scoping meeting was held on March 26, 2012, to comment on any particular concerns in the project area and the PEL’s Purpose and Need. Since a scoping meeting was held as part of the PEL, a scoping meeting was not held for this template EA project. However, notice letters informing each relevant agency of the upcoming template EA project were delivered on March 22, 2017. Although details regarding water quality were not discussed in the notice letter, an opportunity was extended to the agency representatives to reach out to CDOT with any questions or concerns.

Agencies relevant to water quality in the project area were informed via one of these notice letters. Relevant agencies include:

- ▶ CDPHE
- ▶ EPA
- ▶ USACE

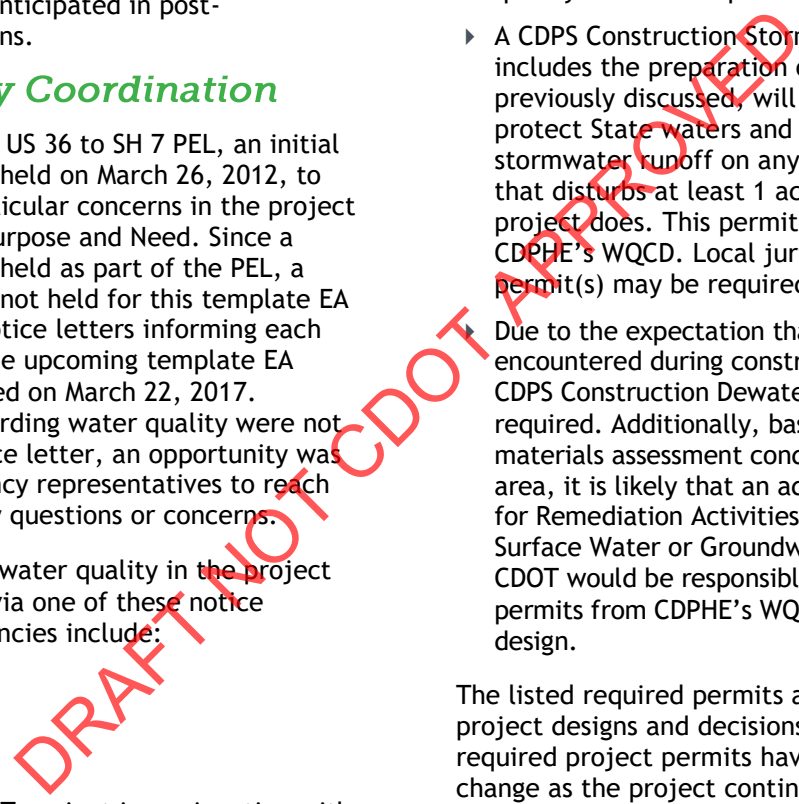
Because this is a CDOT project in conjunction with FHWA, both CDOT and FHWA have been active participants in the development of the template EA project.

2.5 Required Permits

The following permits and/or actions could be required as part of the proposed project based on preliminary designs and decisions:

- ▶ A final design water quality technical report will be prepared and submitted to CDOT Water Quality personnel once designs have been finalized, documenting compliance with the requirements of the relevant MS4 permit(s). The design consultant or CDOT will be responsible for preparing this final design water quality technical report.
- ▶ A CDPS Construction Stormwater Permit, which includes the preparation of the SWMP as previously discussed, will be required to protect State waters and ensure the quality of stormwater runoff on any construction activity that disturbs at least 1 acre of land, which this project does. This permit will be obtained from CDPHE’s WQCD. Local jurisdiction’s grading permit(s) may be required.
- ▶ Due to the expectation that groundwater will be encountered during construction activities, a CDPS Construction Dewatering permit will be required. Additionally, based on the hazardous materials assessment conducted for the project area, it is likely that an additional CDPS permit for Remediation Activities for Discharges to Surface Water or Groundwater will be required. CDOT would be responsible for obtaining these permits from CDPHE’s WQCD prior to final design.

The listed required permits are based on current project designs and decisions; therefore, the required project permits have the potential to change as the project continues to final design. Additionally, based on current project plans for CDOT to obtain ownership of all necessary property and ROW required for the new project footprint, no water quality requirements from local jurisdictions will be obligatory. Only CDOT’s water quality requirements are to be implemented at this time. Should temporary or permanent easements on local ROW or roads be obtained, the local MS4 permit requirements will need to be implemented.





3.0 Floodplains

FEMA regulates floodways and floodplains through the consideration of changes in the floodway and floodplain limits. The primary concern regarding floodways and floodplains is their ability to convey stormwater flows and their potential to impact properties or structures.

FEMA publishes flood map related resources online, which have been obtained and reviewed. Flood Insurance Rate Maps (FIRM), up-to-date FIRMETTE maps, current and pending Flood Insurance Studies (FIS), and any relevant Letters of Map Changes (LOMC) near the project were obtained and reviewed (FEMA, 2018a). In addition to FEMA resources, relevant available reports and resources were obtained from MHFD, including Flood Hazard Area Delineation (FHAD) reports and Major Drainageway Planning (MDP) studies (MHFD, 2018). Additionally, approximate watershed boundaries were obtained and reviewed from MHFD.

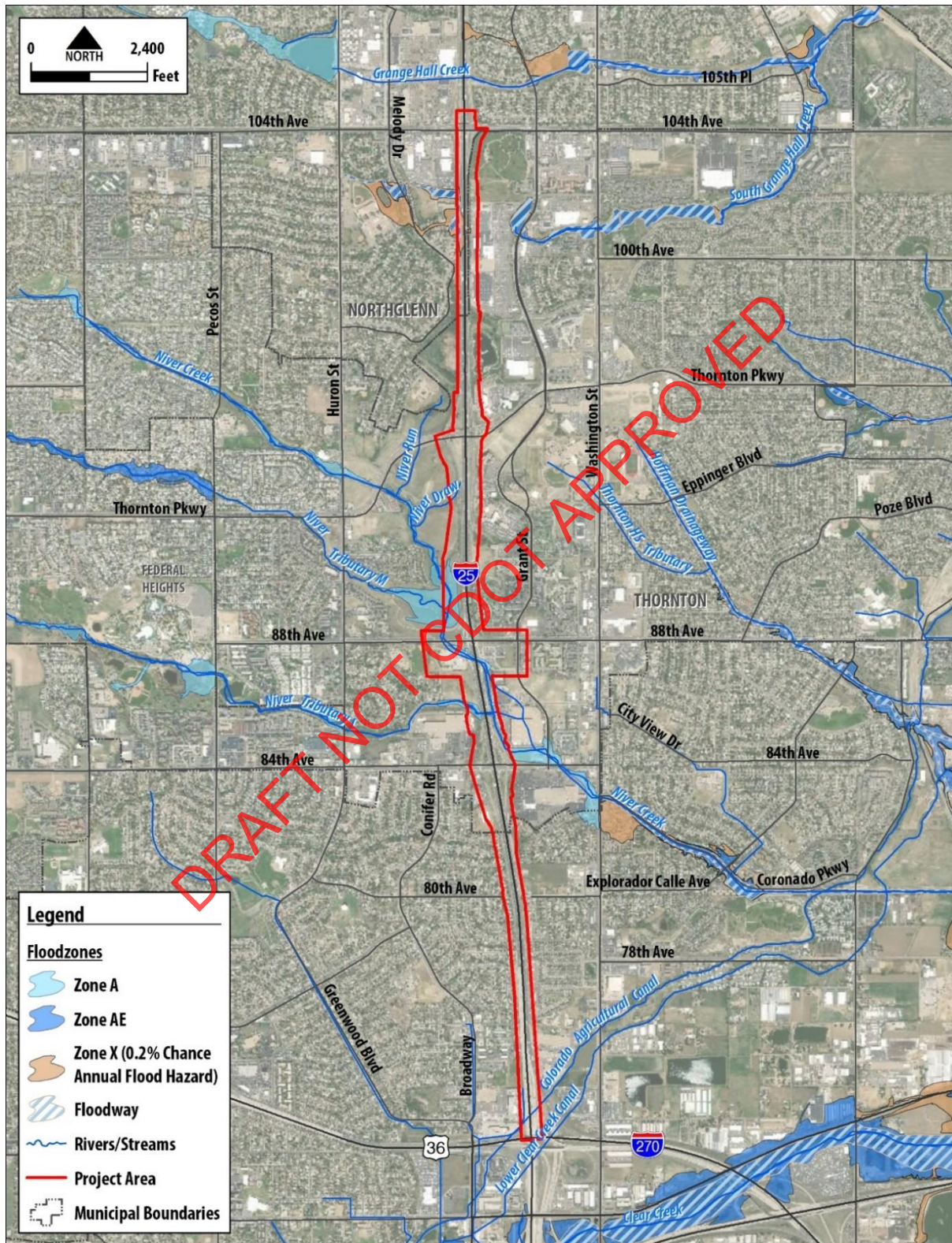
Based on the review of FEMA and MHFD resources, four major waterways and associated tributaries were identified near the project area. Two of the four relevant major waterways identified, Niver Creek and South Grange Hall Creek, cross I-25 within the project area limits. The other two relevant major waterways identified, Clear Creek and Grange Hall Creek, cross I-25 outside the project area limits. All four of the identified waterways are located within individual watersheds per MHFD mapping data as shown on **Figure 5**. All the relevant waterways and watersheds identified are generally flowing from west to east, toward the South Platte River.

Potential impacts on floodplains and floodways are discussed for the two applicable waterways in the following sections. The two major waterways located outside the proposed limits of disturbance near the project were not evaluated because there will be no impacts to any floodplains or floodways outside the proposed limits of disturbance.

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Figure 5. Floodplains Overview Map



Source: FHU, 2019



3.1 Niver Creek

The main stem of Niver Creek is approximately 5.3 miles long and primarily flows southeast toward a confluence with the South Platte River, with headwaters located near Ruston Park northwest of the project area, per MHFD data (MHFD, 2018). Two major tributaries to Niver Creek, Tributary M and Tributary L, converge with Niver Creek near the 88th Avenue bridge over I-25. **Figure 5** shows an overview of the Niver Creek and associated tributaries in relation to the project area.

Niver Creek and Niver Creek Tributary L cross beneath the I-25 roadway within the proposed limits of disturbance, just south of 88th Avenue, as shown on **Figure 6**.

3.1.1 FEMA Flood Zone Designation

The FEMA FIRM and FIRMETTE maps were investigated for the presence of Special Flood Hazard Areas (SFHAs) within and near the project area along I-25. SFHAs are defined as the area that will be inundated by the flood event having a 1 percent chance of being equaled or exceeded in any given year (often referred to as the base flood or 100-year flood) (FEMA, 2017).

Niver Creek crosses beneath I-25, via a culvert, approximately 400 feet south of the 88th Avenue bridge over I-25. At this crossing location, a SFHA designated Zone A has been designated on FEMA resources.

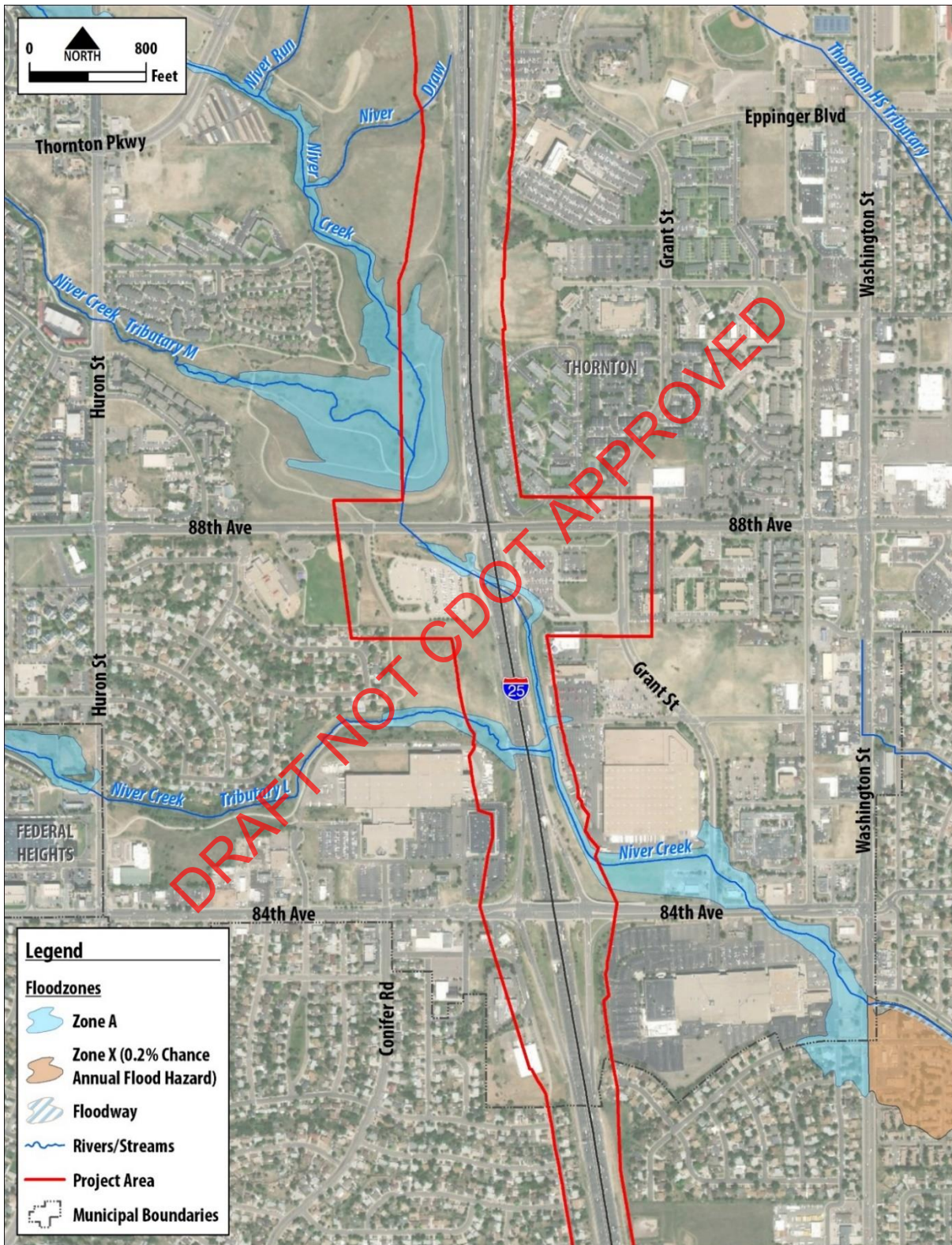
The Zone A designation indicates a high-risk flood area based on the described probability of a flood event resulting in inundation. The Zone A designation also indicates that no detailed analyses on this flood area have been performed to obtain the base flood elevation for the area. The SFHA crosses the I-25 project area at the current location of a pedestrian underpass beneath the roadway. The Zone A SFHA continues along the east side of I-25, approximately 60 feet from the edge of existing pavement, until Niver Creek turns toward the east at the northeast quadrant of the I-25 and 84th Avenue interchange.

Niver Creek Tributary L crosses beneath I-25, via a culvert, approximately 1,500 feet south of the 88th Avenue bridge over I-25. Niver Creek Tributary L converges with Niver Creek just east of I-25 at this location. The Zone A SFHA previously noted also crosses I-25 at this location and continues upstream along Niver Creek Tributary L approximately 1,000 feet.

Additionally, in the northwest quadrant of the 88th Avenue bridge over I-25, Niver Creek and Niver Creek Tributary M converge in an area denoted as a “Regional Detention Facility” in the Niver Creek Major Drainageway Planning Study (Kiowa, 1996). FEMA resources designate this area as a Zone A SFHA. Based on current preliminary designs, the Proposed Action may extend into the eastern edge of this Zone A SFHA.

Figure 6 provides an overview of the FEMA designated SFHAs and the discussed surface waterbodies.

Figure 6. Niver Creek Floodplains Map



Source: FHU, 2019



3.1.2 Environmental Consequences of the Proposed Actions

As previously discussed, the Proposed Action would include multiple actions within and near the identified Niver Creek SFHAs. Although preliminary designs have been prepared, the designs are not finalized and actions that may have an impact on the SFHA may change as designs progress. A final evaluation of impacts on the identified flood zones within the project area are not available for this technical report.

Preliminary designs near the Niver Creek SFHAs currently propose an additional lane in both directions of I-25, improved and expanded shoulders on both sides of I-25, construction of a new pedestrian bridge over I-25, closure of the existing pedestrian underpass, and construction of an inline median RTD transit station. The overall result of the Proposed Action is a substantially wider I-25 roadway through the project area.

The environmental consequences at each potentially impacted SFHA associated with Niver Creek are discussed below, from north to south.

Niver Creek Main Stem (North of 88th Avenue)

As previously discussed, a regional detention facility is located to the northwest of the 88th Avenue bridge over I-25, at the confluence of Niver Creek Tributary M with the Niver Creek main stem. Based on a review of preliminary designs, the widening roadway through this section of I-25 north of 88th Avenue is currently proposed to have minor grading work within the Zone A SFHA associated with the regional detention facility. Based on current designs, a LOMC for the Zone A SFHA would not be expected; however, impacts on the SFHA in this area should be reevaluated when final designs are completed.

Niver Creek Main Stem (South of 88th Avenue)

Due to the Proposed Action, primarily expanding the roadway footprint to include new lanes, shoulders, and an inline transit station, there will be substantial project construction activities within the current Zone A SFHA associated with the main stem of Niver Creek on the south side of

88th Avenue. Additionally, based on FEMA mapping, the Zone A SFHA appears to cross through the existing pedestrian underpass to be closed during project activities, eliminating an existing flood path for the area. The culvert currently routing the Niver Creek flow beneath the I-25 roadway would be impacted by the expanded roadway footprint and would need to be modified to meet new capacity requirements; the proposed design modifications for this culvert are not yet available for review. Based on the preliminary designs, it is anticipated that a change in the Zone A SFHA boundaries at this location will be unavoidable and will require a LOMC. A more detailed analysis of the potential impacts on the Zone A SFHA at this crossing will need to be conducted once final designs are completed.

Niver Creek Tributary L

Based on preliminary designs, the Proposed Action would have an impact on the Zone A SFHA crossing I-25 associated with Niver Creek Tributary L due to a substantially wider I-25 roadway. An extended roadway footprint and associated grading activities are proposed within the Zone A SFHA at this location. Additionally, the culvert currently routing Niver Creek Tributary L flow beneath the I-25 roadway would be impacted by the expanded roadway footprint and would need to be modified to meet new capacity requirements; the proposed design modifications for this culvert are not yet available for review. Based on the preliminary designs, it is anticipated that a change in the Zone A SFHA boundaries at this location will be unavoidable and will require a LOMC. A more detailed analysis regarding the potential impacts to the Zone A SFHA at this crossing will need to be conducted once final designs are completed.

3.1.3 Potential Permitting for the Proposed Action

Due to the presence of the Proposed Action within the SFHAs identified in association with Niver Creek and its tributaries, a municipality floodplain development permit would need to be obtained, as these permits are typically recommended for any project with work inside a FEMA designated flood hazard area. The conflicts between the discussed SFHAs and the project area occur within City of Thornton jurisdictional limits. Additionally, as the entire project area is within Adams County, floodplain development permits (referred to as a



floodplain use permit by Adams County) for both the City of Thornton and Adams County would likely be required.

As previously noted, without final designs for the project activities, it cannot be confirmed if a change in the base flood elevation for the SFHAs associated with Niver Creek and its tributaries will occur as a result of the Proposed Action.

3.1.4 Mitigation of the Proposed Action

If a rise in the base flood elevation occurs as a result of the Proposed Action, an approved LOMC from FEMA will be required in conjunction with the floodplain development permits from the City of Thornton and Adams County as previously discussed. If there is a rise in base flood elevation, affected property owners will need to be notified and any adverse impacts on structures affected by the rise will need to be mitigated.

Based on the evaluation of the FEMA designated SFHAs associated with Niver Creek and its tributaries, there is a very low potential for any structures to be impacted by a rise in base flood elevation. **Figure 6** shows the relative location of nearby structures to the FEMA designated SFHAs associated with Niver Creek.

The SFHA located in the northwest quadrant of the I-25 and 88th Avenue intersection, associated with the confluence of the Niver Creek main stem and the Niver Creek Tributary M, is located in a regional detention facility inside Northstar Park. The SFHA at this location is contained at an elevation substantially below nearby structures and within a detention facility; therefore, any minor potential rise in base flood elevation would not have the potential to impact any nearby structures.

The SFHA associated with the Niver Creek main (south of 88th Avenue) is primarily located in drainage channels or ditches with no structures within or near the project area; therefore, no impacts on structures would be anticipated if a rise in base flood elevation occurs at this location.

The SFHA associated with Niver Creek Tributary L is just north of a large warehouse and retail shopping plaza, located on the western side of I-25. However, there is substantial elevation increase from the limits of the SFHA to the

developed property (approximately 10 to 15 feet); therefore, a minor rise in the base flood elevation would not have the potential to impact this nearby structure.

However, if adverse impacts on nearby structures due to the rise in the base flood elevation are confirmed by final designs, mitigation measures at the impacted structures will be required. This may be accomplished by providing channel improvements and/or grading operations in the floodplain and floodway to eliminate rise. If it is not feasible to achieve no-rise in the base flood elevation for the affected SFHA, mitigation can be addressed on the structures themselves. Potential mitigation options for addressing adverse impacts to structures will include moving the structures outside the floodplain limits, placing the structures on fill so that they are located higher than the base flood elevations, and/or other structure flood proofing methods to protect the structure, including electrical and mechanical equipment, from base flood events.

3.2 South Grange Hall Creek

The South Grange Hall Creek is approximately 2.7 miles long and primarily flows from west to east-northeast toward a confluence with the main stem of Grange Hall Creek, located northeast of the project area in Jaycee Park (Respec, 2018). The observable upstream limit of the tributary is located on the east side of Huron Street, approximately 2,500 feet west of I-25. However, the MHFD delineated watershed associated with this tributary extends approximately 1.5 miles further to the west than the upstream limit, indicating surface flow from beyond the tributary's upstream limit is projected to flow into this tributary. The tributary flows through a variety of channels, ditches, drainage structures, and ponds/lakes near the project. **Figure 5** provides an overview of the South Grange Hall Creek in relation to the project area.

The South Grange Hall Creek crosses beneath the I-25 roadway at two locations via culverts. These culvert crossings are approximately 1,500 feet and 2,000 feet south of 104th Avenue along the western edge of I-25. These culverts are believed to outlet flow into the detention basin located approximately 1,000 feet east of I-25, located between the Home Depot shopping plaza and Grant Street. Exact culvert as-built locations were



not available for this area. The South Grange Hall Creek flow continues south along this detention basin toward the east-northeast.

3.2.1 FEMA Flood Zone Designation

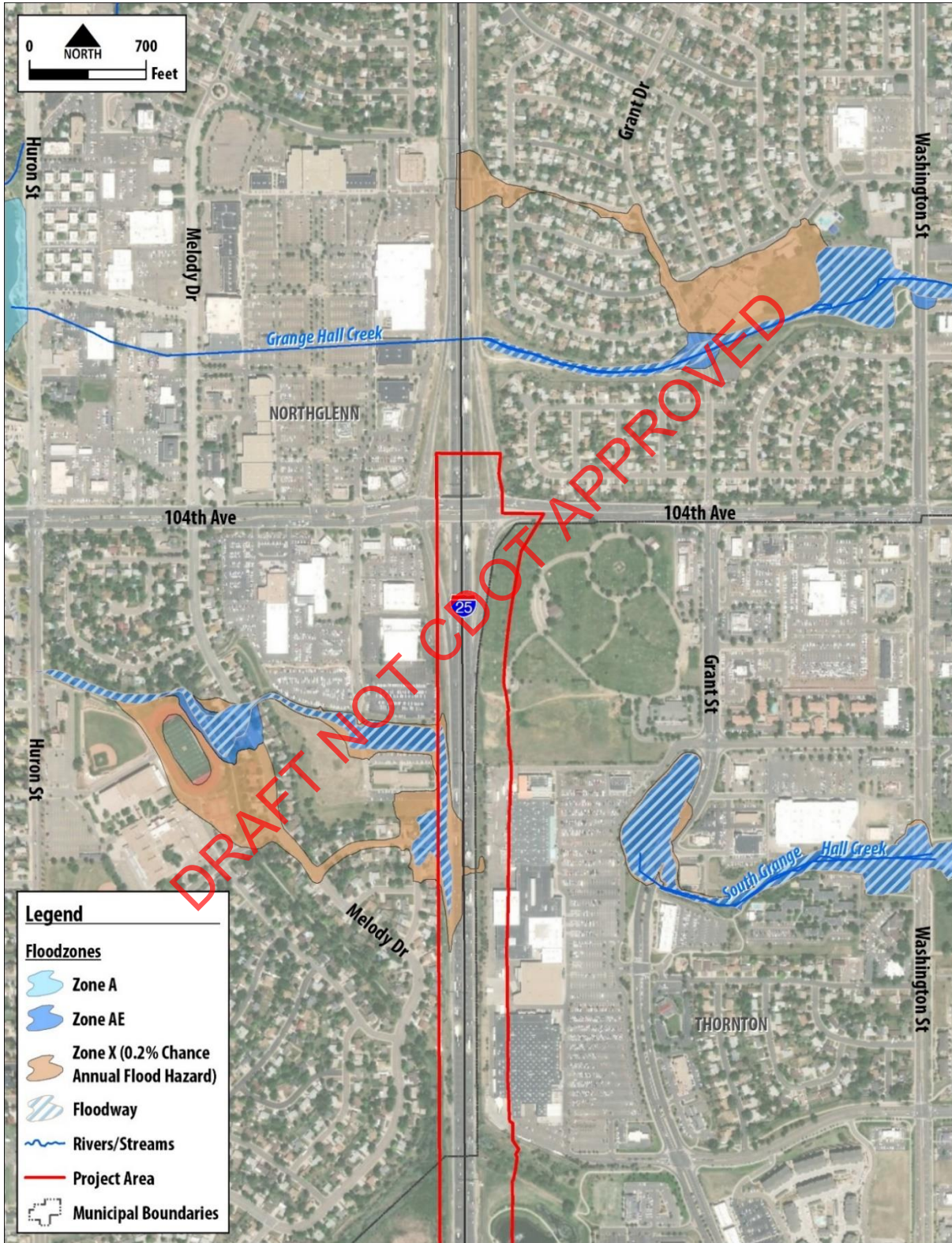
The FEMA FIRM and FIRMETTE maps were investigated for the presence of SFHAs within and near the Proposed Action along I-25. The South Grange Hall Creek is designated with a floodway Zone AE along the channel, originating at the upstream end (near Huron Street) and continuing up to and between the two culverts crossing beneath I-25 on the western side of the roadway. The floodway is surrounded by a FEMA designated Zone X noted as a “0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile” (FEMA, 2018b). The Floodway Zone AE and the Flood Hazard Zone X both extend onto the I-25 roadway, primarily on the southbound side of the roadway (the 3.5-foot concrete median divider is modeled as containing flood waters). The Floodway Zone AE and the Flood Hazard Zone X associated with the South Grange Hall Creek continue in the previously discussed detention basin east of the project area. **Figure 7** shows the location of these FEMA designated flood zones and their relation to the project area.

Per the FHAD prepared for the Grange Hall Creek and Tributaries, the designated floodways and flood zones in this area are due to an undersized storm sewer system along Melody Drive and undersized culverts crossing I-25. Additionally, the 3.5-foot concrete divider in the median blocks flows, forcing water surface elevations to increase on the upstream side of the road (western side) (Respec, 2018).

3.2.2 Environmental Consequences of the Proposed Action

Near South Grange Hall Creek, the Proposed Action would widen the roadway for an additional lane and improve the shoulder on the northbound side of I-25. No work is currently proposed on the southbound side of I-25 from slightly north of Thornton Parkway to 104th Avenue. Although preliminary designs have been prepared for the Proposed Action, the designs are not finalized and actions that may have an impact on the identified FEMA flood zones are subject to change. Current designs for the described improvements to northbound I-25 are located within the FEMA flood zones associated with the South Grange Hall Creek. Project activities involve grading along the eastern edge of I-25 and may alter the landscape, which could result in an alteration in the FEMA flood zone boundaries in this area. Based on preliminary designs, the northbound roadway would be widened approximately 25 feet east of the current edge of pavement and grading activities would extend 60 feet east of the current edge of pavement. As final designs are completed, an analysis of the impacts on the flood zones as a result of the Proposed Action must be conducted to determine if a LOMC will be required.

Figure 7. Grange Hall Creek Floodplains Map



Source: FHU, 2018



3.2.3 Potential Permitting for the Proposed Actions

Due to the Proposed Action's presence within the FEMA designated flood zones identified in association with the South Grange Hall Creek, a municipality floodplain development permit would need to be obtained. The jurisdictional boundary between the City of Northglenn and the City of Thornton is located along the eastern edge of the I-25 roadway near the South Grange Hall Creek. Because the FEMA designated flood zones are split between two municipalities, a floodplain development permit would be required from both the City of Northglenn and the City of Thornton. Additionally, as the entire project is located within Adams County, a floodplain use permit from Adams County would likely be required for the proposed work within flood zones throughout the project area.

As previously noted, without final designs for the Proposed Action, it cannot be confirmed if a change in the base flood elevation for the identified flood zones associated with South Grange Hall Creek would occur as a result of the Proposed Action.

3.2.4 Mitigation of the Proposed Actions

As previously stated, if a rise in the base flood elevation occurs as a result of the Proposed Action, an approved LOMC from FEMA will be required in conjunction with the floodplain development

permits from City of Thornton, City of Northglenn, and Adams County as previously discussed. If there is a rise in water surface elevation, affected property owners will need to be notified and any adverse impacts on structures affected by the rise will need to be mitigated.

Per the FHAD for Grange Hall Creek and Tributaries, 30 residential structures and a commercial building are already located upstream of I-25 within the 100-year floodplain and the 100-year shallow flooding zone (Respec, 2018). As noted, this large flood zone on the upstream side of I-25 is due to undersized storm sewer systems along Melody Drive and a undersized culvert crossing beneath I-25. Because the Proposed Action is located exclusively on the northbound side of I-25 (downstream side of the flood zone), project activities would not be anticipated to have an impact on additional structures on the upstream side of the flood zone. The downstream side of the flood zone appears to be contained within a roadside ditch, located between I-25 and the Home Depot shopping plaza. Project activities would be anticipated to increase the size of the flood zone within this ditch; however, it would not be anticipated that the flood zone would rise beyond the ditch and affect any nearby structures east of I-25.

If final design confirms adverse structural impacts due to a rise in the base flood elevation, mitigation measures at the affected structures will be required. Section 3.1.4 outlines mitigation measures that may be used.

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4.0 Impacts and Mitigation Commitments for the Proposed Action

Table 3 documents the expected impacts on water quality and floodplain resources associated with the Proposed Action.

Table 3. Impacts on Water Quality and Floodplain Resources

Context	No Action Alternative	Proposed Action
<p>Throughout the project area, the topography and the flow of water are observed as flowing generally from the northwest to the southeast, toward the South Platte River. The South Platte River flows southwest to northeast in the project vicinity, located approximately 2 to 3 miles east of the project area. The Mile High Flood District's (MHFD) Watershed Delineation indicates the project area crosses through four watersheds, all of which flow primarily to the east-southeast, toward the South Platte River (MHFD, 2018). The four watersheds, from south to north, are Clear Creek, Niver Creek, South Grange Hall Creek (sometimes referred to as the Grange Hall Creek Tributary South), and Grange Hall Creek – Upper watersheds; each watershed is associated with a primary waterbody flowing through the delineated area.</p> <p>The project area intersects the floodplains of Niver Creek and South Grange Hall Creek.</p> <p>Niver Creek and its tributaries, as well as Grange Hall Creek, South Grange Hall Creek, and its associated tributaries are not specifically noted as impaired by the Colorado Department of Public Health and Environment (CDPHE) Section 303(d) <i>List of Impaired Waters and Monitoring and Evaluation List</i>; however, all tributaries to the South Platte River from Chatfield Reservoir to Big Dry Creek are considered to be impaired for <i>Escherichia coli</i> and selenium.</p>	<p><u>Permanent Impacts</u></p> <p>The No Action Alternative would not affect floodplains and drainage.</p>	<p><u>Permanent Impacts</u></p> <p>The increase in impervious area throughout the study area, will increase runoff from the proposed roadway. This results in an increase great enough to trigger the Permanent Water Quality Management Program (as defined in CDOT's MS4 permit and the local agency phase II MS4 permit).</p> <p>Based on preliminary designs, water quality in receiving waterbodies (Niver Creek and its tributaries, Grange Hall Creek and its tributaries, and the South Platte River) would benefit from this project. Since project designs would include mitigation measures in areas with limited existing water quality control measures (CMs), an improvement in the water quality reaching the South Platte River from the project vicinity is anticipated.</p> <p>Impacts to the Niver Creek and South Grange Hall Creek floodplains are possible from the project activities in locations where proposed designs are within the FEMA identified floodplains. Based on current designs, it is anticipated that an increase in floodplain base flood elevation will occur at multiple locations within the project area.</p> <p><u>Temporary Impacts</u></p> <p>Temporary impacts during construction would include working adjacent to and runoff potentially reaching Niver Creek, Grange Hall Creek, and their associated tributaries. Project activities would have the potential to impact the South Platte River down-gradient of the project area through impacts to the nearby creeks. Impacts to nearby natural waterbodies during construction will be minimized by implementing a SWMP.</p>

Table 4 documents the mitigation commitments for the water quality and floodplain resources associated with the Proposed Action.



Table 4. Mitigation Commitments on Water Quality and Floodplain Resources

Impact	Mitigation Commitment	Responsible Branch	Timing/Phase That Mitigation Will Be Implemented
Increased sediment and pollutants from the proposed roadway construction process	<p>A stormwater management plan (SWMP) will be prepared to outline and detail erosion control within the project area during the initial (pre-construction), interim (during construction), and final (post-construction) project phases. The SWMP will identify the type and location of CMs to be installed before and during construction to mitigate potential water quality impacts due to erosion occurring during construction activities.</p> <p>Additionally, a spill prevention, control, and countermeasure plan will be developed and implemented for the project construction site to establish standard operating procedures and require employee training to minimize the accidental release of pollutants that could contaminate stormwater runoff.</p> <p>Proposed landscaping and revegetation activities will be designed to minimize the use of fertilizers in the project area. Fertilizers shall be applied strictly following the manufacturer's directions.</p>	CDOT Design CDOT Construction	Design Construction
Increased runoff from the proposed roadway	<p>Permanent water quality features and other post-construction CMs will be designed and shall be installed to be in compliance with CDOT's and the local agency's Municipal Separate Storm Sewer System (MS4) permit. The design and installation shall reduce or eliminate pollutants and sedimentation reaching natural waterbodies near the project.</p>	CDOT Design CDOT Construction	Design Construction
Increase in the floodplain base flood elevations at multiple locations	<p>Based on current designs, it is anticipated that an increase in floodplain base flood elevation will occur at multiple locations within the project area. If during final design the project still creates a rise in floodplain elevations, a Conditional Letter of Map Revision (CLOMR) shall be submitted to the Federal Emergency Management Agency (FEMA) to notify them of the rise in the floodplain. Should there be impacts to structures, FEMA requires proof of mitigation for structures that would have been adversely impacted prior to the approval of any map revisions.</p>	CDOT Design	Design

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