U.S. Department
of Transportation
Federal Transit Administration

REGION VIII
Colorado, Montana,
North Dakota,
South Dakota,
Utah and Wyoming

1961 Stout Street
Suite 13301
Denver, Colorado 80294
(303) 362-2400 (voice)

August 25, 2023

Mr. Carlos Braceras
Executive Director
Utah Department of Transportation
4501 South 2700 West
P.O. Box 141265
Salt Lake City, UT 84114-1265

Re: NEPA Approval for the **FrontRunner Forward Program – North of Woods Cross Double Track Project**

Dear Mr. Braceras:

Thank you for providing the environmental documentation for the **FrontRunner Forward Program – North of Woods Cross Double Track** project. The project is planning to utilize Federal Transit Administration (FTA) Capital Investment Grants (CIG) Program funding to develop a double track alignment between Woods Cross and Centerville in Davis County, Utah.

FTA funding is requested to design and construct a 1.9-mile section of double track extending from north of the existing Woods Cross Station to the existing siding at approximately 2000 North along the existing FrontRunner commuter rail system. The project includes filling and grading along the east side of the existing rail corridor to widen the existing mainline track bed and installation of a rail ballast to support the double track. The project will shift and reconstruct the existing FrontRunner mainline track where needed, remove an existing turnout, pipe and bury a drainage canal between the northern terminus and Pages Lane/1600 North, extend the box culvert over Mill Creek, and replace a railroad switch. The project improvements also include widening at-grade crossings at Pages Lane/1600 North and 500 South and a widened crossing underneath 400 North, which would involve reconstruction of the existing bridge abutment. Approximately 3,500 linear feet of a new 3-foot-high retaining wall north of 400 North and a new access near the Holly Refinery will be constructed. The project is needed to improve the service reliability and on-time performance of FrontRunner. Based on the findings of the Categorical Exclusion (CE) for the project, FTA understands the following mitigation measures will be implemented:

- All acquisition and construction easements will comply with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended (42 USC Chapter 61).
- In the event of the inadvertent discovery of human remains and/or archaeological resources are found during construction, construction will be halted, and SHPO will be contacted immediately.
- A Phase I Environmental Site Assessment will be conducted in accordance with ASTM standards for any property acquisitions and any recommended Phase II Environmental Site Assessments will be conducted, as necessary.
- Hazardous materials handling and disposal plans will be developed which will include coordination with state and federal agencies with jurisdiction.
- A floodplain evaluation will be completed during final design to determine if revisions to the flood map are required. If necessary, a pre-construction Conditional Letter of Map Revision (CLOMR) will be submitted to Federal Emergency Management Agency (FEMA). After construction, a Letter of Map Revision (LOMR) will be submitted to FEMA if required. Coordination will occur with the Cities of

West Bountiful and Centerville, which are the floodplain administrators for this area, regarding this process.

- Prior to construction, a flood-control permit will be obtained from Davis County Public Works for work on the drainage channel. In addition, floodplain development permits will be obtained from West Bountiful and Centerville for work within the floodplain.
- A Stream Alteration Permit will be obtained from the Utah State Division of Water Rights. Activities authorized by the Division of Water Rights through a Stream Alteration Permit are also authorized by US Army Corps of Engineers (USACE) under Section 404 of the Clean Water Act. Specific measures to avoid and minimize impacts on water resources identified in the general permit (as applicable for the project) will be implemented in final design and during construction.
- Construction of the project will disturb more than 1 acre of ground surface, which will require coverage under the Utah Pollutant Discharge Elimination System (UPDES) Construction General Permit UTRC00000 (CGP). Coverage under the CGP will be obtained prior to construction through the Utah Division of Water Quality. In compliance with this permit, a stormwater pollution prevention plan (SWPPP) will be developed for the construction phase of the project.
- If the wetlands in the project area are determined jurisdictional by USACE, the project will require authorization under Nationwide Permit (NWP) 14 for Linear Transportation Projects and a Pre-Construction Notification will be submitted to USACE for authorization. Compensatory mitigation for direct impacts to wetlands greater than 0.1 acre will be provided as required based on final design.
- Any unavoidable grubbing or tree removal will occur outside of migratory bird nesting season, April 1 through July 15, in order to avoid impacts to migratory birds. If clearing and grubbing does need to occur during nesting season, a pre-construction survey will be conducted to determine if there are any occupied nests in the area of disturbance. Construction activities will avoid disturbance to any occupied nests.
- Utility providers will be coordinated with regarding anticipated utility impacts as project design advances to avoid lapses in service during construction.
- Local noise ordinances will be complied with during construction.
- Work will be scheduled to minimize impacts to the passengers and roadway traffic (nights, weekends, holidays). If necessary, bus bridges will be provided for continuation of service.
- Mitigation to control fugitive dust and stormwater runoff will be implementation during construction.
- A public communication plan will be developed to coordinate construction activities with local residents, stakeholders, and businesses that could be affected by construction. Any changes to transit service due to construction will be communicated to riders.
- The local roadway jurisdiction will be coordinated with regarding grade crossing regrading work to provide detours, temporary closures, or lane restrictions. The roadway owner will be coordinated with to provide necessary pedestrian mitigation during this type of work.
- Traffic control plans will be developed to obtain proper permitting from local roadway jurisdiction for temporary lane closures, roadway closures, and detours.
- Any required state and local permitting and compliance requirements for the project will be adhered to and/or obtained.

Based on the documentation provided by your office, FTA concurs with the finding that the proposed project meets the definition of a CE pursuant to 23 CFR §771.118(c)(8). If you have any questions regarding this finding, please contact Robyn Kullas in my office at Robyn.Kullas@dot.gov or (303)362-2389. Please keep FTA informed of any additional changes to the project should they occur.

Sincerely,

DAVID L BECKHOUSE

Digitally signed by DAVID L BECKHOUSE
Date: 2023.08.25 14:14:40 -06'00'

For Cindy Terwilliger
Regional Administrator

Cc:
Brian Allen, Utah Department of Transportation
Jay Fox, Utah Transit Authority
Janelle Robertson, Utah Transit Authority
Patti Garver, Utah Transit Authority
Autumn Hu, Utah Transit Authority

FTA REGION 8
CATEGORICAL EXCLUSION WORKSHEET

FTA Region 8 provides this Categorical Exclusion (CE) worksheet to help project sponsors (recipients) comply with the National Environmental Policy Act (NEPA). The information collected will help to better define the project scope for environmental analysis, identify potential impacts, and determine if other environmental laws and permits apply. If sufficiently completed, it can enable FTA to determine that the project does not result in significant environmental impacts and meets the criteria for a CE. All activities and projects to be supported with federal funds require a NEPA environmental finding as a prerequisite to award of funds.

This CE Worksheet should be completed for C-List projects involving construction and *all* D-List projects. **If a C-List project does not involve construction, you do not need to complete this worksheet.** All parts below must be completed prior to FTA review. Compliance with other environmental requirements must also be completed before FTA will issue a determination that the project meets the criteria for a CE. Certain project activities may not begin until this process is complete. For guidance on completing this worksheet, please refer to the CE Worksheet Instructions.

Prior to transmitting a grant application, complete and submit this CE Worksheet using the CE Worksheet Instructions allowing sufficient time for FTA review, especially if other environmental laws or permits apply. For assistance, please contact your assigned FTA Region 8 Pre-Award Manager, or you may call the office at 303-362-2400. To "check" a box, double-click on the box and select "checked" under default value.

PART A: PROJECT INFORMATION

Project Sponsor *Utah Transit Agency (UTA)*	FTA Application No/FAIN *CIG*
Project Contact (include mailing address, email address and phone number) *Janelle Robertson, Project Manager, Utah Transit Authority* *669 West 200 South* *Salt Lake City, UT 84101* *jarobertson@rideuta.com* *801-237-1951*	
Project Title *North of Woods Cross Double Track Project – FrontRunner Forward Program*	
Project Description *The Utah Transit Authority (UTA) in coordination with Utah Department of Transportation (UDOT) is proposing to construct a second track along approximately 1.9 miles of existing single track FrontRunner commuter rail line from north of the Woods Cross Station to the existing siding at about 2000 North (Project) in West Bountiful in Davis County, Utah (see Figure 1 in Attachment 1). The purpose and need of the project and further detail about investments associated with the FrontRunner Forward Program are included in a separate report, FrontRunner Forward Strategic Double Track Recommended Service Alternative Overview – A Planning and Environmental Linkage Study (PEL) (May 2023).* *Figure 2 in Attachment 1 shows the various Project elements, and a detailed plan set is included as Attachment 2.*	

The Project would involve filling and grading along the east side of the existing rail corridor to widen the existing mainline track bed and install rail ballast to support the new mainline track adjacent to and parallel with the existing FrontRunner mainline track. The Project would shift the existing FrontRunner mainline track where needed and remove an existing turnout; pipe and bury an open drainage canal between the northern terminus and Pages Lane/1600 North; and extend the box culvert over Mill Creek where it currently runs beneath the rail corridor, south of 400 North. In addition, the Project would replace a railroad switch at the north end of the alignment where the existing double track ends.

The Project would include widened at-grade roadway crossings at Pages Lane (1600 North) and 500 South and a widened crossing underneath 400 North, which would involve reconstruction of the existing bridge abutment with a new 10-foot-high soil nail wall. At-grade crossing improvements would require relocation of signals and crossing arms. Approximately 3,500 linear feet of a new 3-foot-high retaining wall would be constructed where the new track runs parallel to I-15 north of 400 North. The grade crossing improvements at the intersection with 500 South would remove the existing access to the Holly Refinery. A new access would be constructed from 700 South on the west side of the Holly Refinery or from 800 South on the south side of the property.

Preliminary track design modeling shows the estimated excavation from top of existing ground to bottom of proposed subballast or track ditch for proposed trackwork construction would range from 2 to 5 feet. Depth of excavation for utilities would range from 7 to 8 feet deep. Retaining walls could require excavation between 2 and 20 feet deep, depending on the type and size of the wall, which would be determined during final design.

Project construction is anticipated to take approximately 1 year. Construction staging and laydown may require new access points to the rail corridor and temporary use of adjacent properties or rights-of-way. The Project would intersect and require modifications to several above- and underground utilities; however, no major interruptions or relocations are anticipated. Please see the response to questions 17 and 18 under Part C for more detail about utilities and construction impacts, respectively.

Throughout the worksheet, the term "Project area" is used to describe the area of potential Project impacts from construction and right-of-way acquisition. The boundary of the Project area is generally a 90-foot-wide corridor following the rail alignment as shown in Figure 2 in Attachment 1. The term "study area" is used to describe the area within which a specific resource was studied. The study area for each resource is the Project area unless otherwise stated.

Project Location (Include physical address)

Linear project along FrontRunner corridor between mile post (MP) N8.9 and MP N11, from Woods Cross to Centerville, in Davis County, Utah.

Is this project included in the current approved TIP and/or STIP?

☐ YES – TIP/STIP ID/Page No.: ☒ NO – When will it be added?

The adopted Wasatch Front Regional Council's (WFRC) 2023–2050 regional transportation plan (RTP) includes the full length of the proposed double track projects. The TIP will be updated in fall 2023 to include this Project which is anticipated to be constructed within the next 5 years.

Is this a re-evaluation of a project previously evaluated/approved or currently under construction?

☒ NO

☐ YES

PART B: PROPOSED CATEGORICAL EXCLUSION DETERMINATION

Select the CE category under 23 CFR 771.118(c) or (d) that best describes the proposed project (select only one). FHWA and FRA CEs also may be used, if applicable. CE descriptions are included in the CE Worksheet Instructions.

CE (e.g., C-9 or D-6): *FTA C-8: Maintenance, rehabilitation, and reconstruction of facilities that occupy substantially the same geographic footprint and do not result in a change in functional use, such as improvements to bridges, tunnels, storage yards, buildings, stations, and terminals; construction of platform extensions, passing track, and retaining walls; and improvements to tracks and railbeds.*

PART C: ENVIRONMENTAL EVALUATION

For each of the following resources, identify, evaluate and describe any adverse impacts to the built (including social and economic) and natural environment resulting from the proposed project. Select NO, if a resource is not present on or near the proposed project area, or if there are no adverse impacts. Select YES, if a resource is present and will be impacted; and succinctly describe the impacts, any mitigation necessary to minimize impacts, and any permits required. Please explain your answer. The level of detail you provide should be commensurate with the complexity of the project. For guidance on how to evaluate each resource for impacts, see the CE Worksheet Instructions. If, through your evaluation, you believe the project *will* result in significant environmental impacts or you aren't sure, and/or it is likely to generate substantial controversy on environmental grounds, contact FTA Region 8.

1. Land Use and Zoning

Is the proposed project incompatible or inconsistent with existing or future land use and/or zoning in the project area? Describe the surrounding land use and zoning. Provide a map with project location and surrounding land uses.

☒ NO

☐ YES

The Project area falls within the municipal boundaries of the cities of Woods Cross, West Bountiful, Bountiful, and Centerville in Davis County, Utah. Small sections of the alignment fall in Woods Cross, Bountiful, and Centerville, with a majority located in West Bountiful. The boundary between Woods Cross and West Bountiful is roughly demarcated by 500 South. Figure 3 in Attachment 1 shows the zoning for each city surrounding the Project.

In Woods Cross, zoning adjacent to the alignment consists of a S-1 Special Use Zone currently being used as the FrontRunner Station, a C-2 General Commercial Zone, and an I-1 Light Industrial/Business Park Zone, with current land uses consisting of Institutional, Industrial, Commercial, and Vacant Land. Future land uses in Woods Cross are expected to consist of Civic, Institutional, and Community Commercial uses. In West Bountiful, zoning adjacent to the alignment consists of C-H Highway Commercial, C-G General Commercial, I-G General Industrial, L-I Light Industrial, and R-1-10 High Density Residential. The future land use plan in West Bountiful mirrors current zoning. In Bountiful, the Project falls within the I-15 corridor, zoned as C-H Heavy Commercial. The zoning in Centerville adjacent to the alignment consists of a C-VH Commercial Very High zone.

The construction and completion of the Project would take place in or adjacent to an existing rail corridor and is therefore compatible and consistent with existing or future land use and/or zoning in the Project area.

2. Land/Property Acquisition, Relocation, Leases and Easements

Does the proposed project require any land/property acquisition, easement or permit? Note: for acquisitions over $1 million, FTA concurrence with the property's valuation is also required (see Circular 5010.E). Explain.

☐ NO

☒ YES

The Project would occur primarily within the existing FrontRunner corridor, which is UTA-owned railroad right-of-way. To allow room for the second track, the Project would require approximately 4.3 acres of right-of-way acquisition or easements, affecting eight properties including those owned by UDOT along the north half of the alignment and public and private property owners along the south half. The impacts to these eight parcels on the east side of the Project alignment would affect the parking configuration within three parcels and would require an access reconfiguration to the Holly Refinery property (Parcel 60490194). These acquisitions would not displace residents or businesses, and compensation would be provided in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended (42 USC Chapter 61) and FTA procedures. Table 1 below lists the properties' location, ownership, and current use. Figure 4 in Attachment 1 shows a map of all parcels affected by acquisition. Temporary easements would be required throughout the Project area for utilities and other construction activities. These easements would not require permanent conversion of properties and sites would be restored to previous existing conditions or better. Permanent easements or other property rights may be necessary and would be determined during final design. UTA would coordinate with property owners in accordance with the Uniform Act.

At this preliminary level of design, UTA does not yet know exactly where temporary construction easements would be needed. However, the design footprint used to assess impacts to resources includes the anticipated limits of physical disturbance, including space for potential temporary construction workspaces, and the limits of any anticipated right-of-way and temporary easement acquisition. Actual locations of temporary construction easements will be determined during final design.

Table 1. Affected Property Location, Owner, and Use

Parcel ID	Parcel Address	Parcel City	Ownership Type	Owner	Existing Use	Partial or Full Acquisition	Area of Impact (sq. feet)	Relocation Necessary?
60490247	<Null>	West Bountiful	Private	BOULTON FAMILY LLC	Industrial	Partial	9,773	No
60490249	756 W 500 S	West Bountiful	Private	LIGER INVESTMENTS LLC	Commercial	Partial	8,204	No
60490196	755 W 500 S	Woods Cross	Private	HEP WOODS CROSS LLC	Industrial	Partial	19,525	No
60490199	<Null>	West Bountiful	Public	UDOT	Roadway	Partial	720	No
60390029	393 S 800 W	West Bountiful	Private	WOODS CROSS REFINING COMPANY LLC	Vacant	Partial	110,172	No
60390116	680 W 500 S	West Bountiful	Private	WOODHAVEN MHC LLC (BRIAN L FITTERER)	Vacant	Partial	2,832	No
60390181	<Null>	West Bountiful	Private	FREEWAY INVESTMENT LLC	Industrial	Partial	33,657	No
60490194	<Null>	Woods Cross	Private	WOODS CROSS REFINING COMPANY LLC	Vacant	Partial	3,887	No
						Total sq.ft.	**188,770**	
						Total acres	**4.3**	

3. Environmental Justice

Is the proposed project located in a neighborhood containing minority or low-income residents or businesses? If yes, will it result in disproportionately high and adverse impacts? Explain.

☐ NO

☒ YES

The Project is located in an existing rail corridor adjacent to neighborhoods with minority and low-income residents. Project impacts are limited along the length of the Project and include partial acquisition of parcels adjacent to the Project alignment. However, there would be no displacements of any residents or businesses and provisions for acquisitions would be conducted in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act (1970) and FTA requirements. The absence of adverse impacts resulting from the project eliminates the potential for disproportionately high or adverse impacts to minority or low-income populations. The project would benefit the population of surrounding neighborhoods, including low-income and minority populations, by improving FrontRunner transit service capacity and reliability.

For the purposes of this analysis and in line with Census definitions, minority populations are defined as individuals who have identified as Hispanic or Latino, Black or African American, Asian, American Indian and Alaska Native alone, Native Hawaiian and Other Pacific Islander alone, some other race alone, or two or more races. Low-income residents are defined as households with an income level at or below the federal poverty level for a 4-person household as determined by the Department of Health and Human Services ($25,750 for a family of four in 2019).

To determine if environmental justice communities or populations are present in the Project vicinity, American Community Survey (ACS) 5-year estimate data from 2019 was used. Using GIS, a study area was defined that includes all block groups that intersect within a half-mile buffer of the Woods Cross Double Track Project alignment. For comparative purposes, the research also lists the minority or low-income populations in West Bountiful City, Woods Cross City, Centerville, and Davis County.

Table 2 below shows total population, minority population, low-income population, and the percentage of the total population for those groups in Davis County, Bountiful City, Centerville City, Woods Cross City, West Bountiful City, the half-mile study area (all block groups), and for each individual block group that intersects the half-mile study area. Figure 5 in Attachment 1 shows the location of each block group. Most block groups in the study area contain minority and low-income residents. Individual block groups within the study area that have a minority or low-income population above the City average percentage in which they are located are identified in Table 2.

In addition, a corridor-wide environmental justice analysis has been conducted to evaluate potential impacts of the future anticipated service increase along the FrontRunner corridor. The corridor-wide environmental justice analysis is documented in a separate report, FrontRunner Forward Corridor Level Environmental Justice Technical Memorandum (May 2023) and summarized in the PEL (May 2023).

3. (Cont.)

Table 2. Project Area Minority and Low-Income Populations as Compared to Surrounding Jurisdictions

Local Geography	Total Population	Minority Population	Percent Minority	Total Population for whom Poverty Status is Determined	Population below Federal Poverty Level	Percent Population below Federal Poverty Level
Davis County	345,767	55,895	16%	343,234	18,571	5%
Bountiful City	43,901	4,508	10%	43,428	2,360	5%
Centerville City	17,404	1,732	10%	17,360	527	3%
Woods Cross City	11,340	1,870	16%	11,284	843	7%
West Bountiful City	5,627	1,340	24%	5,627	663	12%
Block Group ID						
Bountiful City						
490111263063	1,127	111	10%	1,127	27	2%
490111266001	**1,361**	**167**	**12%**	**1,361**	**15**	**1%**
490111266003	**857**	**173**	**20%**	**814**	**98**	**12%**
490111267001	**836**	**233**	**28%**	**821**	**187**	**23%**
490111269015	**16**	**3**	**20%**	**16**	**1**	**8%**
490111270031	**1,764**	**608**	**34%**	**1,764**	**297**	**17%**
490111270043	**972**	**283**	**29%**	**972**	**235**	**24%**
Centerville City						
490111263061	**1,020**	**118**	**12%**	**1,020**	**51**	**5%**
490111263062	870	29	3%	850	32	4%
490111263063	1,127	111	10%	1,127	27	2%
490111263041	383	40	10%	383	9	2%
Woods Cross City						
490111269016	131	0	0%	127	5	4%
490111270041	**17**	**3**	**17%**	**17**	**0**	**0%**
490111270042	**1,087**	**74**	**7%**	**1,087**	**125**	**11%**
490111270043	**972**	**283**	**29%**	**972**	**235**	**24%**
490111270044	**20**	**6**	**32%**	**20**	**0**	**0%**
West Bountiful City						
490111263041	383	40	10%	383	9	2%
490111266003	857	173	20%	814	98	12%
490111267001	**836**	**233**	**28%**	**821**	**187**	**23%**
490111267002	402	56	14%	399	39	10%
490111270031	**1,764**	**608**	**34%**	**1,764**	**297**	**17%**
490111270032	248	36	14%	245	6	2%
490111270041	17	3	17%	17	0	0%
490111270042	1,087	74	7%	1,087	125	11%
490111270043	**972**	**283**	**29%**	**972**	**235**	**24%**
All Block Groups	**11,113**	**1,940**	**17%**	**11,024**	**1,127**	**10%**

Note: The Federal Poverty Level is determined by the 2019 U.S. Department of Health and Human Services' poverty threshold, or $25,750 for a family of four. ***Bold*** *indicates percentages of minority or low-income populations within Census block groups that are greater than the surrounding jurisdiction. Block groups that span multiple cities are listed in each corresponding city and may appear in the table multiple times.*

4. Cultural, Historic and Archaeological Resources

Are there any cultural, historic or archaeological resources on or near the proposed project site? If yes and the proposed project has the potential to affect such resources, the Section 106 process must be followed and a Section 4(f) evaluation may be required. Explain, including what steps were taken to make the determination.

☐ NO

☒ YES

A cultural resource survey was conducted in spring 2022. For the purposes of this analysis, the Project area serves as the Area of Potential Effect (APE), as shown on Figure 6 in Attachment 1. One archaeological site was identified within the Project APE, the historic Union Pacific Railroad (42DV87), which has been determined eligible for the National Register of Historic Places (see Figure 6). No buildings within the APE have been determined eligible for the National Register of Historic Places.

If YES resources are present, does Section 106 apply? Explain.

☐ NO

☒ YES – Provide Section 106 Consultation Documentation

*The Project construction would avoid removing or relocating the historic Union Pacific Railroad. The Project would result in **no historic properties affected** under Section 106. SHPO concurred with this finding on February 13, 2023. The Section 106 consultation documentation is included in Attachment 3.*

In the event of the inadvertent discovery of human remains and/or archaeological resources are found during construction, construction should be halted, and SHPO should be contacted immediately.

If YES resources are present, does Section 4(f) apply? Explain.

☒ NO

☐ YES – Provide Section 4(f) Evaluation

*As Project construction would avoid removing or relocating the historic Union Pacific Railroad, the Project would result in **no historic properties affected** under Section 106 and would have **no use** of the historic site under Section 4(f). The Section 106 consultation documentation is included in Attachment 3.*

In addition, a corridor-wide cultural resources survey has been conducted to evaluate potential cumulative impacts along the FrontRunner corridor. The corridor-wide survey is documented in a separate report, A Cultural Resources Survey for the Utah Transit Authority's FrontRunner Forward Double Track and Rail Realignment Project; Davis, Salt Lake, and Utah Counties, Utah (July 2022) and summarized in the PEL (May 2023).

5. Visual/Aesthetics

Will the proposed project degrade the existing visual/aesthetic character or quality of the site, its surroundings, and/or recognized view sheds? Explain.

☒ NO

☐ YES

Visual resources visible in the larger vicinity of the Project include the Wasatch and Oquirrh mountain ranges, The Great Salt Lake, and Antelope Island. The study area for this resource includes the Project area and its surroundings, which consist of mostly industrial and residential land uses and the I-15 corridor, with no prominent visual or aesthetic resources with the exception of West Bountiful City Park. The Park, seen in Figure 7 in Attachment 1, is directly adjacent to the rail corridor to the west from 1600 North to 2050 North but is outside the Project area.

Some visual changes would occur within the Project area including the addition of the second track, the addition of one retaining wall, the burial and piping of a section of the Davis County Canal, the extension of the Mill Creek culvert, and the relocation of two existing grade-crossing gates and lights. However, the Project would not obstruct or degrade views from West Bountiful City Park, or notably alter other views or visual resources in the Project surroundings.

6. Park and Recreation Resources

Are there any public parks and/or recreation resources on or near the proposed project area that would be impacted? If the proposed project has the potential to impact publicly-owned parks or recreation areas, a Section 4(f) evaluation may be required. If a park is funded with LWCF funds, Section 6(f) may apply. Explain.

☒ NO

☐ YES

West Bountiful City Park is a Section 4(f) and 6(f) resource as LWCF funds were used to acquire land for and develop the park. The park is located adjacent to the Project area on the west side of the rail corridor (see Figure 7 in Attachment 1), from 1600 North to 2050 North. In this section, Project activity is on the east side of the rail corridor and therefore would not impact the park.

Additionally, the Unified Transportation Plan shows a Phase 1 bike/pedestrian project called the 800 West Extension Shared-Use Path in the southern portion of the Project area, which would extend 800 West through the Holly Refinery property to 500 South. This is a proposed public transportation facility on a fiscally constrained plan whose connectivity would not be disrupted by the Project and would not be a Section 4(f) resource.

Therefore, no use of Section 4(f) and 6(f) resources is anticipated.

If YES, does Section 4(f) apply? Explain.

☐ NO

☐ YES – Provide Section 4(f) Evaluation

Please see explanation above

If YES, does Section 6(f) apply? Explain.

☐ NO

☐ YES – Provide documentation

Please see explanation above.

7. Noise and Vibration

Are there any noise and/or vibration sensitive receptors located near the proposed project that would be impacted? Explain.

☒ NO

☐ YES

A screening level noise and vibration impact assessment conducted in May 2022 determined there would be no noise or vibration impacts associated with the Project. There are no sensitive receivers on the east side of the tracks where the new track would be located, so there would be no impacts. For the sensitive receivers on the west side of the tracks, there would be a slight decrease in the noise levels because some of the trains would be moved further from the sensitive receivers on that side of the tracks. Additionally, the existing turnout at the northern end of the Project would be removed, which would result in a decrease in noise and vibration levels at sensitive receivers in the immediate vicinity of the turnout on the west side of the tracks.

The FrontRunner corridor from Ogden to Provo is an established Federal Rail Administration (FRA) quiet zone corridor for both FrontRunner and freight train traffic. In a quiet zone, railroads have been directed to cease the routine sounding of their horns when approaching public grade crossings. Train horns may still be used in emergency situations. For this noise assessment, train horn noise was not included.

Please see the Noise and Vibration Assessment in Attachment 4 for more detail.

In addition, a corridor-wide noise and vibration analysis has been conducted to evaluate potential impacts of the future anticipated service increase along the FrontRunner corridor. The corridor-wide noise and vibration analysis is documented in a separate report, FrontRunner Forward Corridor Level Noise and Vibration Technical Memorandum (May 2023) and summarized in the PEL (May 2023).

8. Air Quality

Is the proposed project located in an Environmental Protection Agency (EPA)-designated non-attainment or maintenance area?

☐ NO

☒ YES - indicate the criteria pollutant and contact FTA to determine if a hot spot analysis is necessary.

- ☐ Carbon Monoxide (CO)
- ☐ Sulfur Dioxide (SO_2)
- ☐ Lead (Pb)
- ☐ Nitrogen Dioxide (NO_2)
- ☒ Ozone (O_3)
- ☐ Particulate Matter (PM_{10})
- ☒ Particulate Matter ($PM_{2.5}$)

Does the proposed project require a conformity analysis or regional analysis under 40 CFR Part 93?

☐ NO

☒ YES

If the non-attainment area is also in a metropolitan area, is the proposed project required to be and included in the MPO's air quality conformity analysis for the Transportation Improvement Program (TIP)?

☐ NO

☒ YES - Date of FHWA/FTA conformity finding: pending

The Project is located in Davis County, which is currently designated as a Marginal Nonattainment Area for ozone (O3) and a Serious Nonattainment Area for particulate matter (PM) with a diameter ≤2.5 micrometers (PM2.5).

Because the Project is located in a nonattainment area and is not exempt from a conformity analysis under 40 CFR 93.126, a General Conformity applicability assessment is needed, and the Project must be listed on a conforming Metropolitan Transportation Plan and Transportation Improvement Plan. The WFRC considers air quality as part of their RTP. The 2023-2050 WFRC RTP and Air Quality Conformity Memorandum #41 were adopted in May 2023, and include the full length of the proposed double track projects..

In addition, a corridor-wide air quality analysis has been conducted to evaluate potential impacts of the future anticipated service increase along the FrontRunner corridor. The corridor-wide air quality analysis is documented in a separate report, FrontRunner Forward Corridor Level Air Quality Technical Memorandum (June 2023) and summarized in the PEL (May 2023).

9. Hazardous Materials

Is there any known or potential contamination at the proposed project site that would be impacted? Describe the steps taken to make the determination (Phase I ESA, etc.) and results. Note the mitigation and clean-up measures that will be taken to remove hazardous materials from the project site, if applicable.

☐ NO

☒ YES

A Hazardous Materials Assessment (Attachment 5) was completed using pertinent state and federal regulatory database information procured from Environmental Data Resources, Inc. (EDR) and publicly available sources to identify contaminated sites within 0.25 mile of the Project area that have the potential to impact the Project. Most sites identified in the study area were determined to not have potential to impact the proposed Project. Additionally, the sites are not expected to result in additional impacts to the environment as a result of the Project. As shown in Figure 8 of Attachment 1, three sites within the 0.25-mile study area are classified as involving contaminants posing a medium risk of being encountered during the development of the Project, and one site is classified as contaminants have a high risk of being encountered by the Project. The high-risk site, Bountiful/Woods Cross 5th S. PCE Plume, is a Superfund Site on the National Priority List and consists of a delineated contamination plume that crosses the Project alignment. Potential acquisition of a portion of this property may be required for the Project.

In accordance with FTA Standard Operating Procedures and applicable regulatory requirements, UTA would conduct due diligence during final design, identifying whether hazardous materials are present prior to property acquisitions and construction. As part of this due diligence, UTA would conduct a Phase I Environmental Site Assessment (ESA) in accordance with ASTM standards for any property acquisitions and conduct any recommended Phase II ESA investigations. Plans for hazardous materials handling and disposal would be developed for the Project, and this would include coordination with state and federal agencies with jurisdiction over the properties.

UTA would prepare a soil and groundwater management plan before construction. This plan would describe the necessary soil and groundwater investigations needed to characterize pollutant concentrations in soil and groundwater, describe the protection measures that would be used to prevent the spread of contamination, communicate the health risks to construction workers, define appropriate disposal or treatment methods, and help UTA better identify construction-related impacts.

10. Farmland

Are there any prime or unique farmlands located at the proposed project site that would be impacted? Explain.

☒ NO

☐ YES

The project area is located in the Ogden – Layton, UT Urbanized Area as designated by the U.S. Census Bureau and is therefore not subject to the Farmland Protection Policy Act. See Figure 9 in Attachment 1 for the location of prime farmland soils.

11. Floodplains

Is the proposed project located within the Federal Emergency Management Agency (FEMA) 100-year floodplain or within the floodway? If yes, this project may require further evaluation under EO 11988. Explain.

☐ NO

☒ YES

Much of the northern end of the Project area (between 1000 North and Porters Lane) lies within the mapped 100-year floodplain (Zone AO, i.e., 1 percent annual chance of shallow flooding, usually sheet flow on sloping terrain), including three areas within the regulatory floodway. See Figure 10 in Attachment 1. There is an open channel drainage facility adjacent to the east side of the tracks between Pages Lane/1600 North and approximately 2050 North that would be piped and relocated underground within the existing rail corridor.

The Project would add ballast within the flood hazard area to support the second set of tracks. The final design would include additional storage capacity or other modifications within the flood zone to minimize any increase in the base flood elevation. An evaluation would be completed to determine if the final design would require revision to the flood map. This would be coordinated with the cities of West Bountiful and Centerville, which are the floodplain administrators for this area. If necessary, a pre-construction Conditional Letter of Map Revision (CLOMR) would be submitted to FEMA. After construction, a Letter of Map Revision (LOMR) would be submitted to FEMA. This process would be coordinated with West Bountiful and Centerville.

Prior to construction, a flood-control permit would be obtained from Davis County Public Works for work on the drainage channel. In addition, floodplain development permits would be obtained from West Bountiful and Centerville for work within the floodplain.

The USDOT Order 5650.2 implementation procedures for EO 11988 support a finding that the Project would not represent a significant encroachment because it expands a portion of an existing railroad already within a floodplain. There also would not be a practicable alternative because a routing other than along the railroad would not achieve the Project's purpose for achieving reliability improvements for the commuter rail line. UTA Commuter Rail Design Criteria state that county flood control and FEMA guidelines should be observed and disturbances to creek channels should be minimized.

12. Water Resources and Water Quality

Are there any surface or ground water resources present, including an EPA-designated sole source aquifer (SSA), near the proposed project that would be impacted? Explain.

☐ NO

☒ YES

The Project crosses Mill Creek, as shown on Figure 11 in Attachment 1. The stream in this area is contained in a concrete-lined channel and conveyed under the existing railroad alignment in a concrete box culvert. This culvert would be extended approximately 30 feet to accommodate the second track at the crossing location. No EPA-designated sole source aquifers are present within 1 mile of the Project area.

Culvert extension would need to be authorized through a Stream Alteration Permit issued by the Utah Division of Water Rights. The Division of Water Rights and the U.S. Army Corps of Engineers (USACE) have entered into a joint permitting program. Through that program (specifically, under Programmatic General Permit 10 issued by USACE), activities authorized by the Division of Water Rights through a Stream Alteration Permit are also authorized by USACE under Section 404 of the Clean Water Act. The application process involves submitting a Joint Permit Application to the Division of Water Rights who will coordinate review with USACE. Programmatic General Permit 10 specifies measures that must be implemented to avoid and minimize adverse impacts on water resources.

Is there an increase in impervious surface (e.g., roofs, driveways, streets, parking lots, etc.) or restored pervious surface greater than one acre? If YES, a NPDES/storm water permit may be needed and must be acquired prior to construction. Explain.

☒ NO

☐ YES

A long-term facility storm water permit would not be required. The Project design does not include any new parking areas or other impervious surfaces directly related to the commuter rail system, but it would widen at-grade rail crossings at two locations. However, in total, these areas would not exceed an acre of new impervious surfaces; generally, they would rebuild part of an existing roadway, and they would not be continuous. Construction of the new access route to the Holly Refinery would likely entail the conversion of some existing vegetated areas (less than 1 acre) to paved surfaces.

Construction of the Project would disturb more than 1 acre of ground surface, which would require coverage under the Utah Pollutant Discharge Elimination System (UPDES) Construction General Permit UTRC00000 (CGP). Coverage under the CGP would be obtained prior to construction through the Utah Division of Water Quality. In compliance with this permit, a stormwater pollution prevention plan (SWPPP) would be developed for the construction phase of the Project.

13. Wetlands and Waters of the U.S.

Are there any wetlands or waters of the U.S. on or adjacent to the proposed project area that would be temporarily or permanently impacted? Explain.

☐ NO

☒ YES

If YES, is a permit from the US Army Corps of Engineers required? Explain.

☐ NO

☒ YES

In October 2022, biologists conducted a field investigation of the study area. The field investigation and wetland delineations were conducted in accordance with the guidelines and procedures in the current USACE wetland delineation manual. See Attachment 6, Aquatic Resources Delineation Report, for more detail.

Three wetlands (CR-02, CR-03, and CR-07) totaling 1.13 acres and one waterway (Mill Creek) were identified. These are shown on Figure 11 in Attachment 1. As shown in Table 3 below and Figure 12 in Attachment 1, the Project would permanently impact approximately 0.09 acre of wetland CR-02 and 0.10 acre of wetland CR-03 (e.g., grading, excavation, or fill). In addition, the Project would temporarily disturb approximately 0.03 acre of both CR-02 and CR-03 during construction. Further details on permanent features as well as the limits of construction would be determined during final design and permitting.

Table 3. Summary of Wetland Impacts for North of Woods Cross Double Track Project

Wetland	Type[1]	Wetland Size (acre)	Permanent Impact Area (acre)	Temporary Impact Area (acre)
CR-02	Emergent marsh	0.84	0.09	0.03
CR-03	Emergent marsh	0.17	0.10	0.03
CR-07	Scrub-shrub	0.12	0	0

The Project crosses Mill Creek, which is an ephemeral stream that flows within a concrete-lined channel without any associated wetland or riparian habitat. The Project would extend the existing culvert approximately 30 feet to the east where the FrontRunner corridor crosses Mill Creek. In addition, as described under Question 11 Floodplains, the Project would move the open drainage canal between the tracks and I-15 to an underground drainage facility. This facility is also contained in a concrete-lined channel that is piped at either end and does not have any associated wetland or riparian habitat. Project construction would not result in any impacts to these water resources.

13 (Cont.)

Upon request, USACE would make a jurisdictional determination. If the wetlands are determined jurisdictional by USACE, the Project would require authorization under Nationwide Permit (NWP) 14 for Linear Transportation Projects, which would require submittal of a Pre-Construction Notification. The USACE requires compensatory mitigation for any wetland impacts over 0.1 acre. Compensatory mitigation for direct impacts to wetlands would be provided as required based on final design.

The specific mitigation measures would be determined through the permitting process with the USACE, in accordance with the permitting requirements established under Section 404 of the Clean Water Act. UTA would also implement best management practices (e.g., protective fencing and sediment barriers) to minimize impacts to wetlands during construction.

As described in Question 11. Floodplains, a Flood Control Permit from Davis County Public Works for work associated with the drainage canal.

As discussed in Question 12. Water Resources and Water Quality, the extension of the culvert in Mill Creek would require authorization under a Stream Alteration Permit issued by the Utah State Division of Water Rights; per Programmatic General Permit 10, that permit would also grant authorization under Section 404 of the Clean Water Act for impacts to Mill Creek.

14. Threatened and/or Endangered Species

Are there any listed threatened and/or endangered species (plant or animal) or critical habitat present on or near the proposed project area that would be impacted? How was this determined? If yes, Section 7 of the Endangered Species Act may apply. Explain.

☒ NO

☐ YES

The study area for threatened and/or endangered species includes all areas within 0.25 mile of the Project alignment, to encompass areas where project construction and operation could disturb or affect habitat quality for sensitive plants and animals. No threatened and/or endangered plant or animal species are known or expected to be present in the study area.

USFWS identifies one ESA-listed species (Ute ladies'-tresses [Spiranthes diluvialis], a kind of orchid) with the potential to occur in the study area, based on the expected distribution of that species. The presence of Ute ladies'-tresses is typically associated with well-established soils and vegetation along perennial streams and rivers, although it may also occur in roadside ditches. Critical habitat has not been designated for this species.

No populations of Ute ladies'-tresses have been documented in Davis County by USFWS. The nearest known population is in Utah County, more than 30 miles from the Project study area. Biologists performing field reviews for wetlands in April 2022 did not observe any evidence of Ute ladies'-tresses, and based on the distance from known populations, combined with the lack of high-quality habitat within the study area, this species is not expected to occur within or adjacent to the study area.

The State of Utah does not maintain a list of threatened and endangered species separate from the USFWS ESA list.

15. Natural and Biological Resources

Are there any natural areas, biological resources (fish, birds, wildlife and habitat) or sensitive areas present on or near the proposed project area that would be impacted? If the proposed project has the potential to impact wildlife or waterfowl refuges, a Section 4(f) evaluation may be required. Explain.

☒ NO

☐ YES

If YES, does Section 4(f) apply? Explain.

☐ NO

☐ YES – Provide Section 4(f) Evaluation

The study area for natural and biological resources includes all areas within 100 feet of the Project area, to encompass areas where project construction and operation could affect these resources.

There are no National Wildlife Refuge system lands within 10 miles of the study area. The Farmington Bay Wildlife Management Area, which is owned and managed by the Utah Division of Wildlife Resources, is approximately 1 mile west of the Project and would not be affected by construction.

No known biologically sensitive areas, designated critical habitat, wildlife corridors, essential fish habitat, or other sensitive habitats are present in the study area.

The study area lies entirely within areas classified as Urban or Developed Lands. Vegetation in the study area consists primarily of disturbed areas dominated by non-native grasses. Wildlife species found in such areas are generally widespread and tolerant of high levels of human activity. Populations of these species (e.g., mice, American robins, house sparrows, rock pigeons, and black-billed magpies) are not considered to be sensitive to impacts from Project construction.

The Utah Natural Heritage Program Online Species Search Report for the Project indicates that three wildlife species classified as Species of Greatest Conservation Need have been observed within 0.5 mile of the study area. These species are American bittern (last observed in 1902), Lewis' woodpecker (last observed in 1940), and American white pelican (last observed in 1984). No suitable habitat for any of these species is present in the study area. However, if vegetation removal occurs during nesting season, it may be necessary to perform surveys for active nests of other species that are protected under the Migratory Bird Treaty Act.

The Project crosses Mill Creek. The stream in this area is contained in concrete-lined channel and conveyed under the existing railroad alignment in a concrete box culvert. Mill Creek is not managed for fisheries, and the stream at the crossing location is not expected to provide habitat for sensitive aquatic species.

16. Traffic and Parking

Does the proposed project have the potential to permanently impact traffic and/or parking (on and off street) in the project area? Explain.

☐ NO

☒ YES

The Project would have no on street parking impacts but would include widened at-grade crossings at two streets in Bountiful: 500 South and Pages Lane.

<u>500 South Bountiful</u>

500 South is a five-lane principal arterial at the crossing location. The second FrontRunner track would run on the east side of the existing tracks at this location. Near the crossing, 500 South has an annual average daily traffic (AADT) of approximately 15,000. Located in an industrial area, heavy truck traffic amounts to 21 percent of total traffic on the roadway. An interchange with I-15 is located approximately 1,000 feet to the east, and the 800 West intersection with 500 South is located just 80 feet to the west of the existing tracks.

The addition of the second FrontRunner track would result in several traffic impacts. There is currently an existing driveway entrance to the Holly Refinery Terminal located just 20 feet east of the existing tracks. The expanded tracks to the east would require shifting or removal of this driveway access. Traffic currently entering the business through the driveway would have to be rerouted.

If the driveway into the refinery is removed completely, and not just shifted further east, the existing westbound left-turn pocket into the driveway on 500 South could be reconfigured to allow eastbound left turns into the businesses on the north side of 500 South. The nearest intersection to the east (700 West) is 600 feet away. UTA has developed several potential options to revise the refinery access, with details to be confirmed as part of property owner consultations during final design.

There is no on-street parking allowed on the section of 500 West near the crossing; therefore, there are no anticipated parking impacts associated with the addition of a second FrontRunner track.

The Unified Transportation Plan details a Phase 1 project that would construct a grade-separated bridge at the 500 South crossing; however, there is no funding currently identified for this project, and it is assumed that the second FrontRunner track would be in place before construction.

<u>Pages Lane (1600 North) Bountiful</u>

This crossing is located on Pages Lane, which is a two-lane minor collector with no center-turn lane. The new FrontRunner track would be located on the east side of this crossing. Pages Lane traverses under an I-15 bridge, 100 feet east of the crossing. Pages Lane has an AADT of approximately 3,000 vehicles per day, and the nearest intersection that could be impacted by the widening is 475 West, which is 300 feet east of the crossing; therefore, there are no anticipated traffic impacts at this location. There is no on-street parking allowed east of the crossing, and therefore, there are no anticipated parking impacts at this location. There are bike lanes on Pages Lane that run from the Legacy Parkway trail on the west, through the crossing to 400 East in Bountiful.

In addition, a corridor-wide traffic and safety analysis has been conducted to evaluate potential impacts of the future anticipated service increase along the FrontRunner corridor. The corridor-wide traffic and safety analysis is documented in a separate report, FrontRunner Forward Corridor Level Traffic and Safety Technical Memorandum (May 2023) and summarized in the PEL (May 2023).

17. Utilities

Are there any utilities that could be impacted by the proposed project? Explain.

☐ NO

☒ YES

For evaluation of the utility impacts on this Project, a base map was created using the utility files from the FrontRunner North and South projects along with mapping that was requested from the utility owners. Utility impacts are based on the proximity of the utility to the tracks and the significance of the impact. UTA would coordinate with utility providers on these changes as the Project design advances to avoid lapses in service during construction. The Project is not anticipated to impact the Lumen/MCI long-haul fiber that has been relocated outside of the Project area as part of a previous project. The utilities anticipated to be impacted by the new track are as follows, to be confirmed during final design:

- *The UTA communications duct bank would be impacted for the entire length of the Project (10,100 linear feet [LF])*
- *South Davis Sewer District 8-inch sewer line parallels track for 1,050 LF*
- *Woods Cross 8-inch water line parallels track for 450 LF*
- *Woods Cross 10-inch water line crossing; casing would need to be extended*
- *South Davis 8-inch sewer line parallels track for 700 LF*
- *Holly Refinery Petroleum lines cross tracks; may need concrete protective slab*
- *Dominion Energy 6-inch HP gas line; crossing casing may need to be extended*
- *Weber Basin Water Conservancy District 24-inch PVC irrigation line; crossing casing may need to be extended. SF-299 Authorized Use Application from the U.S. Bureau of Reclamation would be needed for work on the crossing casing.*

18. Construction Impacts

Will the proposed project result in impacts (e.g., noise, air, water, staging, parking, traffic detours, etc.) during construction? Explain.

☐ NO

☒ YES – Provide mitigation commitments

As with most construction projects, there would be some minor impacts during construction. Construction equipment such as trucks, bulldozers, graders, and rollers would add nominal noise to an already very loud, active freight and commuter rail corridor. Work would comply with local noise ordinances.

If temporary construction access is needed from a private property owner, it would be obtained through the proper federal right of way acquisition process. Minor temporary utility disruptions may occur for utility relocations or new service installations. These outages would be coordinated with the utility provider and any customers that may be affected.

Installation of switches would require temporary track shutdown that could disrupt FrontRunner service. Work would be scheduled to minimize impacts to the passengers (nights, weekends, holidays). If necessary, bus bridges would be provided for continuation of service.

The contractor would be required to control fugitive dust and storm water runoffs (see additional details in Section 21 State and Local Permits) and follow the soil and groundwater management plans specified under section 9, Hazardous Materials.

A public communication plan would be developed to coordinate construction activities with local residents, stakeholders, and businesses that may be affected by the work. Any changes to transit service due to construction would be communicated to riders.

Where an additional track would be added to existing grade crossings, regrading of the roadway would be required to provide a smooth, safe profile over the track. This grade crossing work would be coordinated with the local roadway jurisdiction to provide detours, temporary closures, or lane restrictions. Work would be scheduled on nights or weekends, when possible, to reduce impacts to the roadway traffic. Special consideration would be coordinated with the roadway owner to provide necessary pedestrian mitigation during this grade crossing work. Some temporary lane restrictions may be needed for utility relocations. Traffic control plans would be developed to obtain proper permitting from local roadway jurisdiction for temporary lane closures, roadway closures, and detours.

19. Public Outreach and Agency Coordination

Was any public outreach and/or agency coordination conducted? Explain.

☐ NO

☒ YES

UTA in partnership with UDOT are committed to involving state and local agencies, area stakeholders and the public as the project evolves. The project team has been coordinating with the Metropolitan Planning Organizations (MPOs), including the Mountainland Association of Governments (MAG) and the Wasatch Front Regional Council (WFRC), and surrounding cities. The project team has developed an Engagement Plan to steer involvement actives throughout the project. Engagement would be tailored based on the needs and potential impacts in the Project area, and may include a combination of corridor-level communication and project-specific, one-on-one meetings.

20. Safety and Security

Are any measures required for the safe and secure operation of the proposed project after its construction? Explain.

☒ NO

☐ YES

The Project would not change how employees or passengers interact with the FrontRunner corridor and would not impact the safety of those users. It would not impact the security of the FrontRunner facilities and would not have potential construction safety concerns on those facilities.

UTA standard commuter rail design criteria would be followed to ensure that the project meets safety and security requirements. This includes the Supplemental Safety Measures (SSM) and/or Alternative Safety Measures (ASM) at each affected grade crossing in order to maintain the established quiet zone. Also, UTA activation process would be followed which includes several safety and security reviews and a potential hazard analysis to ensure the design includes typical and site-specific safety and security measures.

A corridor-wide traffic and safety analysis has been conducted to evaluate potential impacts of the future anticipated service increase along the FrontRunner corridor. The corridor-wide traffic and safety analysis is documented in a separate report, FrontRunner Forward Corridor Level Traffic and Safety Technical Memorandum (May 2023) and summarized in the PEL (May 2023).

21. State and Local Permits, Policies and Ordinances

Does the proposed project require compliance with any applicable state and local permits, policies and ordinances? Explain.

☐ NO

☒ YES

The Project is anticipated to require the following permits and approvals:

- *Section 404/401 permit (NWP 14) with USACE for impacts to Waters of the U.S.*
- *Joint Stream Alternation Permit from Utah Division of Water Rights for extension of Mill Creek culvert*
- *Access permissions from UDOT to access construction site from I-15 right-of-way*
- *Encroachment Permit from UDOT for locating a 48-inch storm drain within UDOT right-of-way*
- *UPDES general construction storm water permit from Utah Division of Water Quality*
- *Flood Control Permit from Davis County Public Works*
- *Floodplain development permits from West Bountiful*
- *Floodplain development permit from Centerville*
- *CLOMR/LOMR approval from FEMA, if needed*
- *Fugitive Dust Control Plan to be submitted to the Utah Division of Air Quality*
- *SF-299 Authorized Use Application from the U.S. Bureau of Reclamation for impacts to 24-inch irrigation line, if needed*

WORKSHEET COMPLETED BY (RECIPIENT NAME AND TITLE): **DATE:**

Autumn Hu *NEPA Project Administrator* *Utah Transit Authority*	*08/25/23*

Note: CE Worksheet must be signed by the Recipient of Funds

Attachment 1:
North of Woods Cross Double Track Project
Figures

ATTACHMENT 1

Figure 1. Project Vicinity

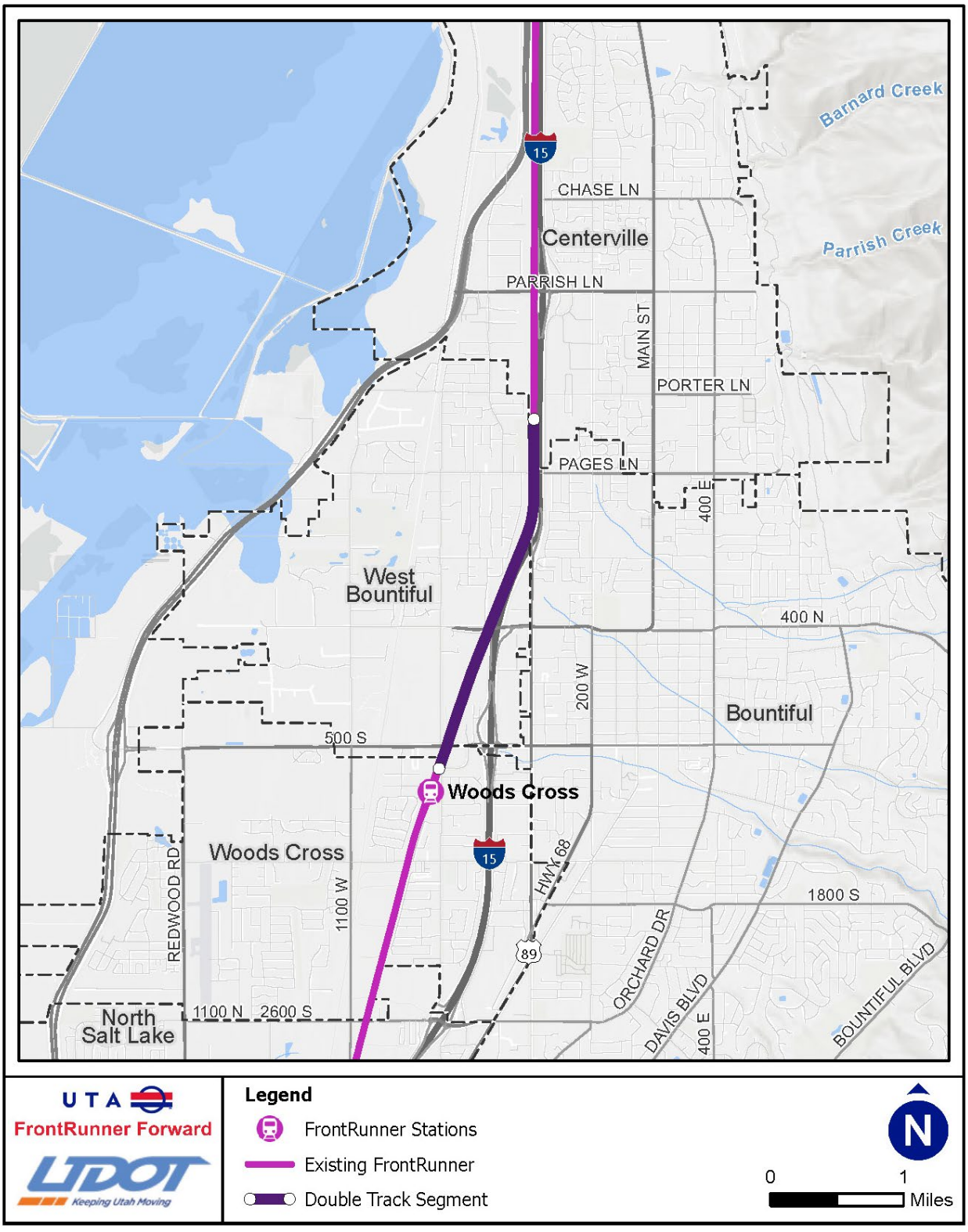


Figure 2. Project Overview, 1 of 3

Figure 2. Project Overview, 2 of 3

Figure 2. Project Overview, 3 of 3

Figure 3. Zoning, 1 of 4 – City of Centerville

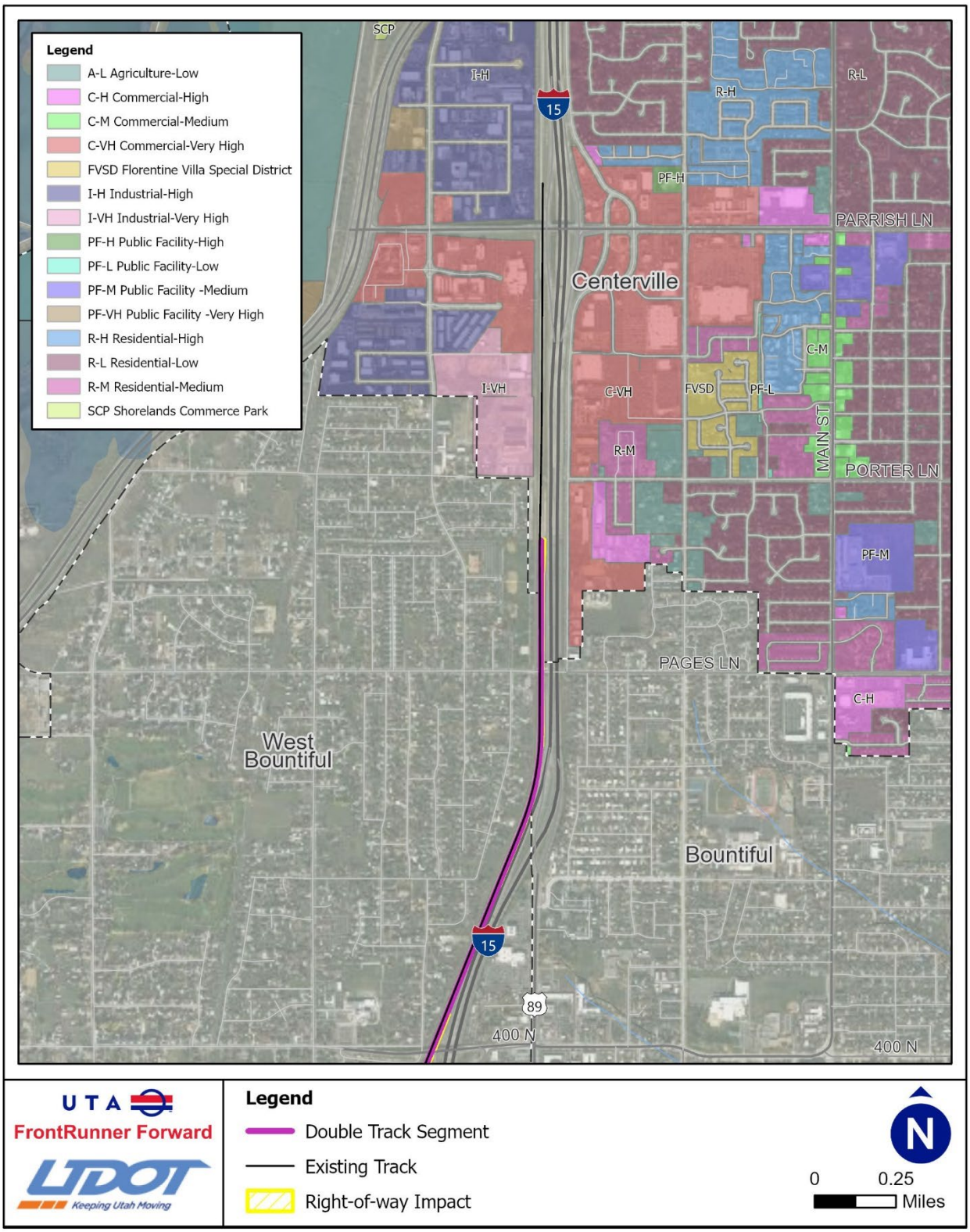


Figure 3. Zoning, 2 of 4 – City of Bountiful

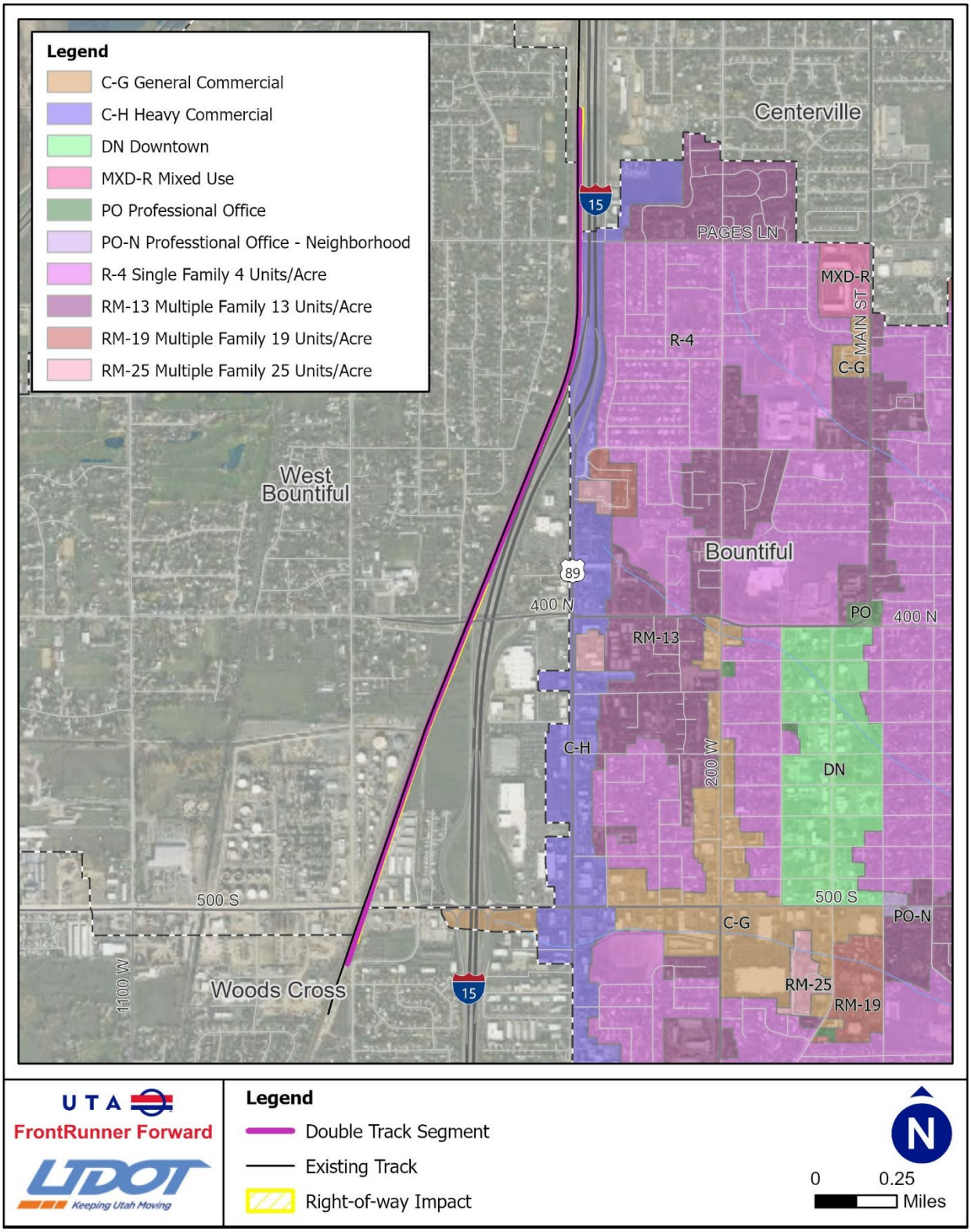


Figure 3. Zoning, 3 of 4 – City of West Bountiful

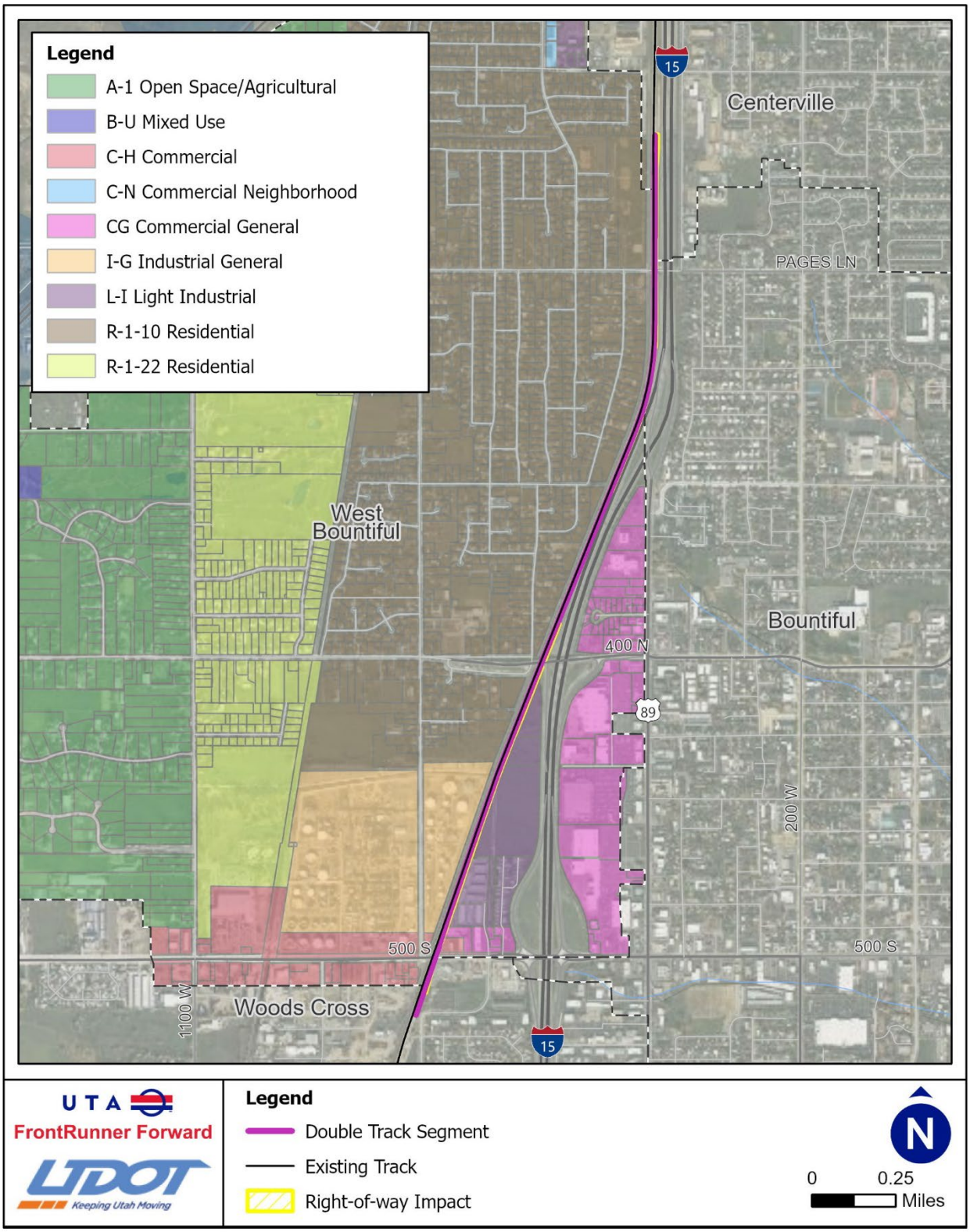


Figure 3. Zoning, 4 of 4 – City of Woods Cross

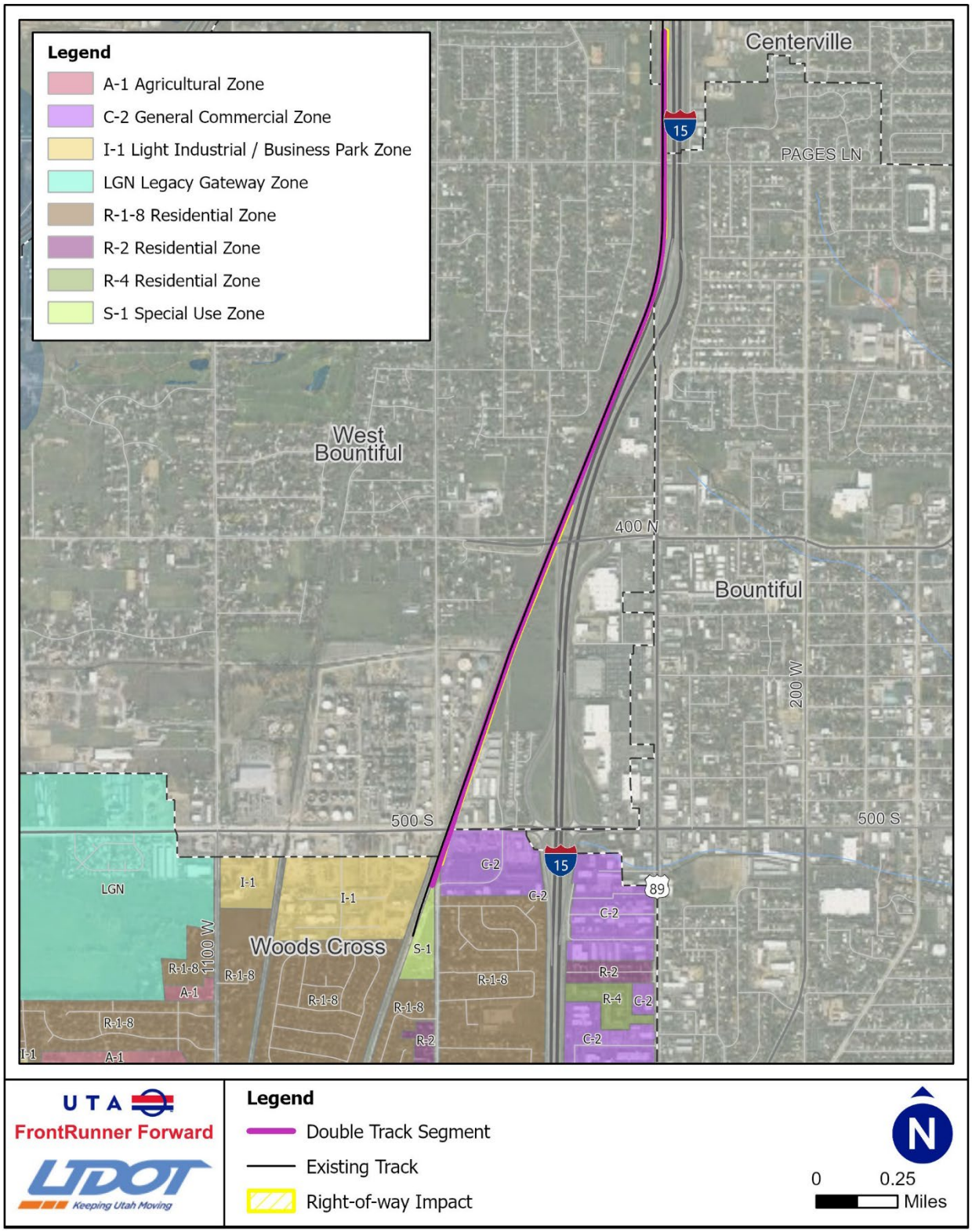


Figure 4. Location of Affected Parcels, 1 of 2

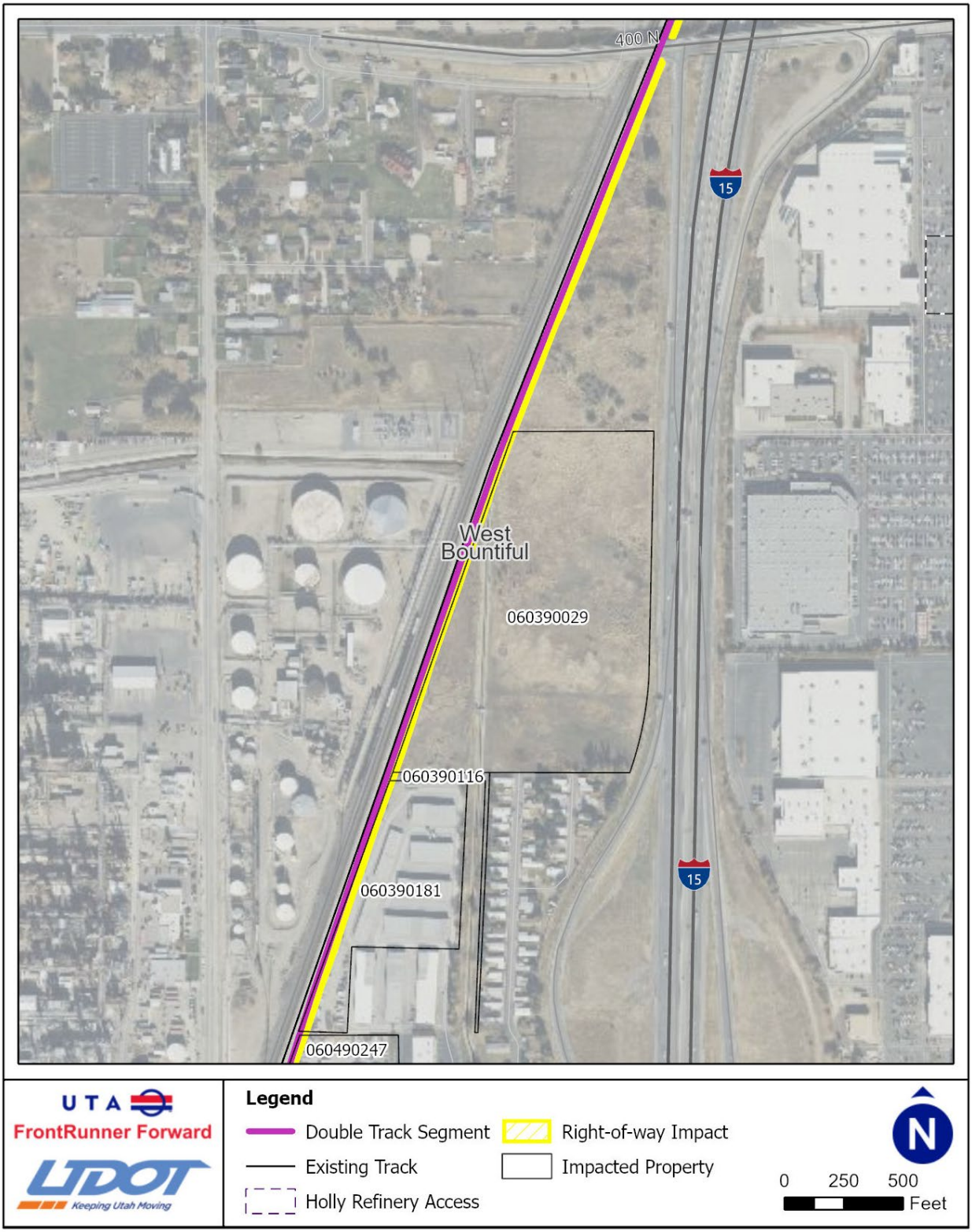


Figure 4. Location of Affected Parcels, 2 of 2

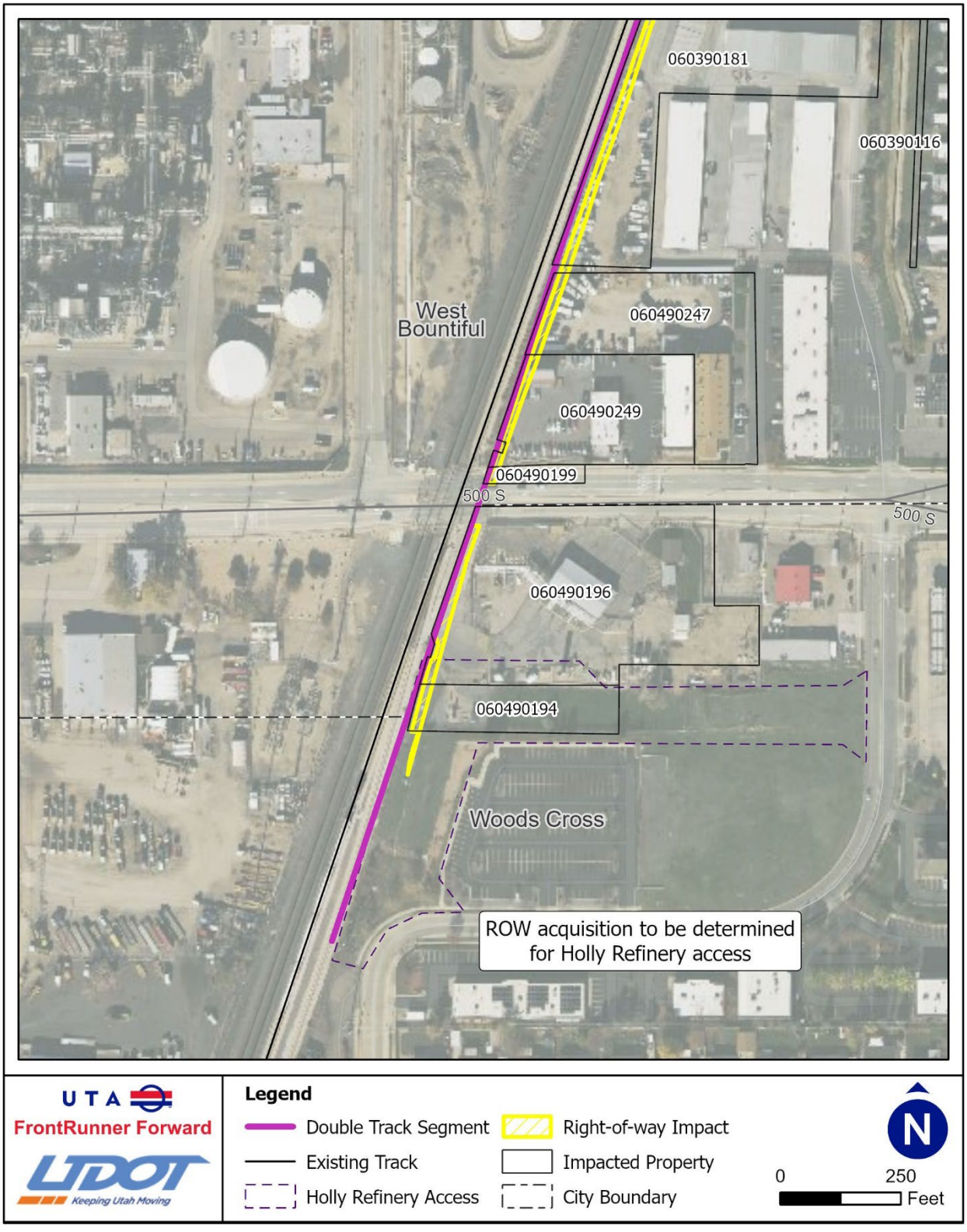


Figure 5. Census Block Groups within 0.5 Mile of Project Alignment

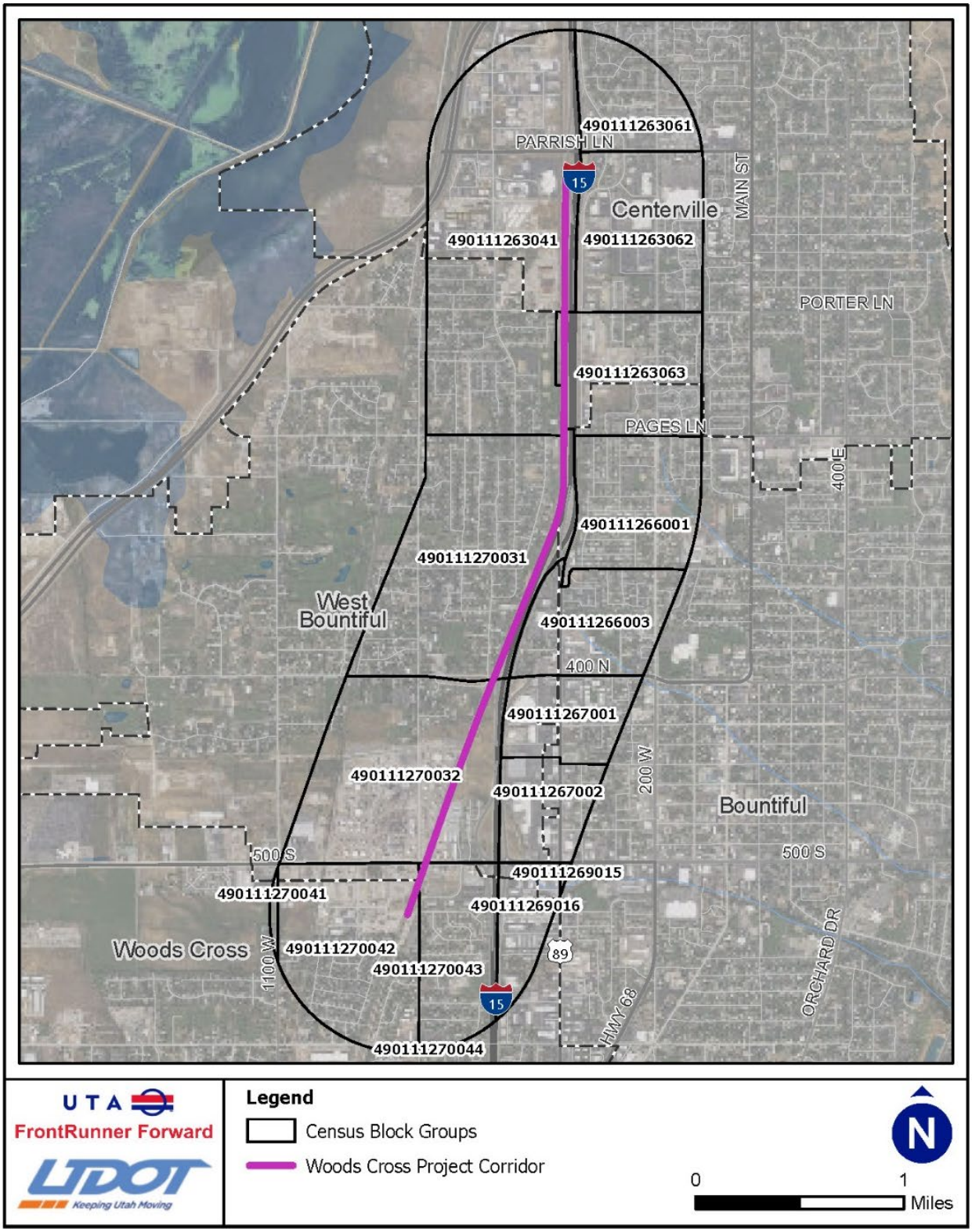


Figure 6. Section 106 Historic Railroad, 1 of 3

Figure 6. Section 106 Historic Railroad, 2 of 3

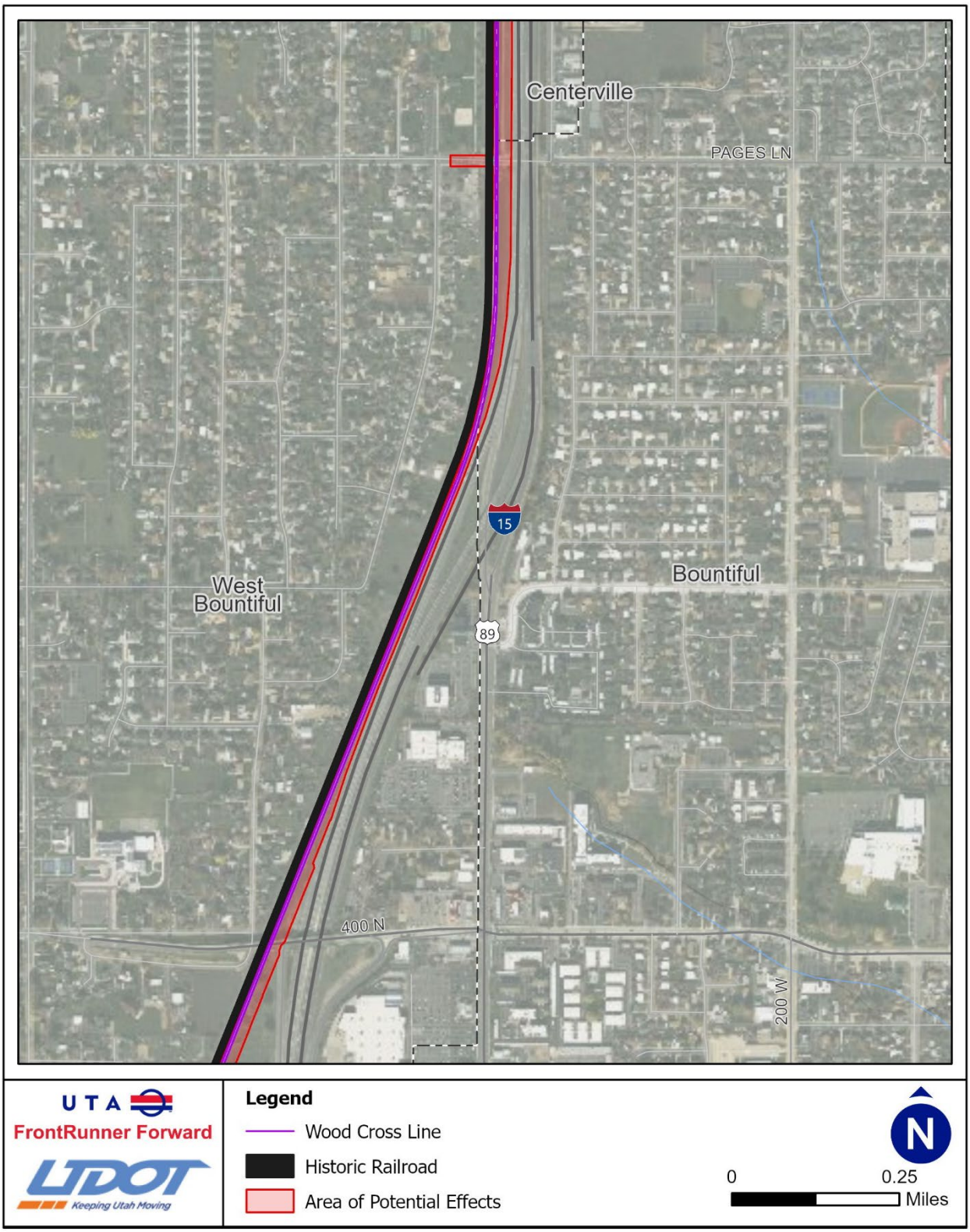


Figure 6. Section 106 Historic Railroad, 3 of 3

Figure 7. Recreation and Park Resources within the Project Area, 1 of 3

Figure 7. Recreation and Park Resources within the Project Area, 2 of 3

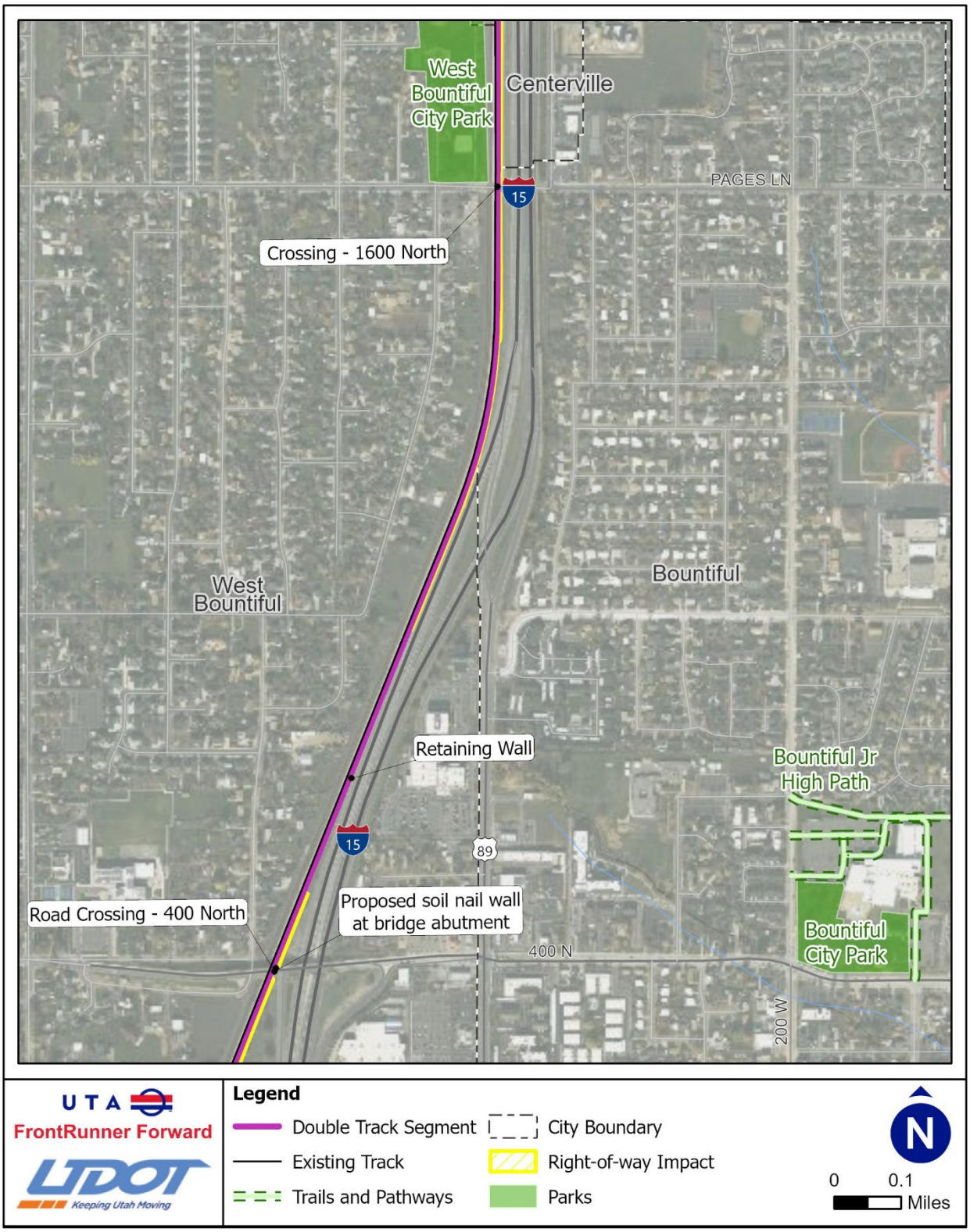


Figure 7. Recreation and Park Resources within the Project Area, 3 of 3

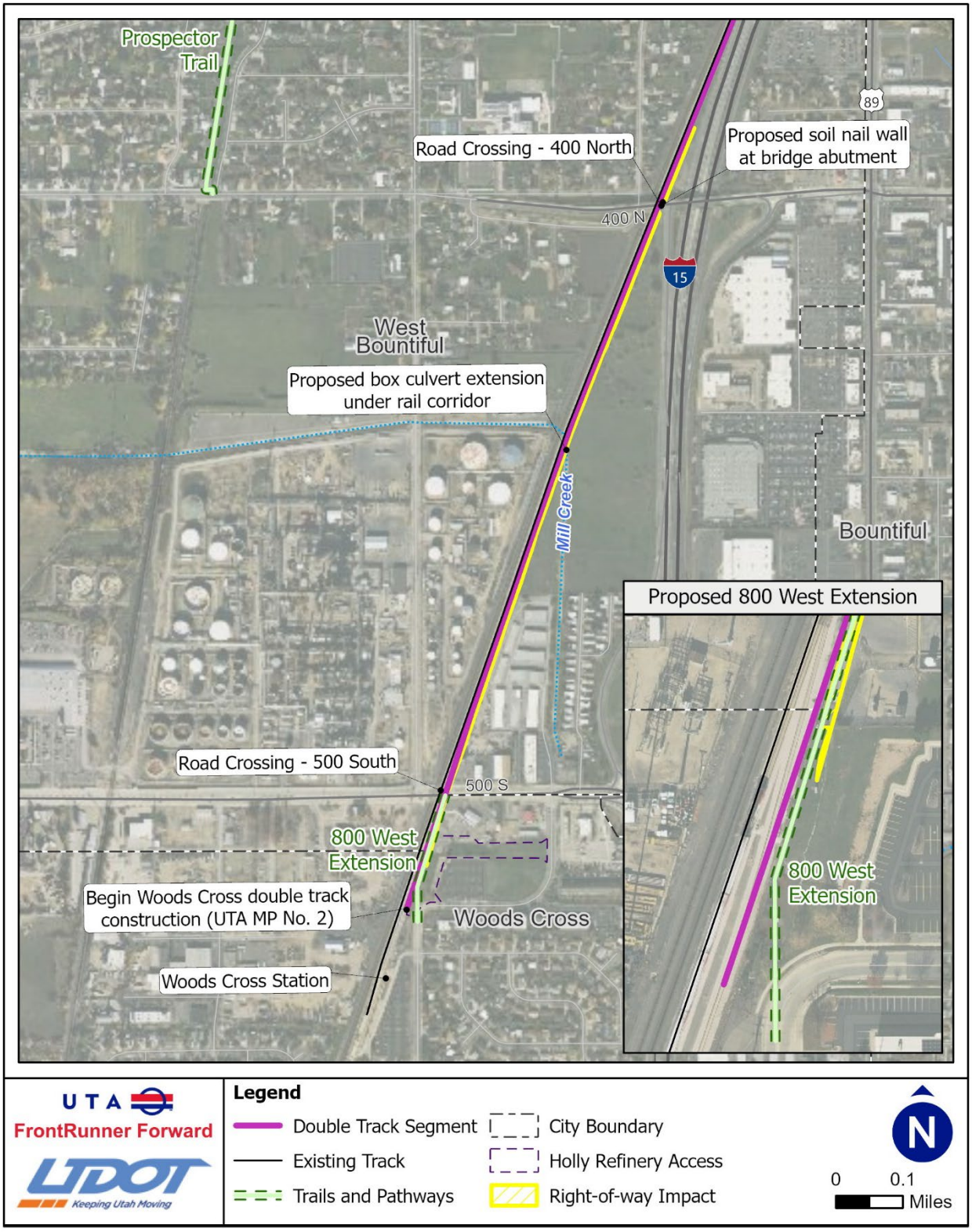


Figure 8. Hazardous Materials Sites, 1 of 3

Figure 8. Hazardous Materials Sites, 2 of 3

Figure 8. Hazardous Materials Sites, 3 of 3

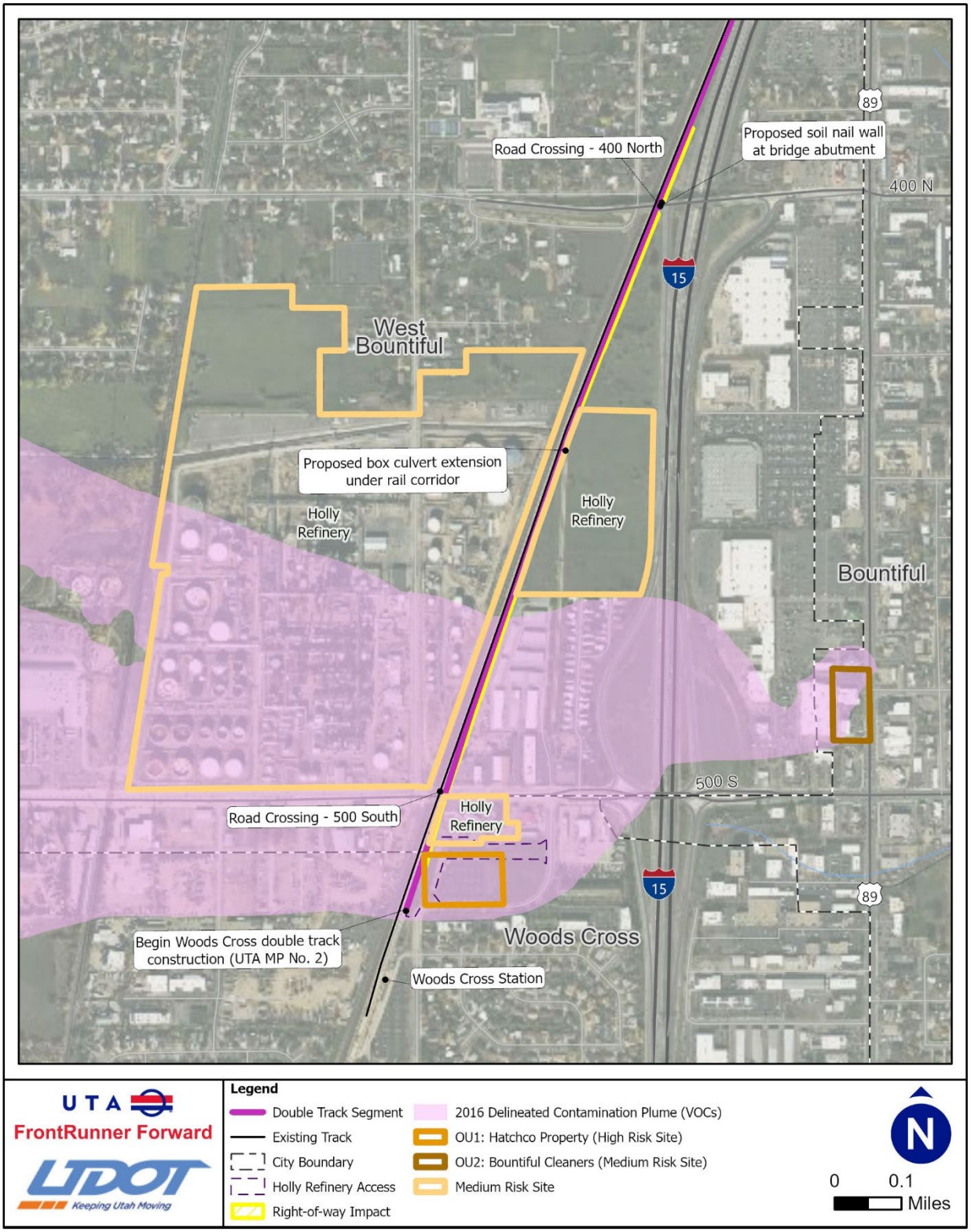


Figure 9. Urban Area Designations, 1 of 3

Figure 9. Urban Area Designations, 2 of 3

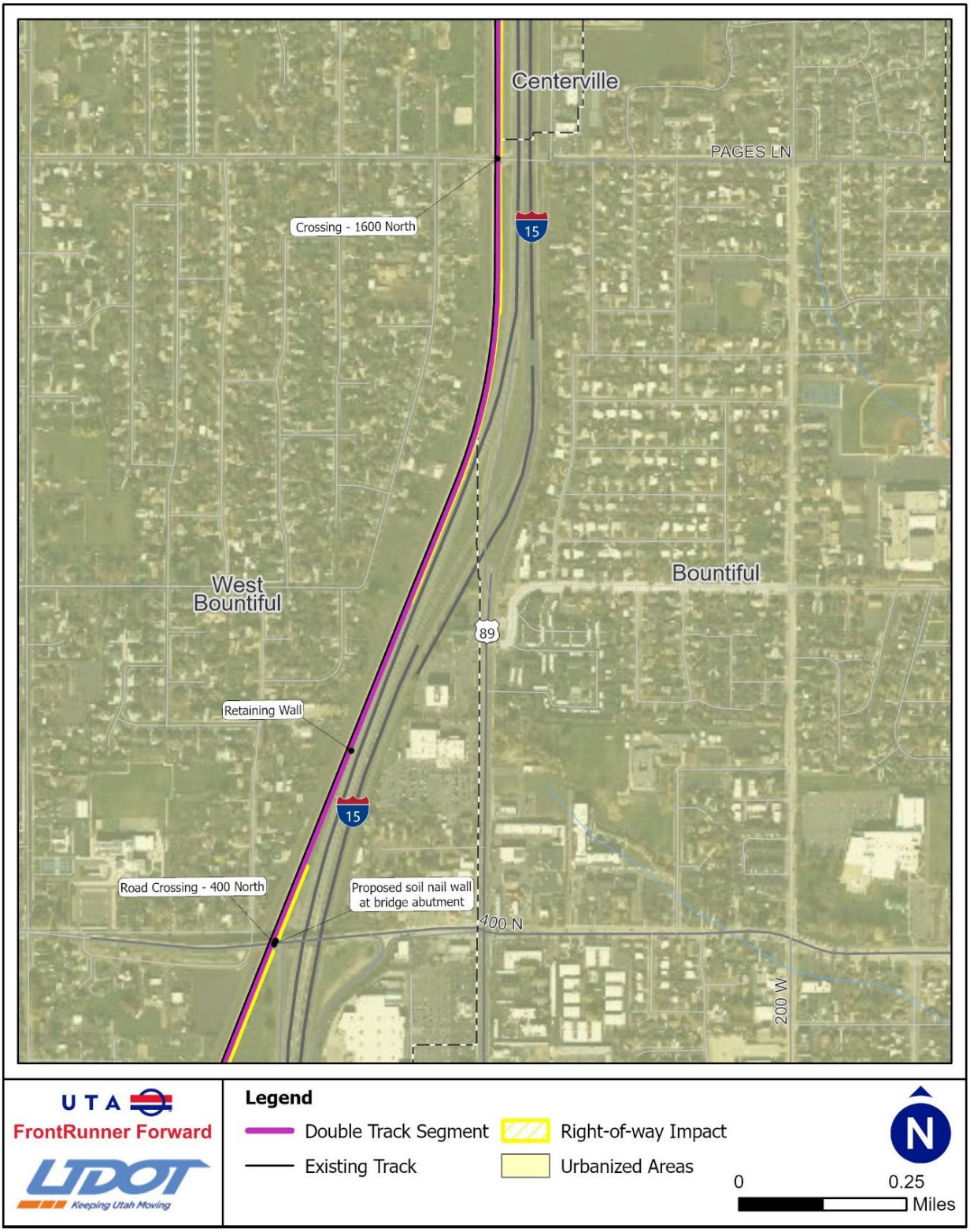


Figure 9. Urban Area Designations, 3 of 3

Figure 10. Floodplains, 1 of 3

Figure 10. Floodplains, 2 of 3

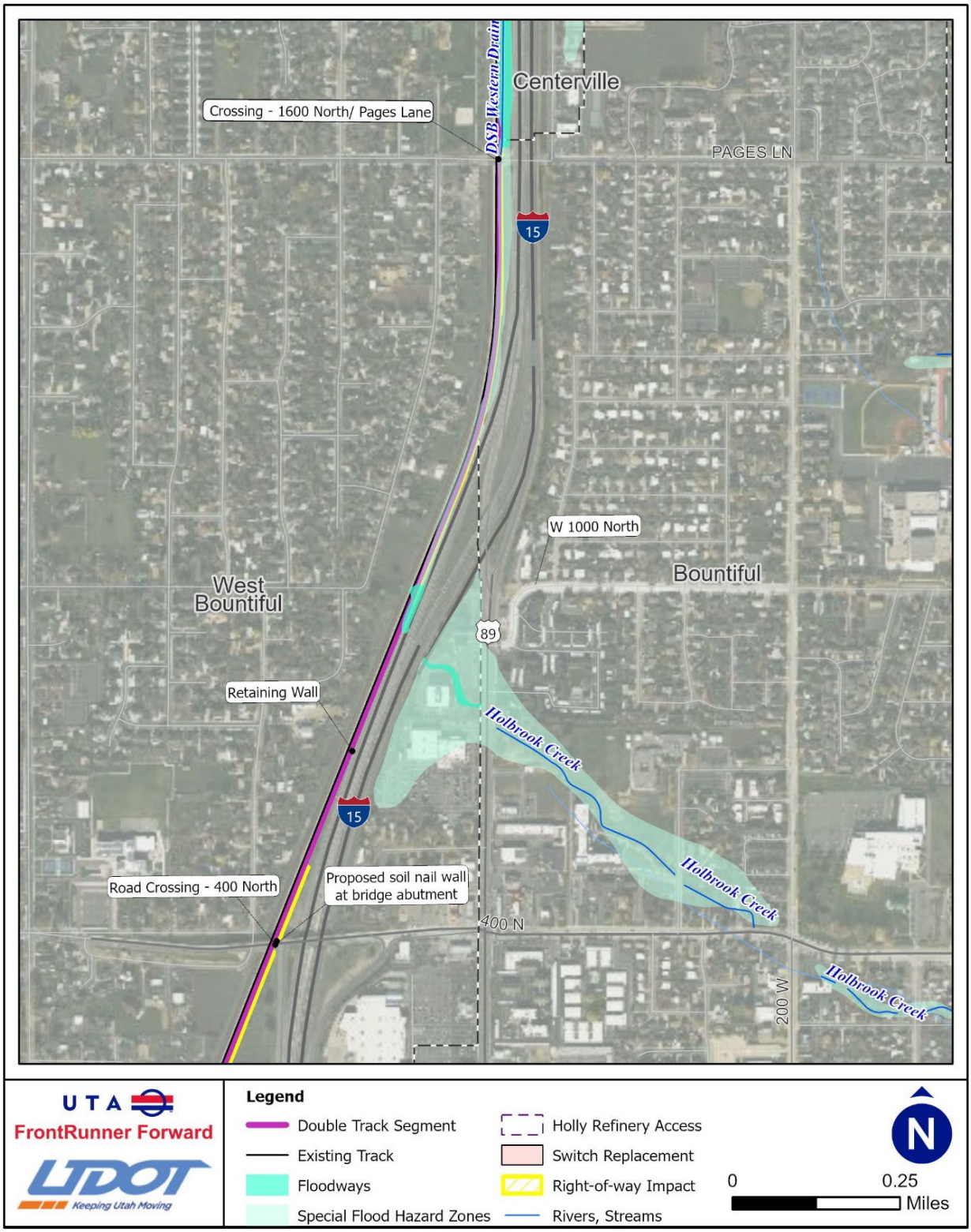


Figure 10. Floodplains, 3 of 3

Figure 11. Wetlands and Waters of the U.S. in the Project Area, 1 of 3

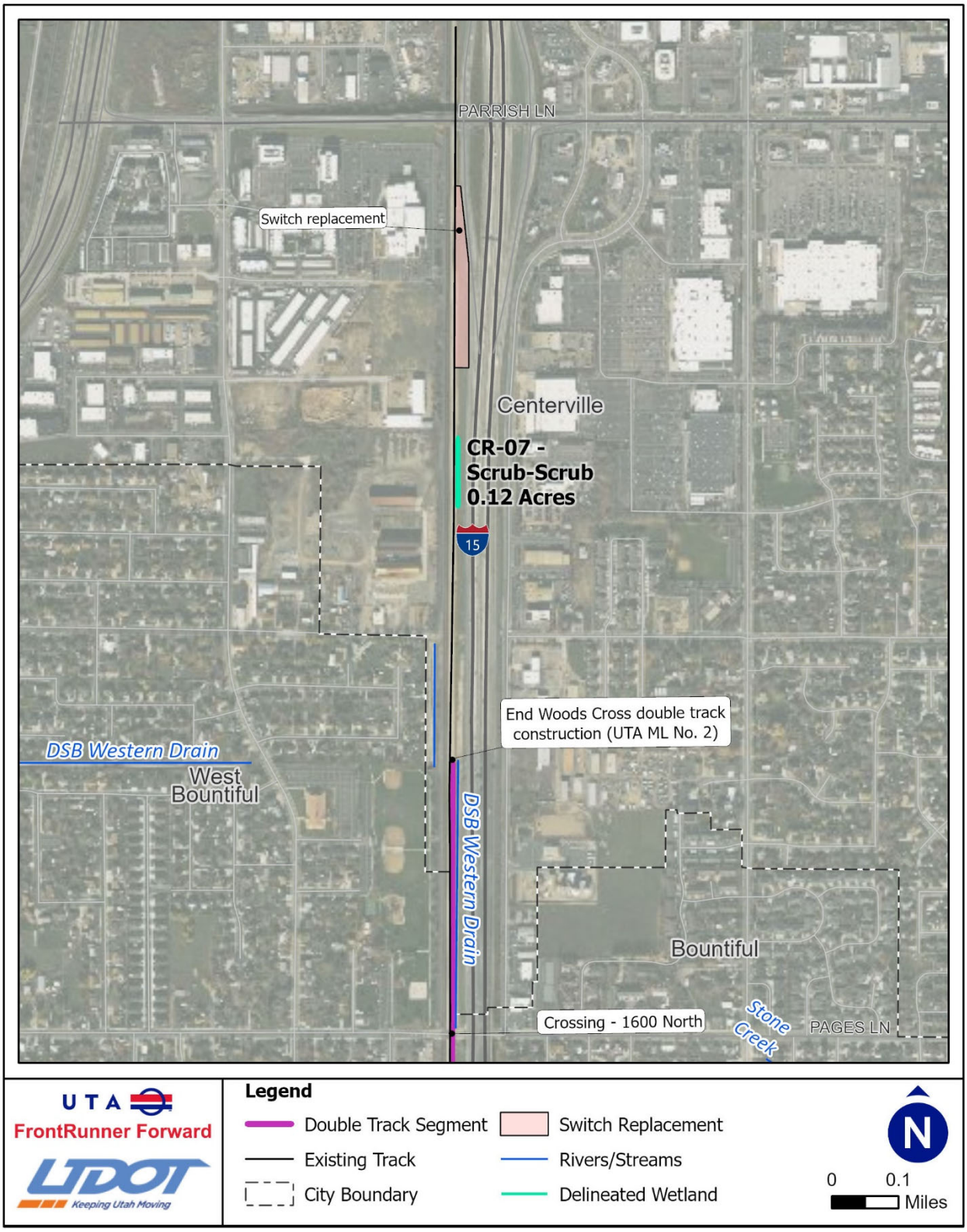


Figure 11. Wetlands and Waters of the U.S. in the Project Area, 2 of 3

Figure 11. Wetlands and Waters of the U.S. in the Project Area, 3 of 3

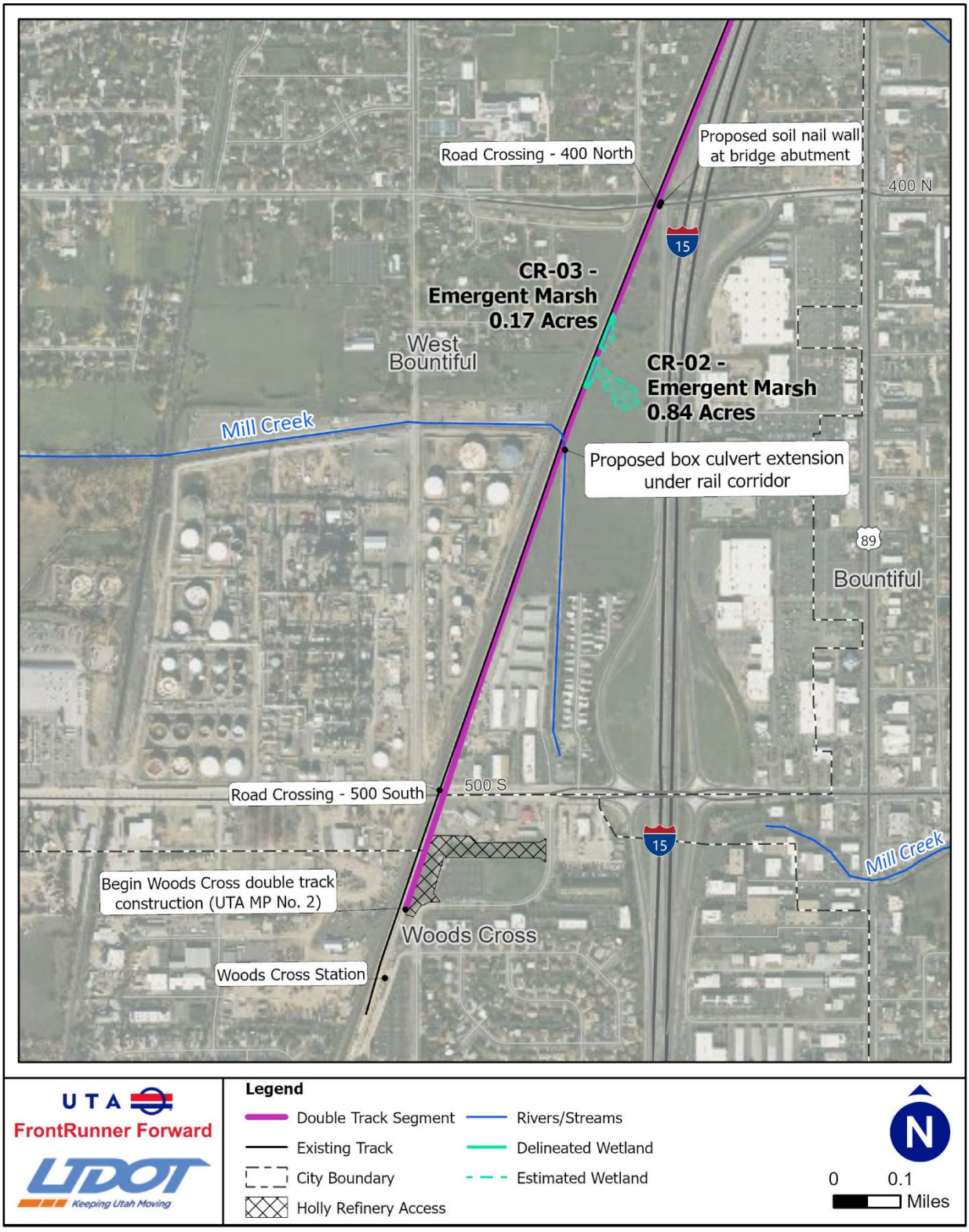
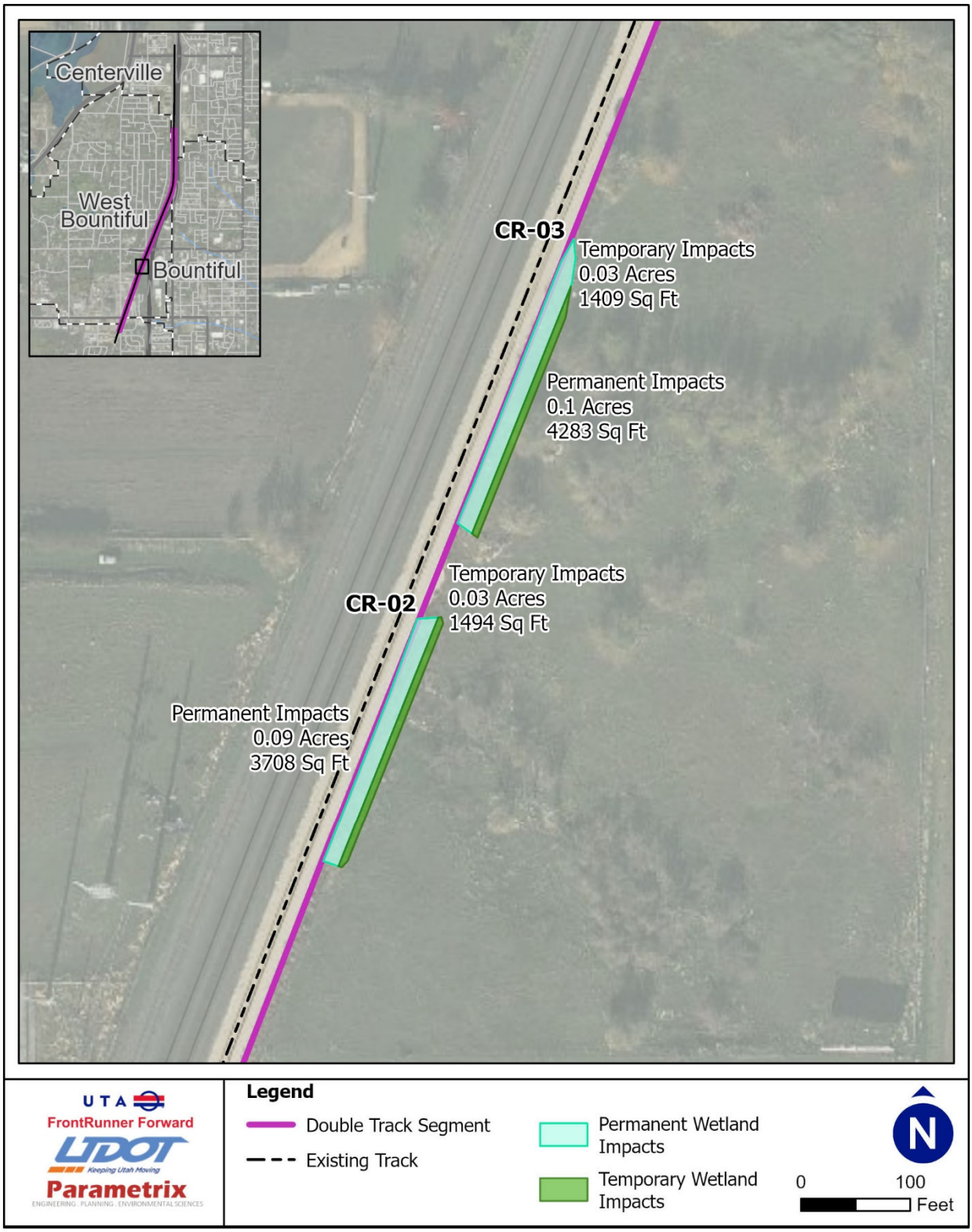
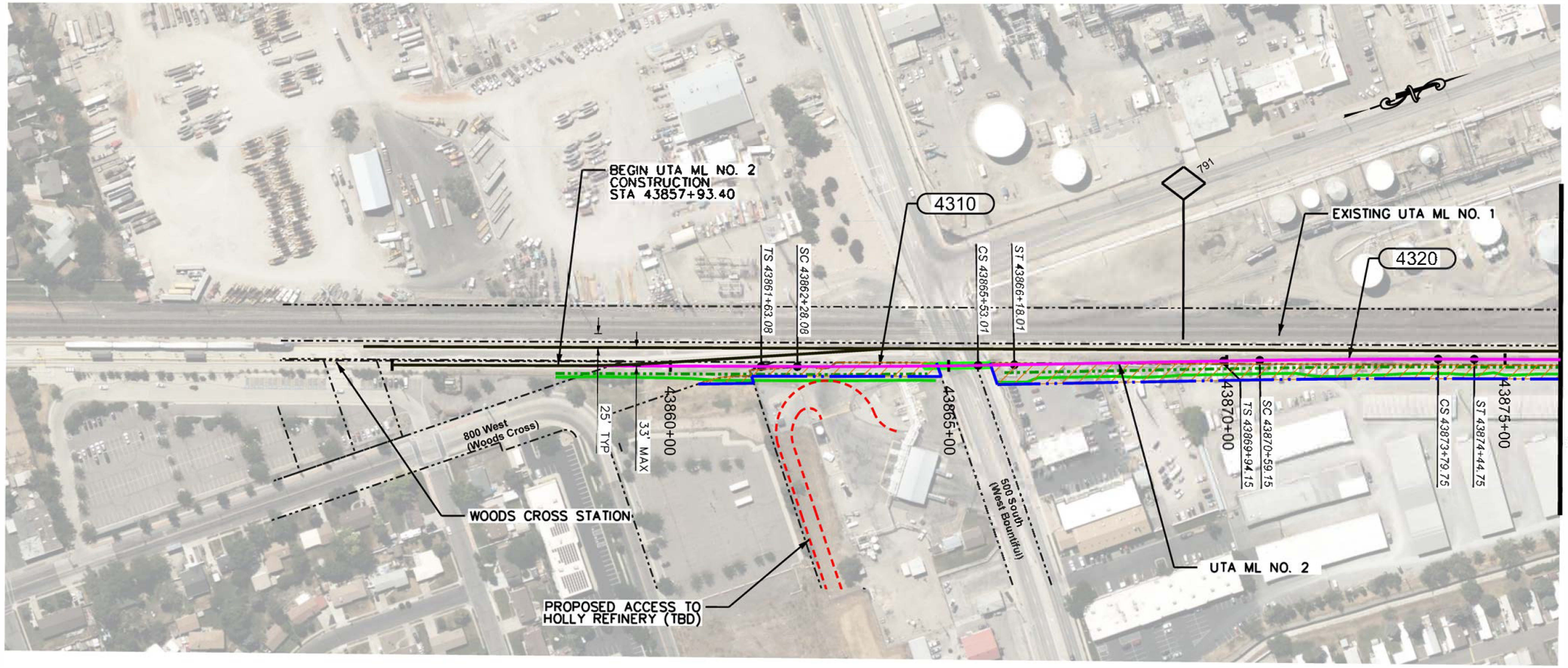


Figure 12. Wetland Impacts



Attachment 2:
North of Woods Cross Double Track Project
Plan Set



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SCALE IN FEET

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- UTA REMOVE TRACK
- UTA PROPOSED RETAINING WALL
- TEMPORARY CONSTRUCTION EASEMENT
- PROPOSED CUT LINE
- PROPOSED DITCH FLOW LINE
- RIGHT-OF-WAY
- PUBLIC R/W IMPACTS

REV	DATE	DESCRIPTION

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DAVID EVANS AND ASSOCIATES INC.

UDOT / UTA

CONTRACT NO.:

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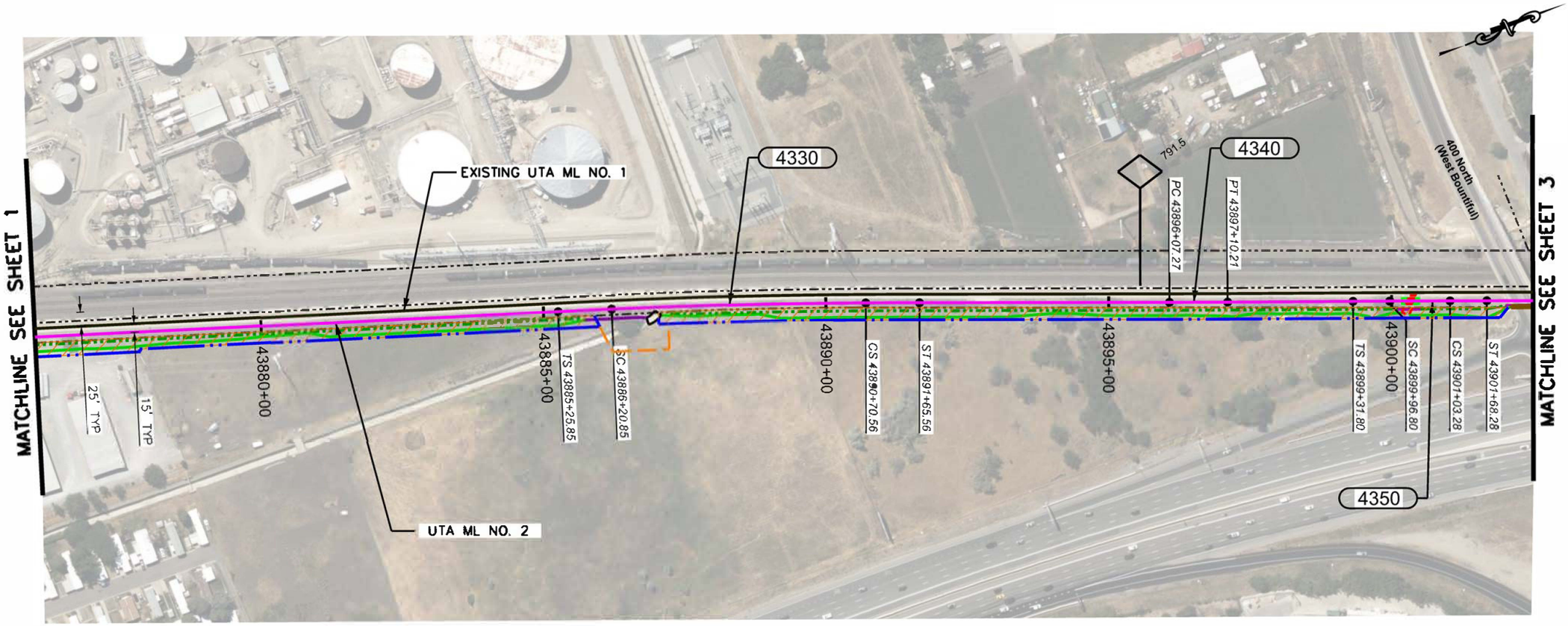
DRAWN BY:
CHECKED BY:
APPROVED BY:

NORTH OF WOODS CROSS DOUBLE TRACK PROJECT

PLAN SHEET 1 OF 5

SCALE:
CADD FILENAME: WC_ENVIR001.DGN
SUBMITTAL DATE
DRAWING No.: WC-EV01
SHEET No.:



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- UTA PROPOSED RETAINING WALL
- TEMPORARY CONSTRUCTION EASEMENT
- PROPOSED CUT LINE
- PROPOSED DITCH FLOW LINE
- RIGHT-OF-WAY
- PUBLIC R/W IMPACTS

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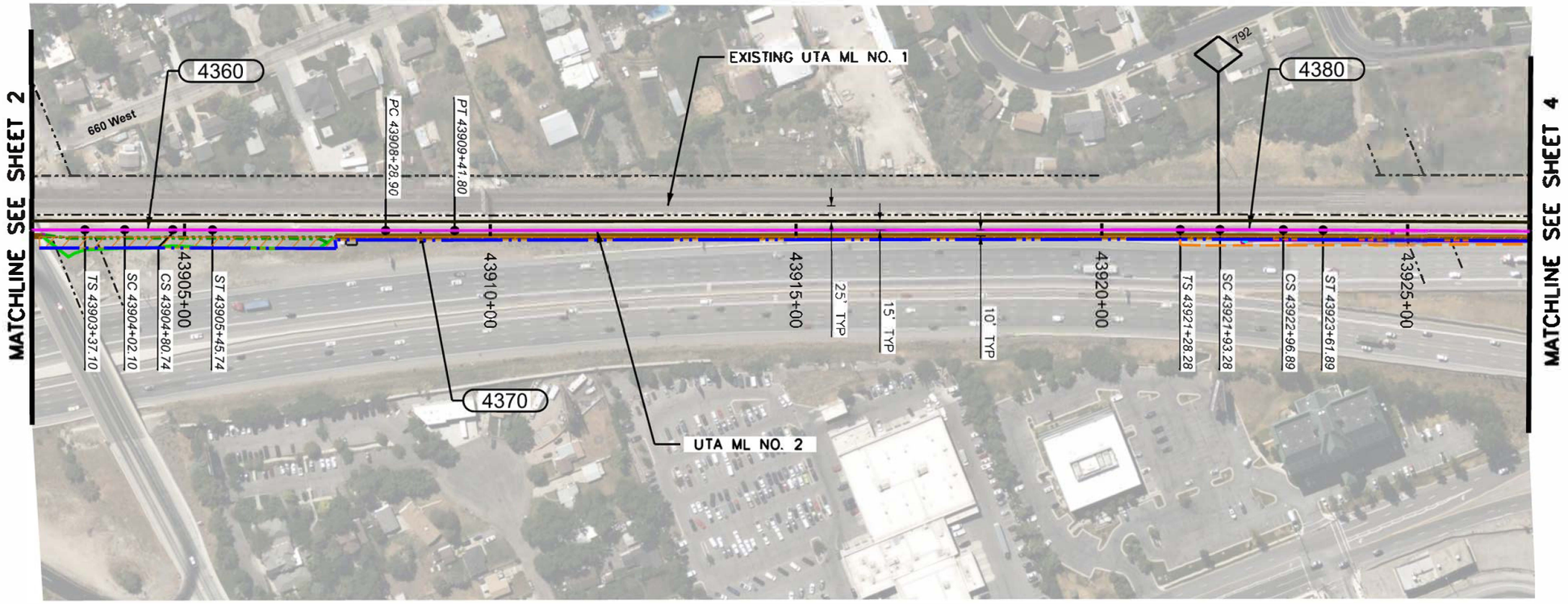
NORTH OF WOODS CROSS
DOUBLE TRACK PROJECT

PLAN SHEET 2 OF 5

SCALE:
CADD FILENAME: WC_ENVR002.DGN
SUBMITTAL DATE
DRAWING No.: WC-EV02
SHEET No.:



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SCALE IN FEET

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- UTA REMOVE TRACK
- UTA PROPOSED RETAINING WALL
- TEMPORARY CONSTRUCTION EASEMENT
- PROPOSED CUT LINE
- PROPOSED DITCH FLOW LINE
- RIGHT-OF-WAY
- PUBLIC R/W IMPACTS

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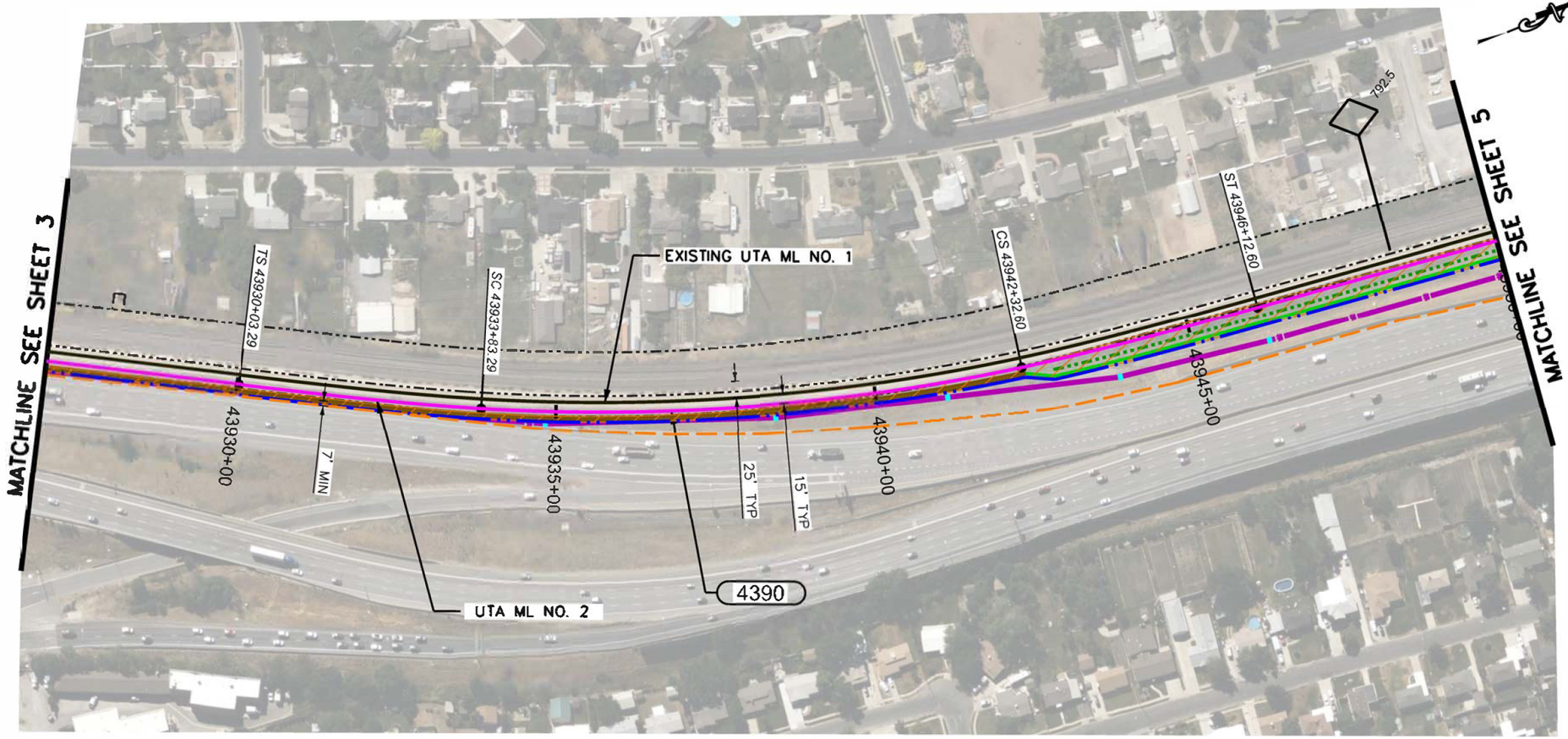
NORTH OF WOODS CROSS
DOUBLE TRACK PROJECT

PLAN SHEET 3 OF 5

SCALE:
CADD FILENAME: WC_ENV3R003.DGN
SUBMITTAL DATE
DRAWING No.: WC-EV03
SHEET No.:



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- UTA PROPOSED RETAINING WALL
- TEMPORARY CONSTRUCTION EASEMENT
- PROPOSED CUT LINE
- PROPOSED DITCH FLOW LINE
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- PUBLIC R/W IMPACTS

REV	DATE	DESCRIPTION

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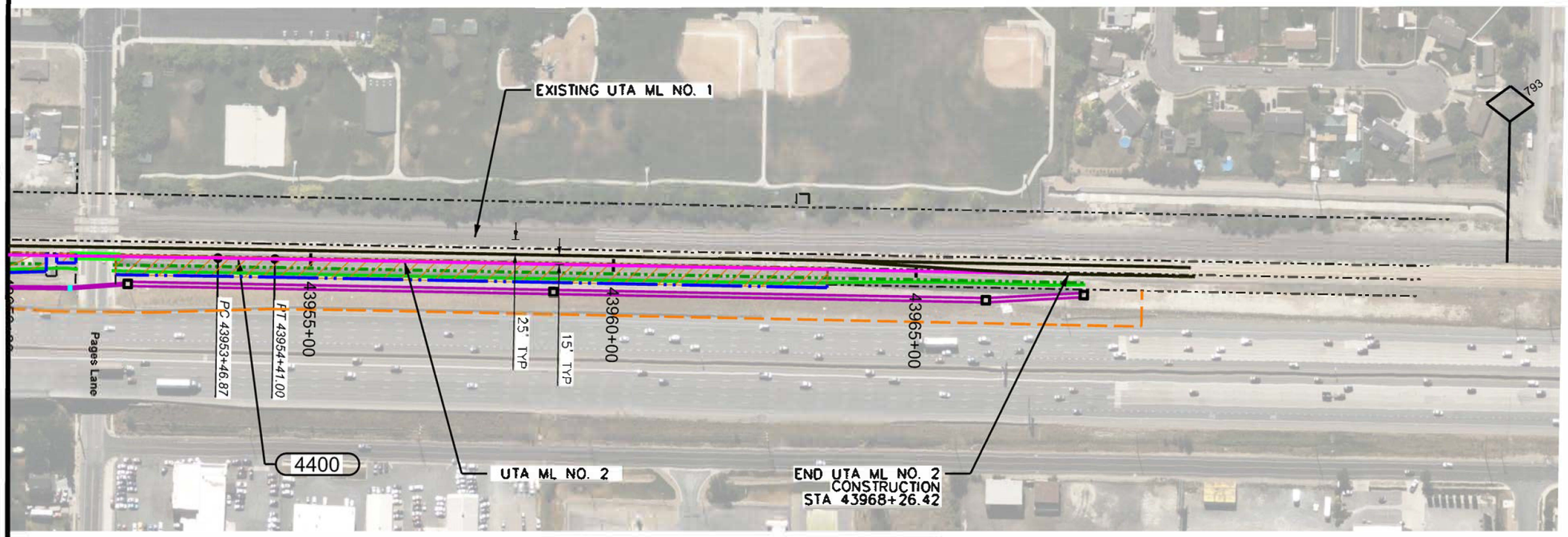
NORTH OF WOODS CROSS
DOUBLE TRACK PROJECT

PLAN SHEET 4 OF 5

SCALE:
CADD FILENAME: WC_ENVR004.DGN
SUBMITTAL DATE
DRAWING No.: WC-EV04
SHEET No.:

MATCHLINE SEE SHEET 4



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- UTA PROPOSED RETAINING WALL
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- PROPOSED CUT LINE
- PROPOSED DITCH FLOW LINE
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DOUBLE TRACK PROJECT

PLAN SHEET 5 OF 5

SCALE:
CADD FILENAME: WC_ENVIR005.DGN
SUBMITTAL DATE
DRAWING No.: WC-EV05
SHEET No.:

Attachment 3:
North of Woods Cross Double Track Project
Section 106 Consultation

U.S. Department
of Transportation
Federal Transit Administration

REGION VIII
Colorado, Montana,
North Dakota,
South Dakota,
Utah and Wyoming

1961 Stout Street
Suite 13301
Denver, Colorado 80294
(303) 362-2400 (voice)

February 10, 2023

Chris Merritt
SHPO
Utah Division of State History
3760 S. Highland Dr.
Salt Lake City, Utah 84106

Chris Hansen
Deputy SHPO – Compliance Preservation
Utah Division of State History
3760 S. Highland Dr.
Salt Lake City, Utah 84106

Re: FrontRunner Forward – North of Woods Cross Double Track Project
Section 106 Consultation - Determinations of Eligibility and Findings of Effect
SHPO Parent Case No. 22-101

Dear Mr. Merritt and Mr. Hansen:

The Federal Transit Administration (FTA), in coordination with the Utah Transit Authority (UTA), notified your office in May 2022 of our initiation of the FrontRunner Forward (FRF) Program and consulted regarding the areas of potential effect (APE) for nine double track and rail realignment projects occurring under the program. Financial assistance from FTA may be utilized for the improvements; therefore, the proposed project constitutes an undertaking and is subject to review under Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended (54 U.S.C. § 306108) and its implementing regulations at 36 CFR 800. FTA requests your review and concurrence on the eligibility and effects for the proposed North of Woods Cross Double Track project.

Previously in the APE consultation (May 2022), FTA notified SHPO of our intent to submit a single cultural resource assessment report identifying resources in all nine project APEs then provide separate Section 106 consultation letters regarding determinations of eligibility and finding of effects for each project. The comprehensive assessment report entitled *A Cultural Resource Survey for the Utah Transit Authority's FrontRunner Forward Double Track and Rail Realignment Projects; Davis, Salt Lake, and Utah Counties, Utah,* was submitted to your office in December 2022 as part of our consultation for the Beck Yard Double Track Project. The cultural report is referenced in this consultation submittal; but due to its size, it is not included as an attachment.

Description of the Proposed Undertaking

The North of Woods Cross Double Track project extends approximately 2.1 miles from north of the Woods Cross Station to the existing siding near 2000 North in West Bountiful. The project would require filling and grading along the east side of the existing rail corridor to widen the existing mainline track bed and install rail ballast to support the new mainline track adjacent to and parallel with the existing FrontRunner mainline track. The project would shift the existing FrontRunner mainline track in certain locations and remove an existing turnout; pipe and bury an open drainage between the northern terminus and Pages Lane/1600 North; and extend the existing box culvert located at Mill Creek which extends

beneath the rail corridor, south of 400 North. In addition, the project would replace a railroad switch at the north end of the alignment where the existing double track ends.

The project would include widened at-grade roadway crossings at Pages Lane (1600 North) and 500 South and a widened crossing underneath 400 North, which would involve reconstruction of the existing bridge abutment with a new 10-foot-high soil nail wall. At-grade crossing improvements would require relocation of signals and crossing arms. Approximately 3,500 linear feet of a new 3-foot-high retaining wall would be constructed where the new track runs parallel to I-15 north of 400 North. The grade crossing improvements at the intersection with 500 South would remove the existing access to the Holly Refinery. A new access would be constructed from 700 South on the west side of the Holly Refinery or from 800 South on the south side of the property.

Preliminary track design modeling shows the estimated depth of excavation for the proposed track work would range from 2 to 5 feet. Depth of excavation for utilities would range from 7 to 8 feet. Retaining walls are expected to require depth of excavation between 2 and 20 feet, depending on the type and size of the wall, which would be determined during final design.

Identification of Historic Properties/Determinations of Eligibility

An archaeological inventory and selective reconnaissance-level historical buildings inventory was conducted within the APE. The APE is primarily located within existing UTA right-of-way (ROW) along the FrontRunner system; however, sections extend outside of right-of-way east of the rail corridor. This APE/survey area encompasses 34.5 acres. Please see Chapter 3 of the aforementioned cultural survey report for more discussion of this specific project and **Figure 1** (attached) for a map of the APE.

The archaeological and historical structures inventories identified two archaeological sites and one building that could have historical significance within the North of Woods Cross Double Track Project APE. The archaeological site, Union Pacific Railroad (site 42DV87), is located with the APE. The segment of the railroad located within the APE which extends from Parrish Lane to the UTA Woods Cross station was documented in the 2003 survey for the original Frontrunner Commuter Rail system. This segment was determined to contribute to the eligibility of the overall resource under Criterion A and maintains this eligibility determination based on recent survey. The second archeological site identified in the records search was the remains of a farmstead and petroleum distribution facility which have been destroyed sometime between April 2007 and August 2009, and no longer exist; therefore, this site is not discussed further.

The building located in the APE that could have historical significance is located at 756 West 500 South. It is a circa 1970 1-story Commercial Block building exhibiting Late 20th Century: Other style. FTA has determined this building ineligible for the National Register of Historic Places due to substantial alteration.

Findings of Effect

FTA finds that the undertaking would result in **no historic properties affected** under Section 106. There would be no physical impacts from the project to the Union Pacific Railroad (site 42DV87) or within Union Pacific's ROW. The project construction would occur within the UTA operational ROW, and the project extent is east of the existing UTA tracks, which are located east of the Union Pacific site. The addition of the double-track would not introduce any new visual elements or intrusions in the project area. Design exhibits showing eligible resources are attached.

FTA requests SHPO review and concurrence with the determination of eligibility and findings of effect. Please provide your written response within the 30-day time period via email to robyn.kullas@dot.gov. If you have any questions regarding this matter, please contact Robyn Kullas in my office at (303) 362-2389. Thank you for your prompt attention to this matter.

Sincerely,

DAVID L BECKHOUSE

Digitally signed by DAVID L BECKHOUSE
Date: 2023.02.10 11:21:52 -07'00'

Cindy Terwilliger
Regional Administrator

Enclosures:
Figure 1: APE and Survey Results
Design Exhibits

cc: Autumn Hu, Utah Transit Authority

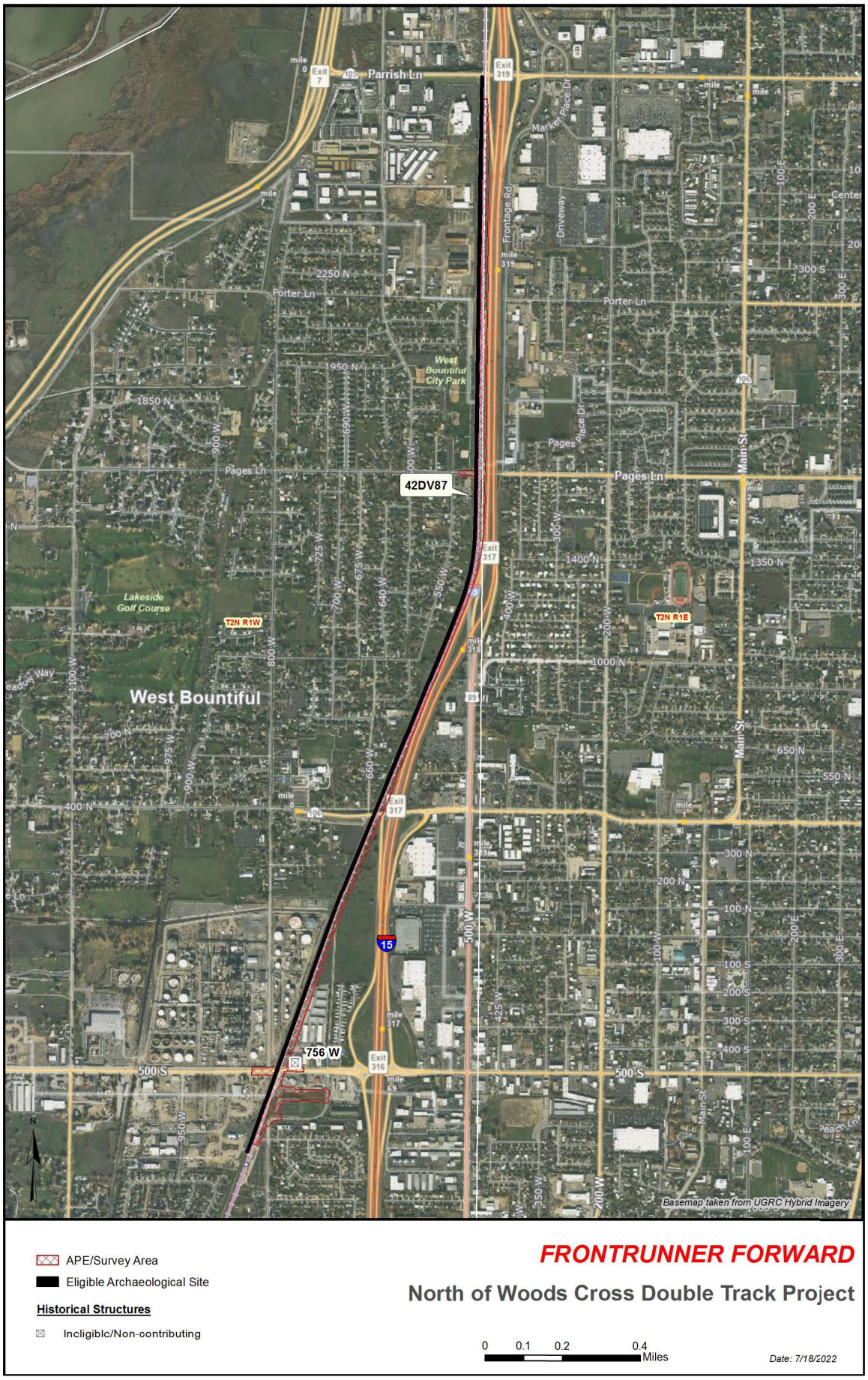
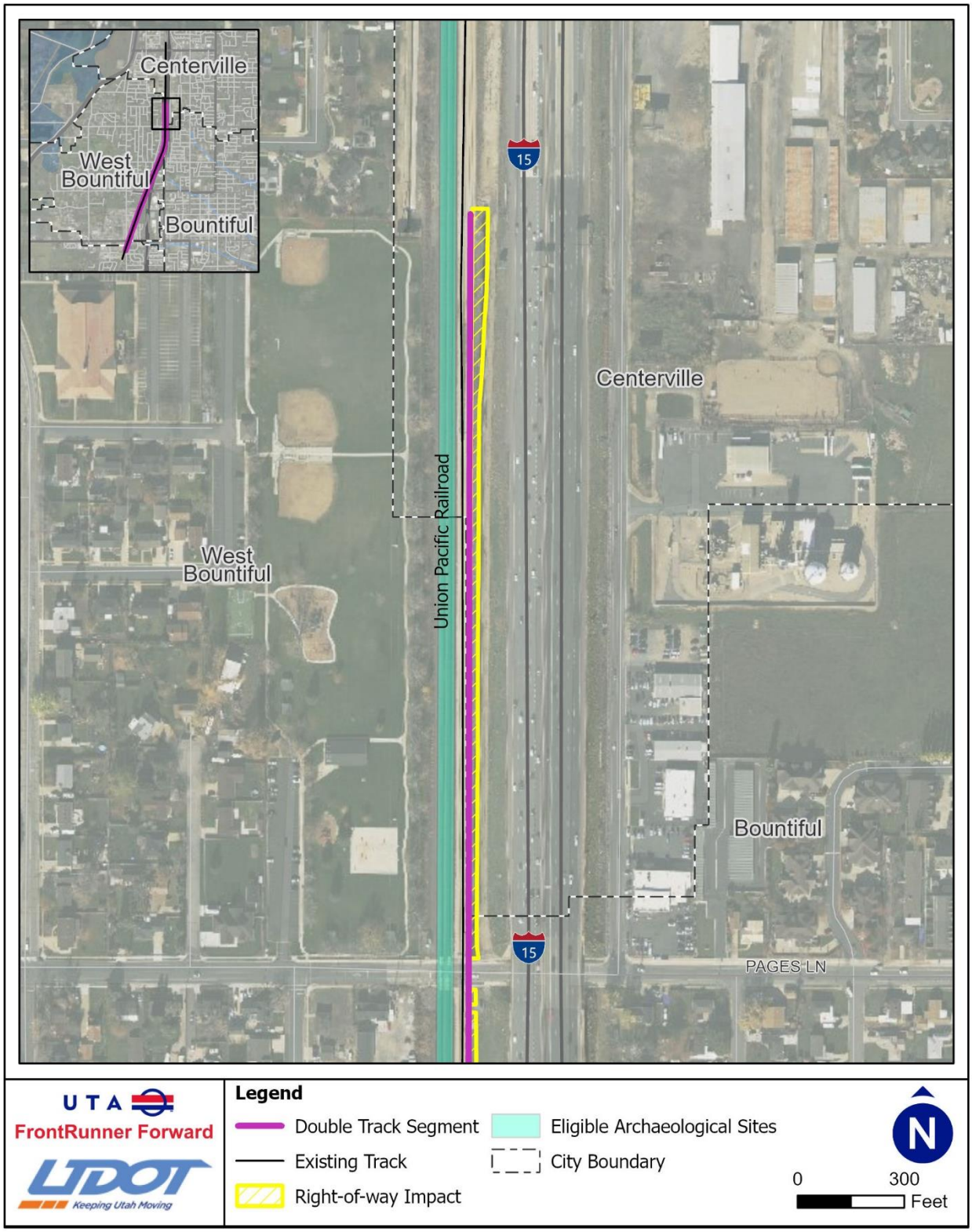


Figure 1. North of Woods Cross Double Track Project APE and Survey Results

Woods Cross Double Track Project
Design Exhibits

Design Exhibits, 1 of 6



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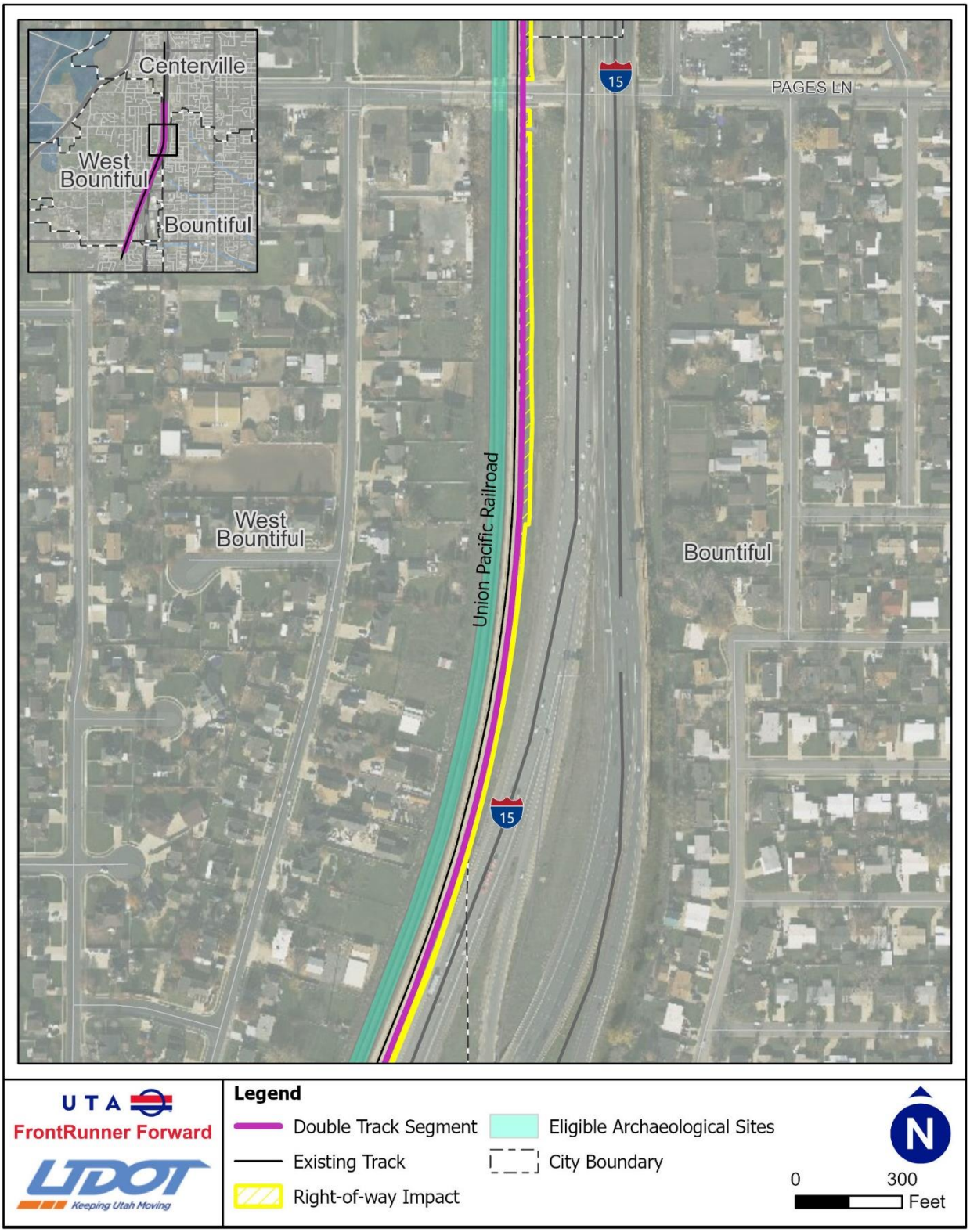
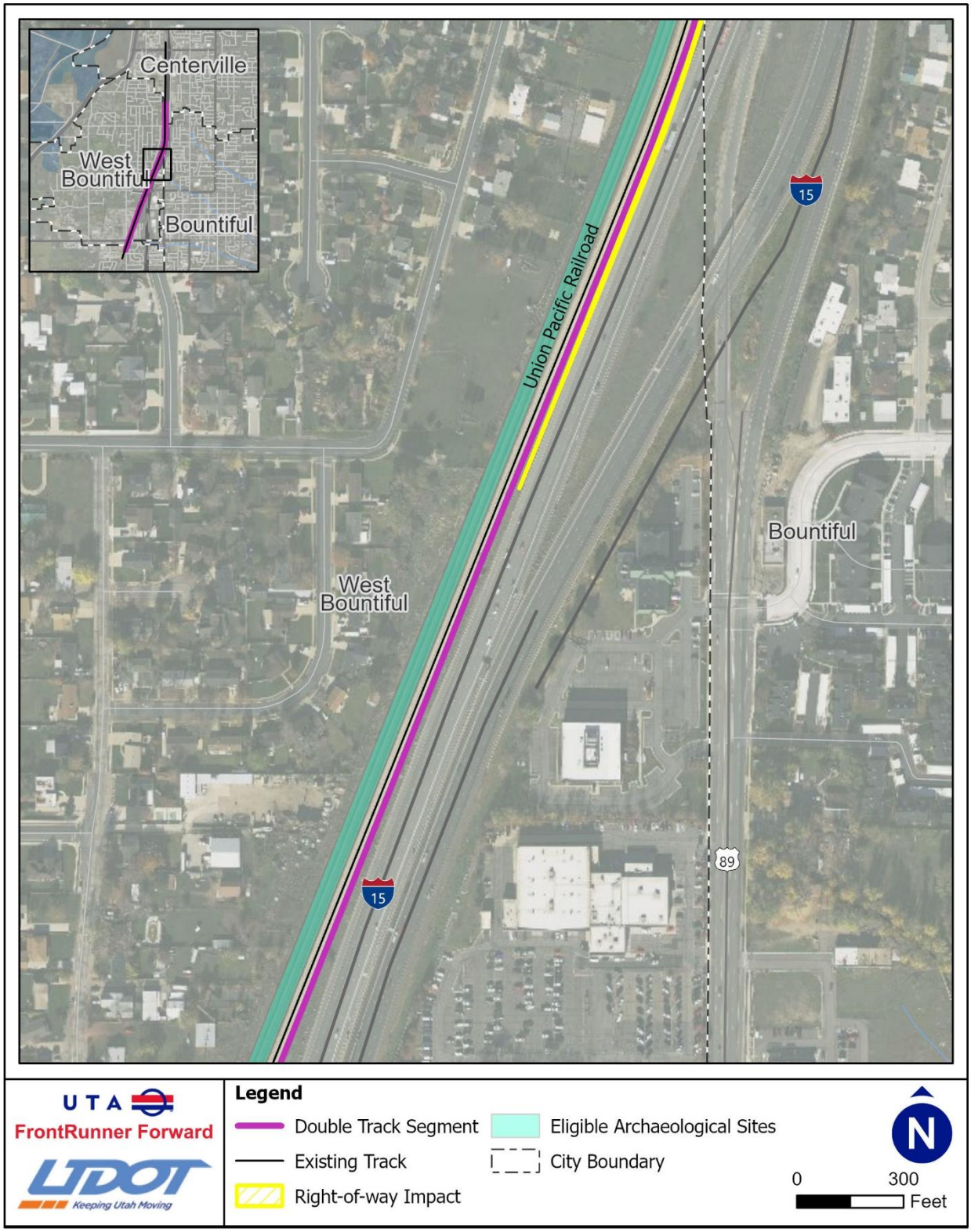


Design Exhibits, 3 of 6



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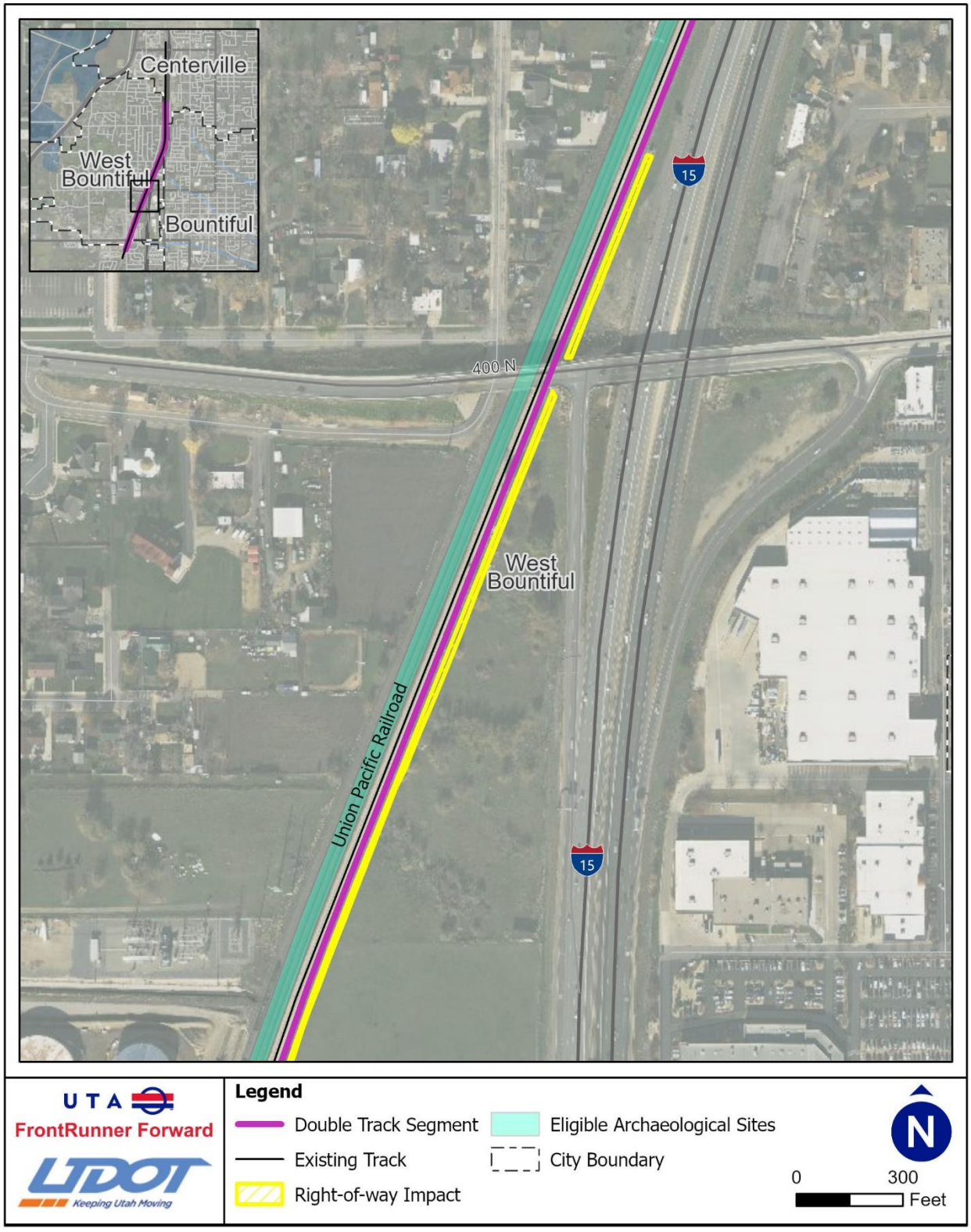
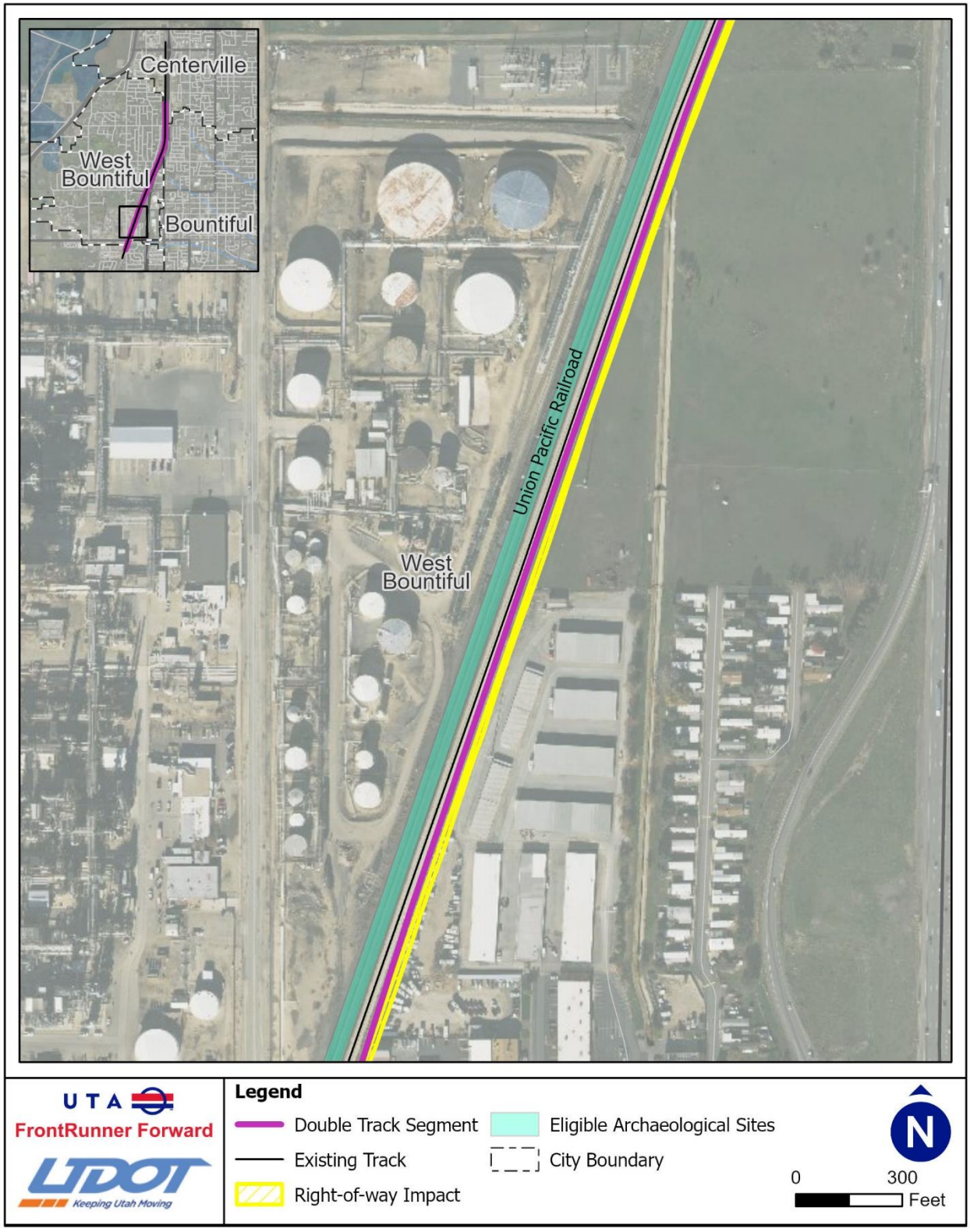


Design Exhibits, 5 of 6



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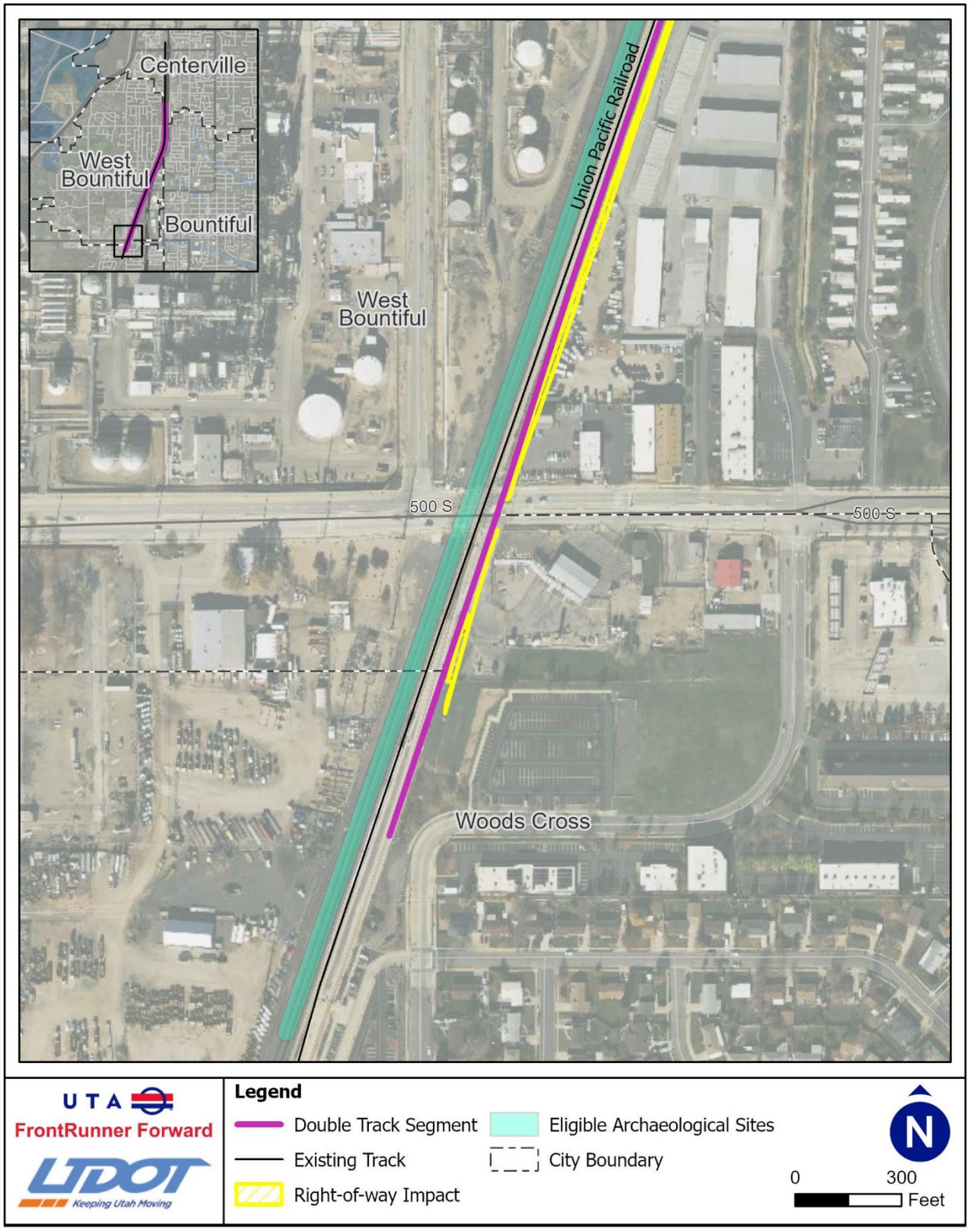

Spencer J. Cox
Governor

Deidre M. Henderson
Lieutenant Governor

Jill Remington Love
Executive Director
Utah Department of Cultural and Community Engagement

Christopher Merritt
State Historic Preservation Officer
Utah State Historic Preservation Office

February 13, 2023

Cindy Terwilliger
Regional Administrator
U.S. Department of Transportation - Federal Transit Administration
Region VIII

RE: FrontRunner Forward North of Woods Cross Double Track Project

For future correspondence, please reference Case No. 23-0033

Dear Ms. Terwilliger,

The Utah State Historic Preservation Office received your submission and request for our comment on the above-referenced project on February 10, 2023. Based on the information provided to our office, we concur with your determinations of eligibility and with a finding of No Historic Properties Affected for the proposed undertaking of the North of Woods Cross Double Track portion of the FrontRunner Forward Program.

This information is provided to assist with Section 106 responsibilities as per §36CFR800. If you have questions, please contact me at (801) 245-7239 or by email at clhansen@utah.gov.

Sincerely,

Chris L. Hansen
Preservation Planner/Deputy SHPO
Utah State Historic Preservation Office

Attachment 4:
North of Woods Cross Double Track Project
Noise and Vibration Assessment

ATTACHMENT 4

FrontRunner Forward Technical Memorandum

To: Daryl Wendle, Parametrix

From: Lance Meister, Cross-Spectrum Acoustics, Inc.

Date: October 2022

Subject: North of Woods Cross Double Track Project Noise and Vibration Assessment

---

Summary

The purpose of this memorandum is to summarize the noise and vibration impact assessment of the FrontRunner North of Woods Cross Double Track Project, which extends from north of the Woods Cross Station to the to the existing siding at about 2000 North (the Project) in West Bountiful. This Project would improve operations by removing the need for the southbound slowdown between the Clearfield and Layton stations. In addition, the Project would allow for a meet at Woods Cross and avoid a meet conflict south of Layton. The Project consists of double tracking approximately 2.1 miles of the FrontRunner Commuter Rail system while limiting impacts to the Union Pacific Railroad and adjacent properties.

The results of the noise and vibration assessment indicate that there would be no noise or vibration impacts associated with the double tracking of the FrontRunner corridor between Woods Cross and Centerville. There are no noise or vibration sensitive receivers on the east side of the tracks where the new track would be located, so there would be no impacts. For the sensitive receivers on the west side of the tracks, there would be a slight decrease in the noise levels because half of the trains would be moved further from the sensitive receivers on that side of the tracks.

Federal Transit Administration (FTA) Noise and Vibration Impact Criteria

The FTA noise and vibration criteria for transit projects are detailed in the FTA's noise and vibration guidance manual.[1]

The FTA noise criteria are based on the increase in noise level caused by a project as compared with the existing noise levels. As a proposed project's noise levels increase relative to the levels of existing noise, a noise-related impact from that project is more likely. When a proposed project would lower noise levels relative to the existing noise, there would be no noise impact.

The FTA vibration criteria for new projects are based on the vibration level and number of project operations and not on the increase in vibration levels. As the number of operations increase, the vibration impact threshold becomes more stringent. In a project location with existing vibration from trains, the criterion is based on a change in vibration relative to the existing. For locations with more than 12 operations per day (such as the FrontRunner corridor), vibration impact occurs when the increase in vibration is at least 3 vibration decibels (VdB) over the existing vibration levels.

Noise and Vibration Assessment Methodology

Noise and vibration from the North of Woods Cross Double Track Project were modeled using the screening procedure methods described in the FTA guidance manual. The Project would involve adding a second track and

[1] Federal Transit Administration, Transit Noise and Vibration Impact Assessment Manual, FTA Report No. 0123, September 2018.

moving half the current UTA FrontRunner operations from the existing track to the new second track. The Project would also eliminate turnouts at either end of the segment, where the tracks join with other double tracked segments. The entire FrontRunner corridor is a quiet zone and no horns are sounded.

The noise assessment is based on the increase in noise at sensitive receivers caused by the addition of the second track. The model assumes that half the trains would utilize the second track and half the trains would remain on the original track. The noise levels from UTA FrontRunner operations would increase slightly at locations on the side of the segment where the new track is located, and the noise would decrease slightly at locations on the side of the segment adjacent to the existing track, since some of the trains would be located further away relative to the existing track. New crossovers or turnouts would increase the noise levels for sensitive receivers located within 300 feet[2] of the special trackwork. Removing crossovers or turnouts would decrease noise impacts.

The vibration assessment is based on the increase in vibration at sensitive receivers caused by the addition of the second track. Similar to noise, the model assumes that half the trains would utilize the second track and half the trains would remain on the original track. The vibration levels would increase slightly at locations on the side of the segment where the new track is located, and the vibration would remain the same at locations on the side of the segment adjacent to the existing track. New crossovers or turnouts would increase the vibration levels for sensitive receivers located within 200 feet[3] of the special trackwork. Removing crossovers or turnouts would decrease vibration impacts.

Affected Environment

The land use adjacent to the Project is primarily residential on the west side of the tracks, with some industrial use at the southern end of the segment. Interstate 15 is on the east side of the tracks, with a small residential development at the southern end that is shielded by a large warehouse storage facility.

Impact Assessment

The new track would be located on the east side of the existing FrontRunner corridor. There are no noise and vibration sensitive receivers on the east side of the corridor that would be affected by the new track, so there would be no increases in noise or vibration levels caused by the Project. The noise and vibration sensitive receivers on the west side of the tracks would experience a slight decrease in noise levels due to the change in FrontRunner operations. There would be no change in vibration levels on the west side of the tacks. Additionally, the existing turnout at the northern end of the Woods Cross to Centerville segment would be removed, which would result in a decrease in noise and vibration levels at sensitive receivers in the immediate vicinity of the turnout on the west side of the tracks.

Mitigation

Because there are no impacts identified for either noise or vibration, no mitigation would be required.

[2] See Table 4-10, Computation of Noise Exposure at 50 ft for Fixed-Guideway General Noise Assessment, FTA Transit Noise and Vibration Impact Assessment Manual, 2018.
[3] See Table 6-11, Source Adjustment Factors for Generalized Predictions of GB Vibration and Noise, FTA Transit Noise and Vibration Impact Assessment Manual, 2018.

Attachment 5:
North of Woods Cross Double Track Project
Hazardous Materials Assessment

FrontRunner Forward

North of Woods Cross Double Track Project

Hazardous Materials Assessment

October 2022

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List of Tables

List of Figures

Introduction

Project Purpose and Description

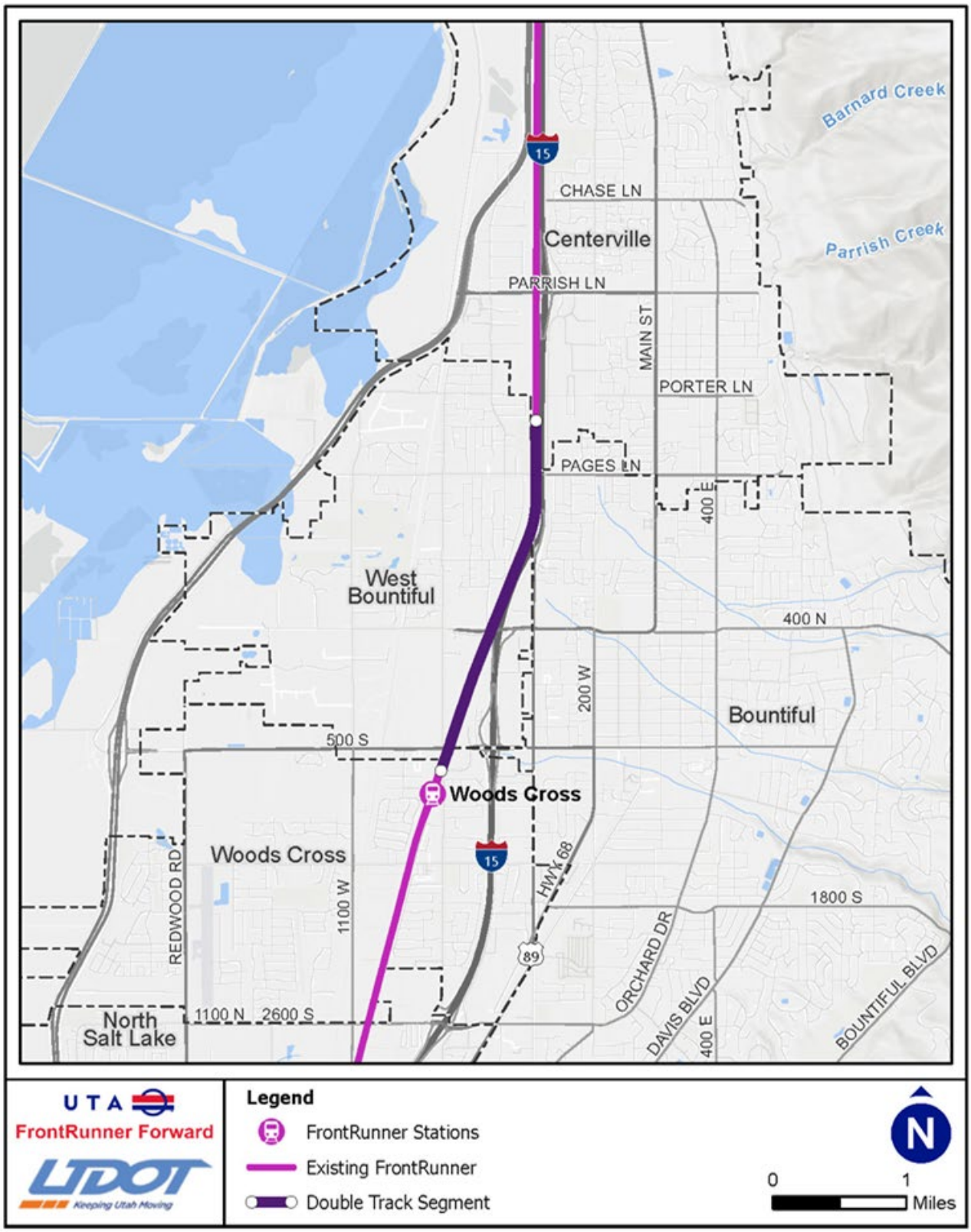
The Utah Transit Authority (UTA), in conjunction with the Federal Transit Administration (FTA), proposes to construct new double-track segments at eight locations along the Front Runner commuter rail line in Davis, Salt Lake, and Utah counties, Utah. This Hazardous Materials Assessment Report was prepared for the UTA to document the hazardous materials impacts associated with the North of Woods Cross Double Track Project.

North of Woods Cross Double Track Project

The North of Woods Cross Double Track Project (the Project) is approximately 2.8 miles of new double track segment along the FrontRunner commuter rail line from Parish Lane in Centerville to FrontRunner Woods Cross station in Woods Cross in Davis County, Utah. This segment runs parallel to the existing Union Pacific (UP) rail corridor to the west. It is surrounded by industrial properties at the south end of the alignment and runs between residential properties to the west and Interstate 15 (I-15) to the east at the north end of the alignment.

The Project area for the hazardous materials assessment is defined as the limits of anticipated construction, acquired property and right-of-way, and temporary constructions easements. The Project area is shown on Figure 1. The study area for hazardous materials was defined as the Project area plus the standard search distances for environmental databases as defined in the American Society for Testing and Materials (ASTM) *Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process (E 1527-21)* (ASTM 2021).

Figure 1. Project Area



Methodology

Resource Identification and Evaluations Methods

The purpose of this report is to evaluate the potential for encountering hazardous materials or petroleum hydrocarbons as a result of Project activities in compliance with the National Environmental Policy Act (NEPA) and to determine the presence and location of documented hazardous materials or hazardous waste sites within the Project corridor.

Regulatory Database Review

Pertinent state and federal regulatory database information was procured from Environmental Data Resources, Inc. (EDR). Due to the anticipated limited ground disturbance involved in the Project, only sites with known or suspected releases within 0.25 mile (state databases) of the Project alignment were evaluated in depth, shown in Table 1 below. A comprehensive list of regulatory databases reviewed is contained in the EDR report (EDR 2022).

Sites identified on priority databases (databases indicating a release of hazardous materials or petroleum to soil or groundwater) were evaluated based on the proximity of the site to the proposed Project alignment and the potential for contamination from or associated with the site to exist within or close to the Project alignment. Historical uses of the sites and site vicinities as well as acquisition status were considered in the evaluation of the potential for the site to affect the proposed Project alignment or adjacent properties.

Regulatory File Review

Some sites identified in the regulatory database review as having confirmed releases were further evaluated for pertinent details via the online Utah Department of Environmental Quality Environmental Cleanup Site Information database (DEQ 2022) and the U.S. EPA Superfund Database (EPA 2022). These tools provide additional details of site conditions and regulatory status as well as electronic site documents, where available.

Affected Environment

Area of Potential Impact

For the analysis of hazardous materials, the area of potential impact (API) included the Project alignment and adjacent properties because potential impacts would likely be restricted to the immediate vicinity of the Project alignment or adjacent properties. The EDR search distance was set to the ASTM standard for hazardous materials analyses of either side of the Project footprint. A complete listing of the databases reviewed and the associated search distances are included in the EDR report.

Geology, Hydrogeology, and Soils

The Project alignment lies at approximately 4,300 to 4,500 feet in elevation to the east of the Great Salt Lake and west of the Wasatch Mountains. The area is located within the Basin and Range Province on the southern portion of the East Shore Aquifer. The subsurface in the vicinity of the Project area is characterized by unconsolidated and semi-consolidated sediments eroded from the mountains, which tend to be thick and coarse from delta, alluvial, fan, and mudflow deposits. Closer to the Great Salt Lake, sediments consist of gravel, sand, silts, and clay (UGS 2022a).

Groundwater in the vicinity of the Project is part of the East Shore Aquifer, which generally flows westward from the Wasatch Range to Great Salt Lake. The East Shore Aquifer has been subdivided into shallow (60 to 250 feet below ground surface [bgs]), intermediate (250 to 500 feet bgs), and deep (greater than 500 feet bgs) artesian aquifers. Shallow groundwater levels in the Project vicinity are assumed to range from approximately 6 to 35 feet bgs (EPA 2007, UGS 2022b).

The soils in the area mostly consist of the Draper loam unit, a somewhat poorly drained loam soil. Soils in the area are generally slightly silty loam, characteristic of flood plains (USDA 2022).

Regulatory Database Review

The affected environment within the study area was assessed by reviewing the state and federal regulatory database records, as described above. The identified sites were assigned to one of three risk categories based on the proximity to the study area, the type and number of databases in which the site was found, known releases of hazardous materials or petroleum products, and the status of remediation or cleanup efforts at sites with known releases. One of three risk categories was assigned to sites within the study area: high, medium, and low.

- **High Risk.** Sites that involve substantial contamination of large areas, including soil, groundwater, and multiple contaminants, and might represent higher risk of further releases of hazardous materials to human health or the environment; sites that would be likely to involve high levels of regulatory approvals or extensive or lengthy remediation activities that may create other impacts to the environment; or sites that could pose major delays to the development of the Project.
- **Medium Risk.** Sites where the nature of potential contamination is known based on existing investigation data, the potential contaminants are not extremely toxic or difficult to treat, and probable remediation approaches are straightforward.
- **Low Risk.** Sites where the nature of potential contamination is known based on existing investigation data and the sites are not expected to have notable impacts on the Project due to their location, or sites where hazardous materials were used but had no or only very small releases reported.

State databases list several sites that indicate a confirmed release of a hazardous material or petroleum hydrocarbons within 0.25 mile of the Project area, which are of potentially greater concern. One site associated with federal databases indicating a confirmed release was found within 1 mile of the Project area. A list of sites evaluated within 0.25 mile of the Project area can be found in Table 1 and are shown in Figure 2 below.

Based on location, regulatory or cleanup status, and/or the minor nature and extent of the release, the majority of the sites have a low risk of impacting the Project area. Three sites were determined to be in the high- or medium-risk category and are discussed below and shown in Figure 3.

Table 1. List of Evaluated Sites

SITE NO.	FACILITY NAME	STREET ADDRESS	CITY	EDR ID	RANKING	RANKING RATIONALE
1	BOUNTIFUL/WOODS CROSS 5TH S. PCE PLUME (OU1)	West 700 South, BOUNTIFUL/WOODS CROSS	BOUNTIFUL	1000996455	H	Plume crosses the alignment; ongoing cleanup actions at the facility; hazardous substances, pollutants, or contaminants remain at the site above levels that allow for unlimited use and unrestricted exposure. Ongoing remediation at the site is currently protective of human health and the environment, but institutional and engineering controls remain in place and additional actions are ongoing and planned for the future. Potential for acquisition of a portion of this property is a high risk for the project.
2	BOUNTIFUL/WOODS CROSS 5TH S. PCE PLUME (OU2)	344 South 500 West, BOUNTIFUL/WOODS CROSS	BOUNTIFUL	1000996455	M	Plume crosses the alignment; ongoing cleanup actions at the facility; hazardous substances, pollutants, or contaminants remain at the site above levels that allow for unlimited use and unrestricted exposure. Ongoing remediation at the site is currently protective of human health and the environment, but institutional and engineering controls remain in place and additional actions are ongoing and planned for the future. This Operable Unit is a medium risk to the project.
3	HOLLYFRONTIER WOODS CROSS REFINING LLC; PHILLIPS PETROLEUM CO	393 S 800 W	WOODS CROSS	1023962839, 1007210885, S119131435, 1021694322, 1016158207	M	Large oil refinery along alignment. This is also the area of the TCE and PCE plume from the Superfund site with origins on the east side of the Project alignment.
4	HOLLY ENERGY PARTNERS WOODS CROSS TERMINAL	753 WEST 500 SOUTH	WOODS CROSS	1023680414	M	Large oil refinery along alignment. This is also the area of the TCE and PCE plume from the Superfund site with origins on the east side of the Project alignment.
5	SYRO STEEL COMPANY	950 WEST 400 SOUTH	CENTERVILLE	1000327027	M	Adjacent to alignment; cleanup site with groundwater contamination stable; no ground disturbance is planned in the vicinity of this site; however, there could be soil and groundwater contamination in the vicinity.
6	BOBS TREE SERVICE-COMPOST	724 W. 500 S	WOODS CROSS	S127990464	L	Not adjacent to alignment; no release associated with listing.
7	AIR PRODUCTS & CHEMICALS, INC.	745 S FRONTAGE RD	CENTERVILLE	U000713515	L	Not adjacent to alignment (on the east side of the highway); leaking underground storage tank (LUST) cleanup complete (2000).

Table 1. List of Evaluated Sites (continued)

SITE NO.	FACILITY NAME	STREET ADDRESS	CITY	EDR ID	RANKING	RANKING RATIONALE
8	PHILS INTERSTATE TOWING	1335 NORTH 400 WEST	BOUNTIFUL	1022110266	L	Not adjacent to alignment (on the east side of the highway); no release associated with listing.
9	RB'S INTERSTATE ONE STOP	695 W 500 S	WOODS CROSS	U000812826	L	Not adjacent to alignment; LUST cleanup complete (2008).
10	AMOCO FREEWAY SERVICE; MAIN STREET MARKET #828	504 W 400 N	WOODS CROSS	1020629312, U000812817	L	Not adjacent to alignment; LUST cleanup complete (2017).
11	KEDDINGTON 66	675 W 500 S	WOODS CROSS	1020281095	L	Not adjacent to alignment; no release associated with listing.
12	CARR PRINTING CO INC	580 WEST 100 NORTH	WEST BOUNTIFUL	1000351666	L	Not adjacent to alignment; no release associated with listing.
13	WALTON'S BRAKE AND TIRE	523 W 400 N	WEST BOUNTIFUL	U001447694	L	Not adjacent to alignment; LUST cleanup complete (2006).
14	LOWE'S OF WEST BOUNTIFUL, UT #2662	350 NORTH 545 WEST	BOUNTIFUL	1024894880	L	Not adjacent to alignment; no release associated with listing.
15	VALLEY PAINT MANUFACTURING CO.	727 S 950 W	WOODS CROSS	1000283212	L	Not adjacent to alignment; no release associated with listing.
16	DISTRIBUTOR OPERATIONS INC. DBA IBS OF GREAT SALT LAKE	786 S 950 W	WOODS CROSS	1024894940	L	Not adjacent to alignment, no release associated with listing
17	COSTCO WHOLESALE #735	573 WEST 100 NORTH	WEST BOUNTIFUL	1008405710, U003997773	L	Not adjacent to alignment; no release associated with listing.
18	CHEVRON USA - 74197 DARREL D WALTON; SUNMART #875	391 N 500 W	WEST BOUNTIFUL	U000812677, 1000657338	L	Not adjacent to alignment; LUST cleanup complete (2001).
19	RPS UTAH, LLC; COMPOSITE COATINGS LLC	965 WEST 850 SOUTH	WOODS CROSS	1010568290, 1004789040	L	Not adjacent to alignment; no release associated with listing.
20	SOUTH DAVIS FIRE DISTRICT	385 N 500 W	WEST BOUNTIFUL	U000812819	L	Not adjacent to alignment; LUST cleanup complete (1996).
21	UDOT INTERSECTION 400 N 500 W BOUNTIFUL	400 N 500 W	BOUNTIFUL	U004259796	L	Not adjacent to alignment; LUST cleanup complete (2017).
22	COMMON CENTS #252	412 NORTH 500 WEST	BOUNTIFUL	U000812681	L	Not adjacent to alignment; LUST cleanup complete (1996).
23	4TH NORTH TEXACO #49	390 N 500 W	BOUNTIFUL	U000812661	L	Not adjacent to alignment; no release associated with listing.
24	HAWK TRANSPORTATION	1017 WEST 750 SOUTH	WOODS CROSS	1000920180	L	Not adjacent to alignment; no release associated with listing.

Table 1. List of Evaluated Sites (continued)

SITE NO.	FACILITY NAME	STREET ADDRESS	CITY	EDR ID	RANKING	RANKING RATIONALE
25	JACK B. KELLEY CO INC	643 SOUTH 800 WEST	WOODS CROSS	1015732052, U000713561	L	This is a site on the east side of the alignment also known as the Woods Cross 800 West Plume site. Chlorinated solvent contamination was found immediately downgradient and west of the former truck terminal was rack and fueling station. Additional investigation of the site has demonstrated that chlorinated solvent contamination is primarily isolated to the area where the wash rack and fueling station were located. However, this is related to the plume that extends across the alignment to the west; see Bountiful/Woods Cross 5th S. PCE Plume Superfund site.

Notes: DIR = direction; H = high risk; ID = identification number; L = low risk; LUST = leaking underground storage tank; M = medium risk; PCE = tetrachloroethylene; SEMS = Superfund Enterprise Management System; TCE = trichloroethylene

Figure 2. Map of Evaluated Sites, 1 of 3

Figure 2. Map of Evaluated Sites, 2 of 3

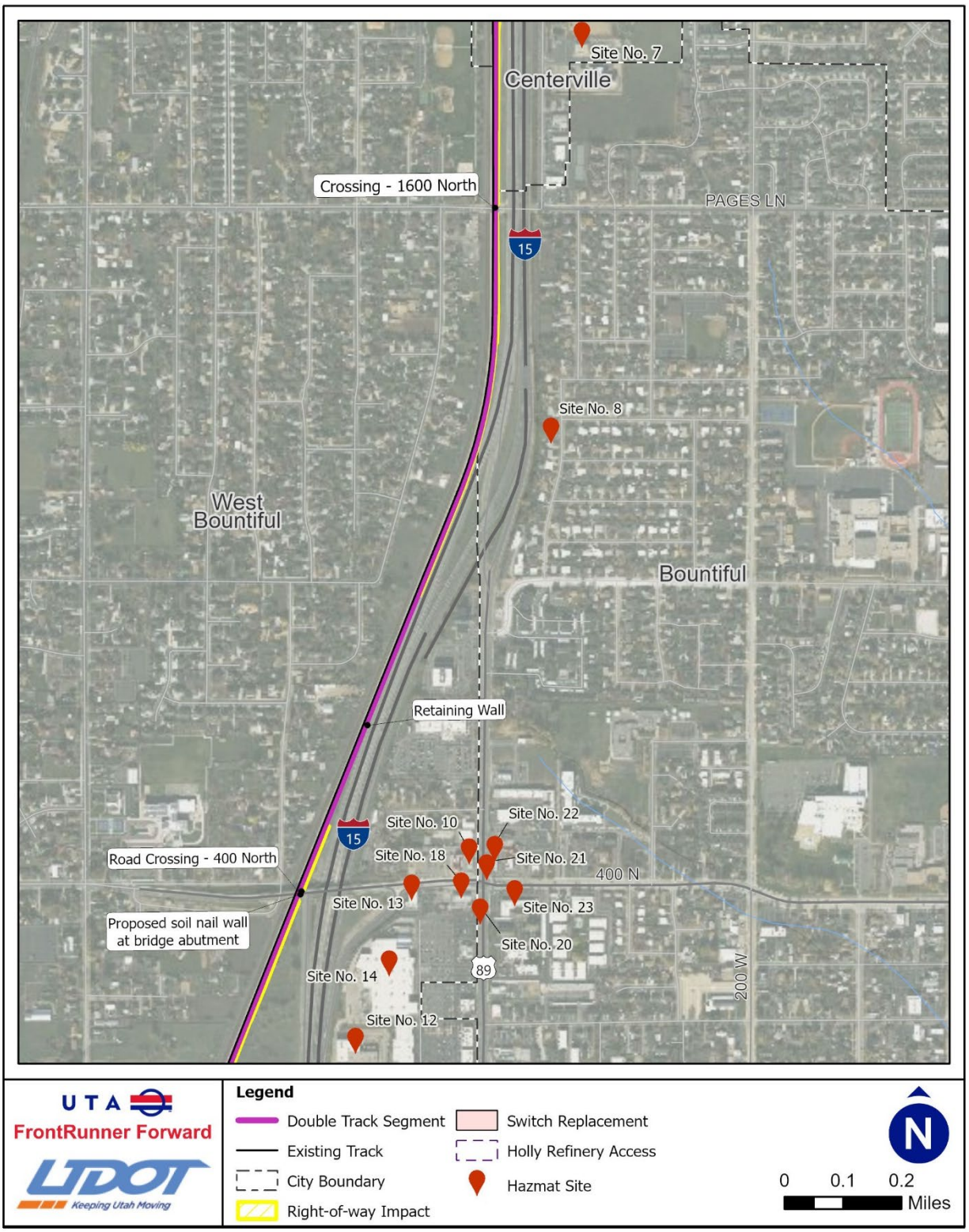


Figure 2. Map of Evaluated Sites, 3 of 3

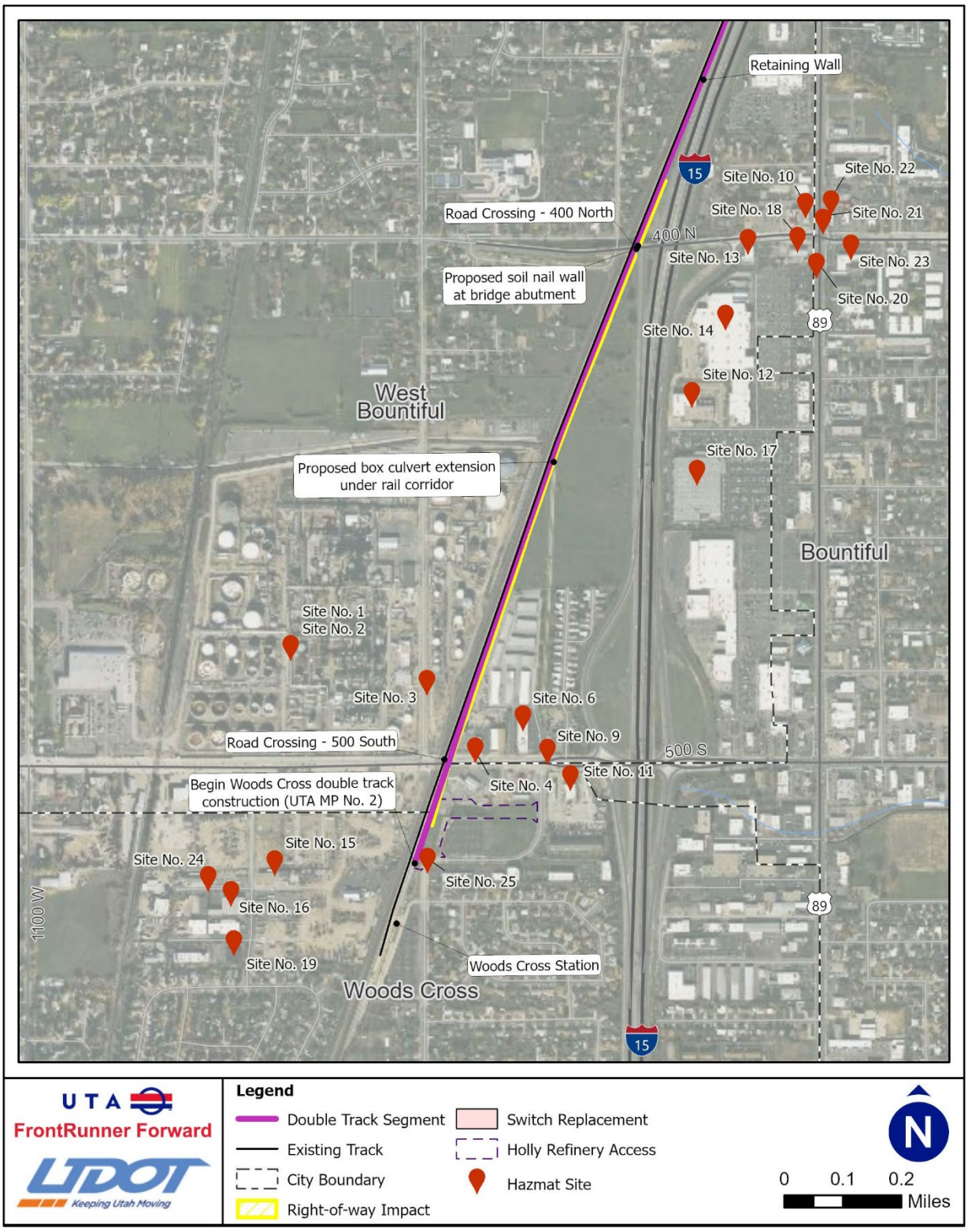


Figure 3. Medium- and High-Risk Sites, 1 of 3

Figure 3. Medium- and High-Risk Sites, 2 of 3

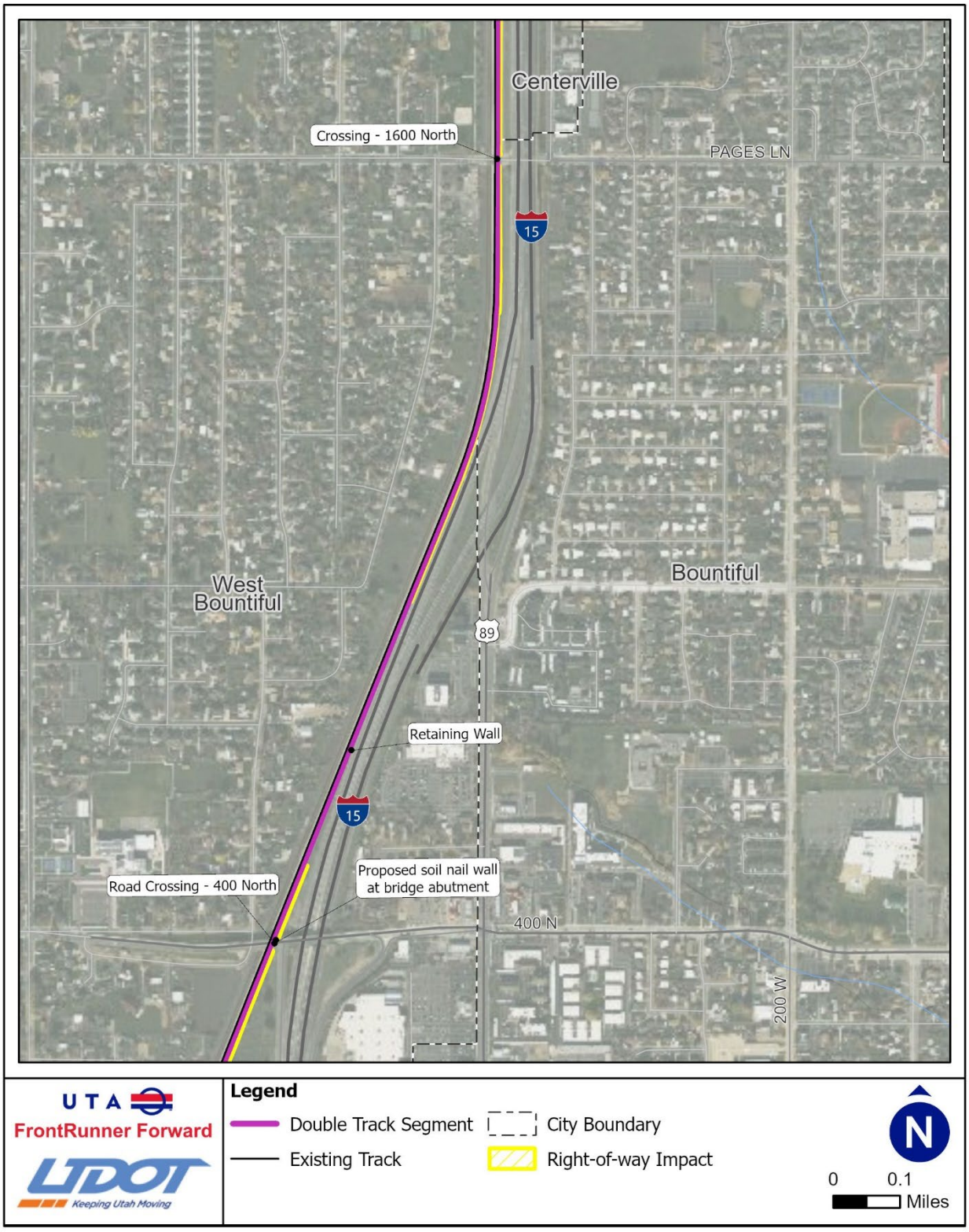
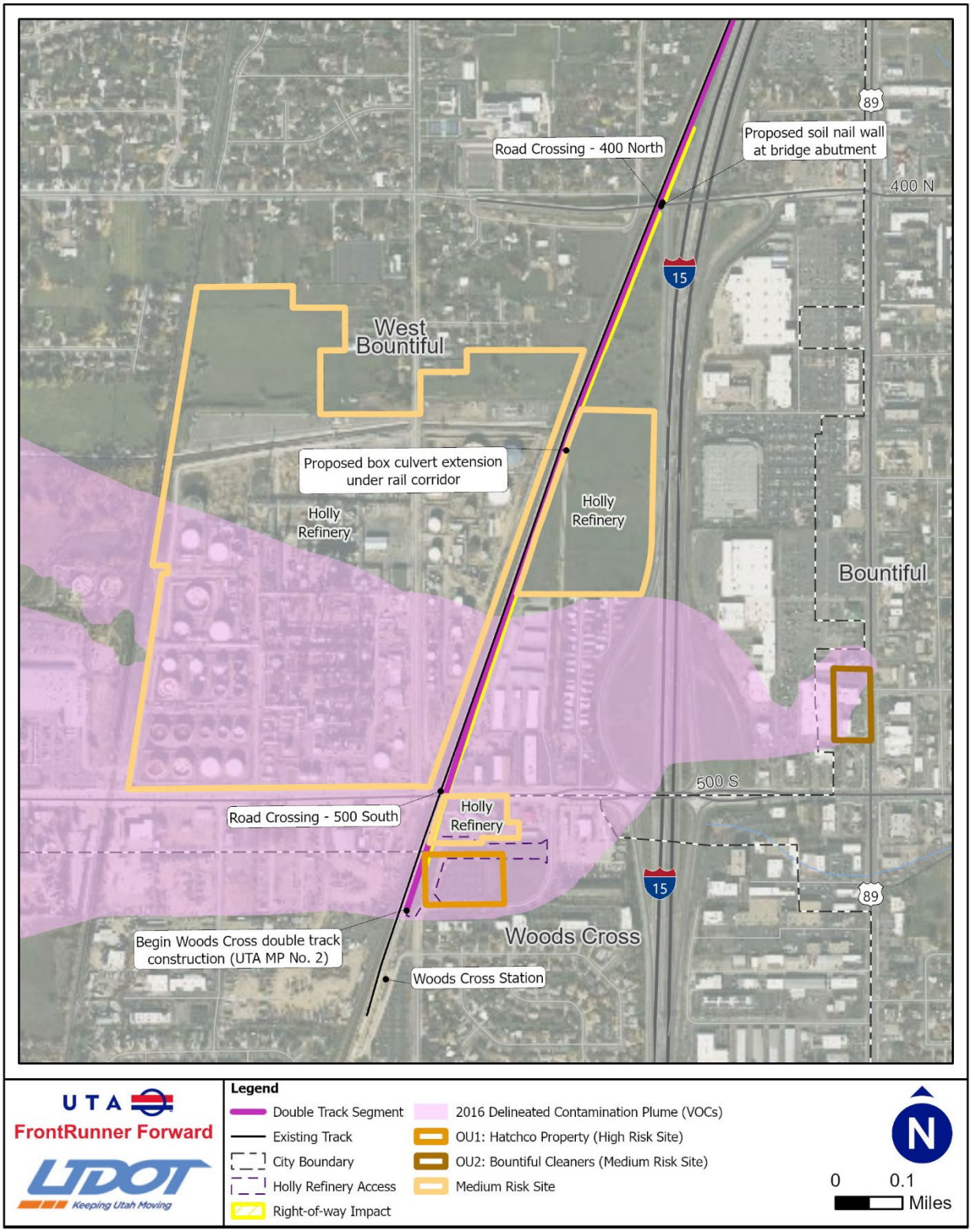


Figure 3. Medium- and High-Risk Sites, 3 of 3



HIGH RISK

Bountiful/Woods Cross 5th S. PCE Plume – 500 South 800 West, Bountiful, UT (OU1)

The Bountiful/Woods Cross 5th S. PCE Plume site is a Superfund Site listed on the National Priority List and is located to the east and west of the alignment in the area where the track crosses W 500 S. Historical operations that led to extensive groundwater contamination in the area originated from two source areas on the 450-acre Superfund site: Hatchco (a specialized carrier of bulk petroleum, asphalt, and petroleum products and solvents that serviced tractor trailers and tank trucks) and Bountiful Cleaners, Inc. (a dry-cleaning facility). The Hatcho property has been deemed Operable Unit 1 (OU1) and the property is now owned by UTA and used as a parking lot for the FrontRunner Woods Cross Station. The Bountiful Cleaners, Inc. property has been deemed OU2 and is discussed below in the medium risk section.

Waste handling activities at OU1 from 1936 to 1986 resulted in the release of volatile organic compounds (VOCs), trichloroethylene (TCE), and associated degradation products to the soil and groundwater, covering approximately 42 acres. The Bountiful Cleaners, Inc. property is included in the area deemed OU2 (discussed below in the medium risk section), and the contaminant plume of tetrachloroethylene (PCE) and its degradation products extend to the west, covering approximately 400 acres (EPA 2007). OU1 is located to the east of the Project alignment, and the plume of contamination has been delineated from the source areas extending to the west across the Project alignment. Approximate locations of the source areas and the contamination plume (VOCs) are shown in Figure 2.

Extensive subsurface investigations and plume delineation have been completed at the site. Remedial actions at the site have been ongoing since the early 2000s, including soil treatment using enhanced in-situ biological and chemical remediation at the source area, treatment of groundwater using biobarriers downgradient from the source area, institutional controls to eliminate potential exposure to groundwater and subsurface vapors, installation of an enhanced anaerobic bioremediation recirculation groundwater treatment system, as well as other treatments deemed necessary (EPA 2022).

Based on the likelihood of partial acquisitions planned for the Project within the plume of contamination of OU1, this operable unit is classified as high risk in this hazardous materials assessment.

MEDIUM RISK

Bountiful/Woods Cross 5th S. PCE Plume – 500 South 800 West, Bountiful, UT (OU2)

The Bountiful Cleaners, Inc. property is included in the area deemed OU2 for this Superfund Site. The contaminant plume of tetrachloroethylene (PCE) and its degradation products extend to the west, covering approximately 400 acres (EPA 2007). This portion of the Superfund Site is located approximately 2,000 feet east of the project alignment and its impacts within the alignment are to groundwater at a depth of over 30 feet bgs. Given the anticipated depths of excavation for this project above 30 feet bgs, this OU of the Bountiful/Woods Cross S. PCE Plume Superfund Site is ranked as a medium risk for this assessment.

HollyFrontier Woods Cross Refining LLC, Holly Energy Partners Woods Cross Terminal – 393 South 800 West, Woods Cross, UT (and 753 W 500 South, Woods Cross UT)

The oil refinery located at 393 South 800 West, adjacent and west of the Project alignment, is currently owned by the Woods Cross Refining Company, LLC. The site is listed in the RCRA-LQG (Resource Conservation and Recovery Act – Large Quantity Generator), the UST (Underground Storage Tank), and

several other databases as an oil refinery and generator of large quantities of hazardous materials. The two USTs recorded in the database have been decommissioned. Multiple release incidents were found documented on DEQ's environmental site database. The site is also located on portions of the contamination plume described above in the Bountiful/Woods Cross 5th S. PCE Plume site. Based on the nature of the activities at the oil refinery, the storage and generation of large quantities of hazardous waste, and the proximity of the refinery to the Project alignment, this site is ranked as a medium risk for encountering hazardous materials for this assessment.

Syro Steel Company – 950 West 400 South

The Syro Steel Company, also known as Trinity Highway Products, LLC, is a fabricated metal product manufacturing facility located to the adjacent west of the Project study area. According to current design plans, no ground disturbance appears to be planned for the portion of the study area that lies adjacent to the Syro Steel Company property. The facility began operations in 1966 and subsurface investigations have indicated historical hazardous waste releases on the site. Remedial actions have been taken at the site, including the excavation and disposal of contaminated soil and sludge and implementation of groundwater monitoring. Institutional controls are in place at the site (soil covers, stormwater controls, a site management plan, and groundwater use controls), and groundwater monitoring is ongoing. The Project alignment is upgradient from the site and significant redevelopment has occurred on the site since 2000. If ground disturbance is planned in the vicinity of this site or if any portion of the site is planned for partial acquisition, there is potential risk of the presence of contaminants in the soil or groundwater near this site. The site is ranked as a medium risk for the Project based on the known existing contaminants at the site and the proximity of the site to the Project alignment.

Historical Review

Historical Aerial Photographs

Historical aerial photographs of the study area were obtained from publicly available sources (USG 2022). Aerial photographs were examined for the years 1953, 1962, 1973, 1987, 1993, 2006, 2009, 2011, 2014, and 2018. Observations are listed below.

- 1953: The UP Railroad and I-15 are visible oriented north-south through the Project area. The Great Salt Lake is visible to the far east of the Project area. The Wasatch Mountains are visible to the west of the Project area.
- 1962-1993: Development along I-15 and the railroad is visible in the Project area. The oil refinery along the western side of the railroad is visible.
- 2006-2018: The UTA Frontrunner line, runs along the railroad and construction was started in 2005 and completed in 2008 (UTA 2017). Residential, commercial, and industrial development in the area is visible.

No additional sites of environmental concern or evidence of adverse conditions associated with land use were identified through the historical aerial photograph review.

Sanborn Maps

Sanborn maps were not available for any period within the Project area.

EDR Proprietary Databases

Five sites identified in the EDR Historical Auto database were located either within or adjacent to the Project area. All of these sites were either far enough outside the Project area such that impacts to the Project are not expected or associated with sites listed in the regulatory databases and reviewed during that process.

One site within the Project area was listed in the EDR Historical Cleaners database. The Bountiful Cleaners site is further explained in the Bountiful/Woods Cross 5th S. PCE Plume high-risk site section.

Potential Impacts

Many potential impacts and mitigation measures for hazardous materials are similar for all construction projects. This Project involves relatively minor amounts of excavation to accommodate grading, utilities, and track construction. Construction impacts are considered short term in comparison to the lifespan of the completed Project and would end when construction is complete. Potential construction and environmental effects related to the Project are discussed below.

Construction Impacts

The hazardous materials analysis considered direct impacts of activities associated with the construction of the Project. The analysis considered the impacts to human health and the environment as a result of possible release of contaminants or alteration of contaminant migration pathways during construction activities and considered the effects of existing contaminated sites.

Based on the developed nature of the Project area, there is the potential for unknown or unidentified contamination in the subsurface (soil or groundwater) to be encountered during Project construction activities. Unanticipated contamination can put workers at risk and cause delays and costs not accounted for in the Project schedule and budget.

One high-risk site and two medium-risk sites were identified during the regulatory database review and have some potential for impacts on construction, depending on the location of excavation associated with grading and utility placement.

Excavation in the area near the contamination plume from the Bountiful/Woods Cross 5th S. PCE Plume site could potentially encounter residual petroleum hydrocarbons, VOCs, or other hazardous materials (TCEs or PCEs) in groundwater at relatively shallow depths. If groundwater is not present in the shallow excavation expected for this area, there remains some potential (expected to be low to moderate) for vapors associated with residual petroleum hydrocarbons, VOCs, or other hazardous materials (TCEs or PCEs) in groundwater to impact deeper excavations and workers in the vicinity.

For the medium-risk site identified (Syro Steel Company), no full or partial acquisitions are planned for the property, and no ground disturbance appears to be planned in the vicinity of the property. Therefore, this site may be deemed as low risk if acquisition status and construction plans do not change.

Mitigation

Unexpected residual soil and groundwater contamination may be encountered during construction activities in portions of the site footprint for the build alternative. To mitigate potential impacts from potential hazardous material sites, UTA would follow FTA Standard Operating Procedures and abide by applicable regulatory requirements. UTA would perform a level of environmental due diligence appropriate to the size and presumed past use at any properties in the study area before they are acquired. UTA may seek certain legal protections as part of the real property acquisition process to reduce its legal and financial risk.

If environmental concerns were identified through the initial due diligence process, or if a property being acquired has previously been identified as having releases of hazardous materials or existing contamination, the property may be subject to a subsurface investigation to determine the existence and, if present, the nature and extent of contamination at the site. UTA may be responsible for the remediation of any contaminated soil and groundwater on properties it acquires, including contamination previously unknown and found during construction. To the extent practicable, UTA would also limit construction activities that might encounter contaminated groundwater or soil.

Based on the due diligence process, plans for the mitigation, handling, and disposal of contaminated media and hazardous construction debris would be developed on a site-by-site basis in conjunction with the appropriate regulatory agencies, if determined to be necessary. A Project-wide contaminated media management plan (CMMP) may also be developed and implemented and would be expected to cover the majority of minor encounters with contaminated soil or groundwater.

Mitigation related to construction in the area of the Bountiful/Woods Cross 5th S. PCE Plume would likely include a CMMP, the monitoring of work area air in excavations, and the collection of groundwater samples if groundwater is encountered in deeper excavations in this area. Air and water results would aid in determining proper personal protective equipment for workers and water disposal options if dewatering is required.

Additionally, hazardous substances and petroleum products used during construction, such as fuels, paints, solvents, and other chemicals, would be managed and stored per the contractor's pollution control plan. Best management practices (BMPs) would be followed in order to reduce the risk of spills, leaks, or other releases during construction activities. These BMPs could include:

- Fueling, maintenance, and cleaning in contained areas (e.g., berms)
- Minimization of the production or generation of hazardous materials
- Appropriate labeling and storage of hazardous waste per federal regulations
- Designated hazardous waste storage away from storm drains or surface water
- Recycling of materials (used oil- and water-based paint) as appropriate
- Handling any potential spills of hazardous materials in conformance with applicable Material Safety Data Sheets

Conclusions

As described above, multiple sites with confirmed releases of hazardous materials or petroleum hydrocarbons to the subsurface are located near the study area. After evaluation, most of the sites were determined to be of low risk to the Project or to the environment. Three sites, including a Superfund site on the NPL list, were classified as high or medium risk to the Project, but the risk of worsening environmental conditions would still be low given the Project's environmental commitments regarding the management of potential contaminants. The Project alignment crosses a delineated plume of VOCs, petroleum hydrocarbons, TCE, and PCE contamination near the southern portion of the alignment (Bountiful/Woods Cross 5th S. PCE Plume). Depending on precise excavation locations and depths determined during design, these three sites may require some amount of planning and mitigation to reduce risk to the Project construction and Project workers. Additionally, because of the institutional controls in place and the ongoing remediation efforts within the Bountiful/Woods Cross 5th S. South PCE Plume Superfund Site, coordination with the EPA and DEQ may be required.

The Project would comply with hazardous materials regulatory requirements associated with construction. To the extent possible, the extent of contamination at a site with known contamination should be verified prior to construction to minimize exposure to hazardous materials. Coordination with the site cleanup manager and agencies could help ensure that the Project would comply with site-specific cleanup and disposal requirements. Considering the implementation of these measures, no adverse effects related to hazardous materials are anticipated.

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Attachment 6:
North of Woods Cross Double Track Project
Aquatics Resources Delineation Report

FrontRunner Forward Program – North of Woods Cross Double Track Project: Aquatic Resources Delineation Report

Prepared for
Utah Transit Authority

April 2023

Prepared by
Parametrix

FrontRunner Forward Program – North of Woods Cross Double Track Project: Aquatic Resources Delineation Report

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APPENDICES

ACRONYMS AND ABBREVIATIONS

FAC	facultative
FACW	facultative wetland
GIS	geographic information system
GPS	global positioning system
HGM	hydrogeomorphic
NHD	National Hydrography Dataset
NRCS	Natural Resources Conservation Service
NWI	National Wetlands Inventory
OBL	obligate
OHWM	ordinary high water mark
PEM	palustrine emergent
PSS	palustrine scrub-shrub
PWS	Professional Wetland Scientist
UP	Union Pacific
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
USGS	United States Geological Survey
UTA	Utah Transit Authority

EXECUTIVE SUMMARY

This aquatic resource delineation for the FrontRunner Forward Program – North of Woods Cross Double Track Project was conducted in accordance with the 1987 Corps of Engineers *Wetland Delineation Manual* (Environmental Laboratory 1987) and *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (USACE 2008). This delineation was also conducted in accordance with the *2008 Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States* (Lichvar and McColley 2008).

Three wetlands, totaling 1.13 acres, and one waterway were identified within the study area for the FrontRunner Forward Program – North of Woods Cross Double Track Project. The study area is 110 acres in size and 2.1 miles in length, running along the existing single-track FrontRunner commuter rail line from north of the Woods Cross Station to the existing siding at about 2000 North in West Bountiful in Davis County, Utah. The entire study was visited, and all wetlands were formally delineated in the field using a submeter Trimble DA2 Catalyst Global Navigation Satellite System receiver. These wetlands are primarily linear features located in swales paralleling the rail track and are classified as freshwater palustrine emergent (PEM) and palustrine scrub-shrub (PSS) wetlands (Cowardin et al. 1979). Two of the wetlands extend into the adjacent pasture fields. Overall, the wetlands are of lower quality and are fragmented within the study area. The Mill Creek canal flows under the tracks within the study area. It is a relatively permanent non-navigable tributary that drains into Farmington Bay within the Great Salt Lake.

1. INTRODUCTION

The Utah Transit Authority (UTA) is proposing to construct a new double-track segment along approximately 2.1 miles of existing single track FrontRunner commuter rail line from north of the Woods Cross Station to the existing siding at about 2000 North in West Bountiful in Davis County, Utah (see Figure 1). This segment runs parallel to the existing Union Pacific (UP) rail corridor to the west. The Project would improve reliability and reduce delays of the FrontRunner service.

The purpose of this report is to identify and describe aquatic resources within the study area. The study area includes the UTA-owned right-of-way within the alignment section. This report provides the necessary information to obtain a preliminary jurisdictional determination from the U.S. Army Corps of Engineers (USACE) verifying the results of this report.

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2. LOCATION

The study area falls within the municipal boundaries of Centerville, West Bountiful, and Woods Cross, Utah. It is located approximately 2 miles east of Farmington Bay within the Great Salt Lake. Highway I-15 is within the northern portion of the study area, where the existing rail tracks are directly adjacent to the road. The southern end of the study area follows the existing rail tracks and is approximately 700 feet west of I-15. The study area is approximately 110 acres in size and is located in portions of Sections 12, 13, 24, and 25 in Township 2 North, Range 1 West (USGS 2020). The study area is along existing rail tracks, and the surrounding land is developed, primarily with a range of residential types mixed with some industrial, commercial and mixed commercial/residential uses.

2.1 Driving Directions

From downtown Salt Lake City, travel 13 miles on I-15 North, and take exit 319 for UT-105 toward Parrish Lane in Clearfield. Keep left at the fork to continue toward UT-105 W/W 400 N/W Parrish Lane to reach the north end of the study area.

3. METHODS

3.1 Review of Existing Information

Prior to conducting field assessments, Parametrix wetland biologists reviewed the following existing background information:

- United States Geological Survey (USGS) 7.5-minute quadrangle survey maps for Farmington (USGS 2020)
- USGS National Hydrography Dataset (NHD) (USGS 2022)
- U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) Web Soil Survey (USDA, NRCS 2022a)

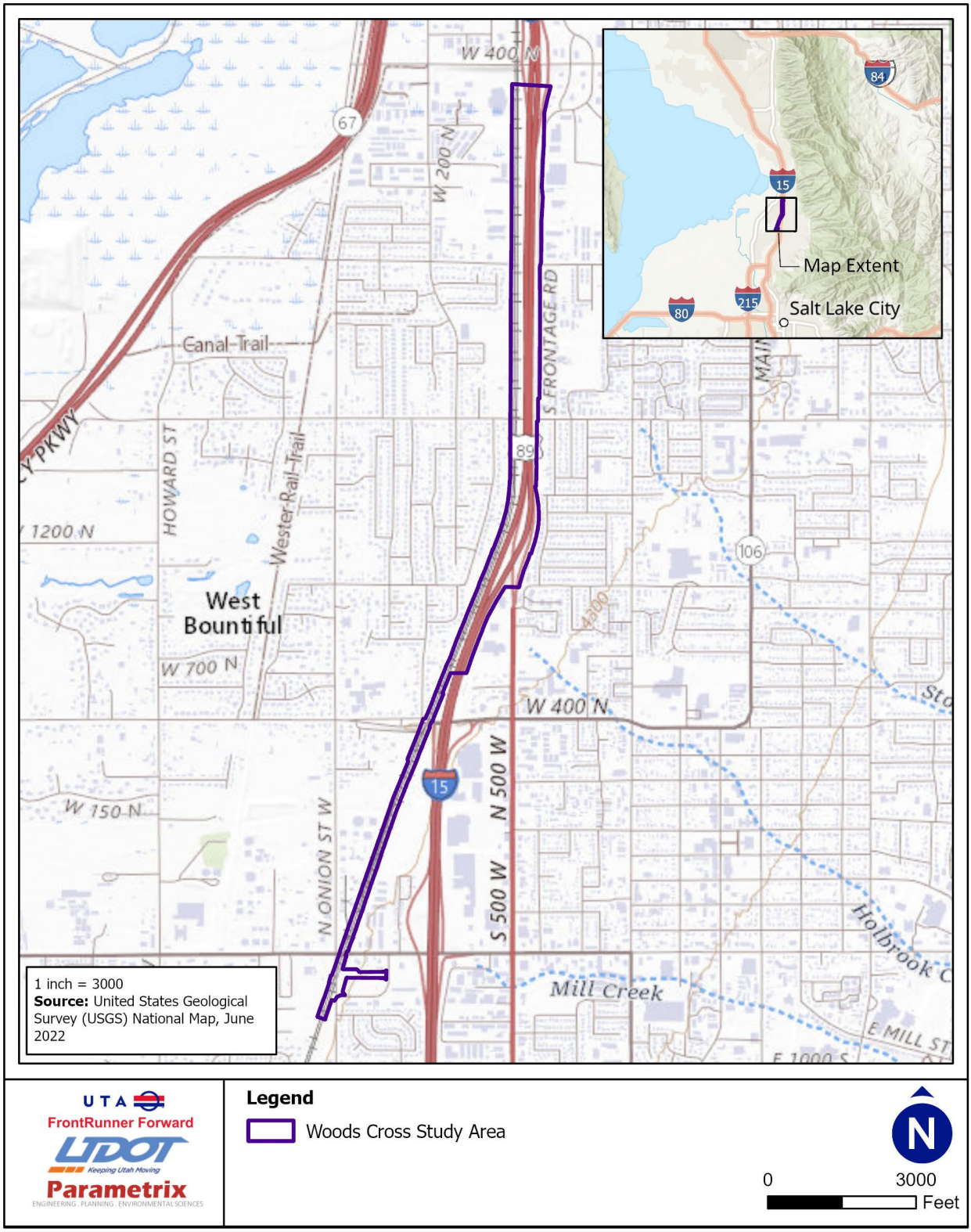

Figure 1. Vicinity Map

- U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) online interactive mapper (USFWS 2022)
- Aerial photography of the study area (Google Earth 2022)
- Final Environmental Impact Assessment and 4(f) Evaluation for Weber County to Salt Lake City Commuter Rail Project (UTA 2005)

Following the review of existing information, Parametrix biologists conducted a field assessment of aquatic resources within the study area. A field reconnaissance assessment was conducted by Kaylee Moser, Professional Wetland Scientist (PWS), from March 13 to 15, 2022. The formal wetland delineations were conducted by two wetland scientists, Kaylee Moser, PWS, and Irina Lapina, PWS, on October 13, 2022. All boundaries and sample plot locations were recorded using a submeter Trimble DA2 Catalyst Global Navigation Satellite System receiver. Data was collected using this global positioning system (GPS) receiver with the ArcGIS Field Map application containing base condition mapping layers. Collected data was incorporated into a geographic information system (GIS) for analysis.

3.2 Wetland Identification and Delineation

The methods specified in the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987) and indicators specified in the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (USACE 2008) were used by Project biologists to delineate on-site wetlands. Delineated wetlands were classified according to the USFWS *Classification of Wetlands and Deepwater Habitats of the United States* (FGDC 2013; Cowardin et al. 1979). Hydrogeomorphic (HGM) classifications were assigned to wetlands using methods established in *A Hydrogeomorphic Classification System for Wetlands* (Brinson 1993).

Wetlands are defined as those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. An area must have at least one positive indicator of wetland vegetation, soils, and hydrology to be considered a wetland. Wetland determination data forms were completed for each wetland (Appendix A).

3.2.1 Vegetation

The dominant plants and their wetland indicator status were evaluated to determine if the vegetation was hydrophytic. Hydrophytic vegetation is generally defined as vegetation adapted to prolonged saturated soil conditions. To meet the hydrophytic vegetation criterion, more than 50% of the dominant plants must be facultative (FAC), facultative wetland (FACW), or obligate (OBL), based on the plant indicator status.

Scientific and common plant names follow generally accepted nomenclature. Plant names are consistent with the PLANTS Database (USDA, NRCS 2022b) and the National Wetland Plant List (USACE 2020). During the field investigations, dominant plant species were observed and recorded on data forms for each sampling point (Appendix A). The National Wetland Plant List was also used to assign plant indicator status for observed plant species.

3.2.2 Soils

Soils were examined by excavating sample plots to a depth of 16 inches or more to observe soil profiles, colors, and textures. Munsell color charts (Munsell 2015) were used as objective standards to describe soil colors.

3.2.3 Hydrology

The study area was examined for evidence of hydrology. An area is considered to have wetland hydrology when soils are ponded or saturated consecutively for 12.5% of the growing season.

In the study area, the growing season as determined using the Bountiful Bench weather station is generally 212 days long and lasts from April 4 to November 2 (ACIS 2022). Therefore, ponding or saturation must be present for approximately 26 consecutive days at 28°F or warmer within the growing season. This aquatic resource delineation was conducted late in the growing season. According to the Bountiful Bench weather station, precipitation was within the normal range for the 3 months prior to the October field delineation. The study area received 0.16 inch of precipitation in the 2 weeks prior to the field visit, and no precipitation 1 week prior to the visit (ACIS 2022). According to the United States Drought Monitor map, the study area is mapped as experiencing severe drought. The current drought in Utah began in spring 2020; however, overall Utah has been experiencing "megadrought" conditions for the past 20 years (NIDIS 2022). With 99.39% of Utah experiencing severe drought or worse, Utah Governor Spencer J. Cox issued an Executive Order on April 21, 2022, declaring a state of emergency due to drought (Utah Division of Water Resources 2022). Due to drought conditions, wetlands that periodically lack indicators of wetland hydrology were encountered. In these situations, biologists followed the protocols listed in the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (USACE 2008). The manual states that if wetland hydrology indicators appear to be absent on a site that has hydrophytic vegetation and hydric soils, no evidence of hydrologic manipulation, and the region has been affected by drought, then the area should be identified as a wetland.

3.3 Waters of the U.S. Ordinary High Water Mark Assessment

The study area was examined for evidence of streams using the definitions, methods, and standards established in *A Field Guide to the Identification of the Ordinary High Water Mark* (OHWM) *in the Arid West Region of the Western United States: A Delineation Manual* (Lichvar and McColley 2008) and the definition of the OHWM in the Clean Water Act in 33 CFR Part 328.3.

3.4 Jurisdictional Assessment

Delineated aquatic resources were evaluated for potential hydrologic or tributary connections between each wetland and traditional navigable waters (TNWs). The final ruling of the "Revised Definition of 'Waters of the United States'" (EPA and USACE 2022) took effect on March 20, 2023. However, in light of preliminary injunctions as published on April 12, 2023, the Environmental Protection Agency (EPA) and USACE are interpreting "waters of the United States consistent with the pre-2015 regulatory regime in 26 States, including Utah, until further notice". Therefore, potential jurisdictional determination of delineated aquatic resources was evaluated against both rules, the Revised Definition of Water of the U.S. (EPA and USACE 2022) and the Waters of the U.S. (2008 Rapanos decision, EPA 2008). Biologists reviewed USGS 7.5-minute topographic quadrangle maps, NWI map data, Google Earth imagery, and the NHD to evaluate potential jurisdiction.

4. EXISTING CONDITIONS

4.1 Landscape Setting

The study area is approximately 110 acres in size and is located within Davis County, Utah. The entirety of the study area was field verified during the aquatic resources assessment.

The surrounding land use is a mix of single-family residences, commercial and industrial businesses, the UP rail line, the UTA Frontrunner rail line, and Woods Cross Station. The I-15 highway corridor is within the northern portion of the study area. The southern portion of the study area follows the UP and UTA existing tracks through pasture field west of I-15. Prior to development, the surrounding land was largely used for agriculture purposes. The local topography of the study area is a flat valley. The study area is comprised mainly of shallow swale features paralleling the existing railroad tracks and features patches of common reed and willow that are regularly maintained by UTA.

The study area is approximately 2 miles east of Farmington Bay within the Great Salt Lake. Mill Creek, which drains into Farmington Bay, is considered a relatively permanent tributary to a TNW under the "Revised Definition of 'Waters of the United States'" and is therefore the closest jurisdictional water. According to the NHD, the Mill Creek canal is the only water body within the study area. It originates in the Sessions Mountains and flows through the study area within a concrete-lined canal. The flow appears to be relatively permanent, as there was flowing water present during the October 2022 delineation (USGS 2022).

Hydrology inputs into the study area include stormwater runoff from the adjacent railroad tracks and roads. Surface water in the northern portion of the study area flows into a stormwater vault near the Parrish Lane bridge. Surface water in the southern portion of the study area flows into the Mill Creek canal or drains into stormwater catchment systems further south.

4.2 Mapped Soils

The USDA NRCS Soil Survey data (2022a) indicate that the study area is underlain by 16 different soil units (see Figure within Appendix B). Many of the mapped soil units are small inclusions within the study area. The soil units encompassing the majority of the study area are as follows:

- Map Unit DrA – Draper loam, drained, 0% to 1% slopes (45% of study area)
- Map Unit Lt – Logan silty clay loam, 0% to 3% slopes (10% of study area)
- Map Unit Wt – Woods Cross silty loam, drained, 0% to 3% slopes (9% of study area)

The Draper loam soil series consists of very deep, somewhat poorly drained soils that formed in noncalcareous, medium textured alluvium. This soil series forms on alluvial fans. In a typical profile, the surface layer (0 to 8 inches) is a dark gray (10YR 4/1) or black (10YR 2/1) loam underlain with a dark gray (10YR 4/1) or black (10YR 2/1) heavy loam (8 to 21 inches). This soil series is listed as artificially drained. It has a hydric soil rating of 5%. This soil series is present within the pasture fields in the southern portion of the study area.

The Logan silty clay loam soil series consists of very deep, poorly drained, slowly permeable soils that formed in alluvium or lacustrine deposits derived predominantly from quartzite, sandstone, granite, limestone, and gneiss. This soil series forms on flood plains, low smooth undulating lake terraces, and stream terraces. In a typical profile, the surface layer (0 to 2 inches) is matted roots and plant remains. This layer is underlain by a very dark gray (10YR 3/1) silty clay loam (2 to 15 inches). Beneath that,

extending to 28 inches, is a gray (2.5Y 6/1) silty clay loam. It has a hydric soil rating of 100%. This soil series is present within the center portion of the study area, near the West 1600 North crossing.

The Woods Cross silty clay loam soil series consists of very deep, poorly drained soils that formed in alluvium or lacustrine deposits derived from gneiss, schist, granite, quartzite and sandstone. This soil series forms are on smooth to slightly undulating, nearly level to gently sloping, broad alluvial fans and flood plains. In a typical profile, the surface layer (0 to 6 inches) is a dark gray (10YR 4/1) or black (10YR 2/1) silty clay loam, underlain with a dark gray (10YR 4/1) or black (10YR 2/1) silty clay loam with redoximorphic features present (6 to 37 inches). It has a hydric soil rating of 100%. This soil series is present within the southern portion of the study area.

4.3 Previously Mapped Aquatic Resources

According to the NWI, there is one mapped wetland within the study area (USFWS 2022). This wetland has an R4SBC Cowardin class (Riverine, Intermittent, Streambed, Seasonally Flooded) and is mapped where the Mill Creek canal is currently present. The NHD maps one canal waterway (the Mill Creek canal) crossing the study area (USGS 2022). See NWI and NHD figures within Appendix B.

Wetlands within the study area were previously delineated and reported in 2005 for the Weber County to Salt Lake City Commuter Rail Project. Six wetlands (CR-02, CR-03, CR-04, CR-05, CF-06, and CR-07) were mapped within the study area and are described in the *Final Environmental Impact Assessment and 4(f) Evaluation for the Weber County to Salt Lake City Commuter Rail Project*. These wetlands were identified as PSS and PEM wetlands and have been partially or fully impacted by the rail project construction. This previous wetland mapping was used as a planning tool during the field delineation for this Project.

4.4 Delineated Aquatic Resources

4.4.1 Overview

A field reconnaissance assessment was conducted by Kaylee Moser, PWS on March 13 to 15, 2022. The aquatic resources field delineation was conducted by two wetland scientists, Kaylee Moser, PWS and Irina Lapina, PWS on October 13, 2022. Three wetlands were delineated within the study area. None of the wetlands are used for recreational, commercial, or industrial uses. One Water of the U.S. was identified crossing under the rail tracks within the study area via a box culvert. This feature, the Mill Creek canal, is conveyed through a concrete structure outside of the UTA right-of-way, and therefore biologists did not delineate the OHWM. Information on these aquatic resources is presented in Table 1 and the subsequent sections below. Figures 2a and 2b display the wetland locations within the study area. Wetland data forms are available in Appendix A, supporting maps are in Appendix B, photographs are in Appendix C, and aquatic resource data are in Appendix D.

Table 1. Aquatic Resources within Frontrunner Woods Cross Study Area

Aquatic Resource Name	Cowardin Class [a]	HGM Class [b]	Latitude/Longitude	Aquatic Resource Size (acre)	Aquatic Resource Size (Linear feet of streams)	Anticipated Jurisdictional Determination*
Wetland CR-02	PSS	Depressional	40.891161, -111.898201	0.84	--	Jurisdictional; Wetland with significant nexus with TNW (2008) drains into relatively permanent non-navigable tributary (a)(4))2022)
Wetland CR-03	PEM	Depressional	40.891656, -111.897953	0.17	--	Jurisdictional; Wetland with significant nexus with TNW (2008) drains into relatively permanent non-navigable tributary (a)(4) (2022)
Wetland CR-07	PSS	Depressional	40.915911, -111.891815	0.12	--	Non-jurisdictional; Ditches (including roadside ditches) excavated wholly in and draining only dry land and that do not carry a relatively permanent flow of water ((b)(3) (2008 and 2022)
Mill Creek Canal	R5*	Riverine	40.889882, -111.898844	--	200 (flow within culvert)	Excluded Water or water feature that is not identified in (a)(1) – (a)(4) and does not meet the other (b) subcategories.

[a] FGDC 2013; Cowardin et al. 1979

[b] Brinson 1993

* artificially created concrete canal

* following Rapanos Decision (EPA 2008) and "Revised Definition of 'Waters of the United States'(EPA and USACE 2022)

4.4.2 Wetlands

Wetland boundaries within the study area were delineated based on topography breaks defined by fill prisms, changes in vegetation, and presence/absence of hydric soil indicators.

Wetland CR-02: Wetland CR-02 is located in depression directly east of the existing UTA track and extends into the adjacent pasture field. The wetland receives stormwater inputs and outlets south along the swale feature. This surface water drains into the Mill Creek canal or continues south and drains into stormwater catchment systems. Wetland CR-02 is a PSS wetland vegetated primarily by coyote willow (*Salix exigua*). Soils within Wetland CR-02 met the hydric soil indicator Redox Dark Surface (F6). The soil profile had a gravelly sandy loam texture and 7.5YR 2.5/1 matrix with distinct redoximorphic features. No surface water, water table, or saturation was observed during the October 2022 delineation. Wetland hydrology was considered problematic due to drought conditions. In accordance with the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region*, the area was identified as wetland because hydric soils and hydrophytic vegetation were present (USACE 2008). Wetland CR-02 was previously mapped during the 2005 Weber County to Salt Lake City Commuter Rail Project.

Wetland CR-03: Wetland CR-03 is located within a depression directly east of the existing UTA track and extends into the adjacent pasture field. The wetland receives stormwater inputs and outlets south along the swale feature. This surface water drains into the Mill Creek canal or continues south and drains into stormwater catchment systems. Wetland CR-03 is a PEM wetland vegetated primarily by common reed (*Phragmites australis*). Soils within Wetland CR-03 met the hydric soil indicator Redox Dark Surface (F6). The soil profile had a gravelly sandy loam texture and 7.5YR 2.5/1 matrix with distinct redoximorphic features. No surface water, water table, or saturation was observed during the October 2022 delineation. Wetland hydrology was considered problematic because of drought conditions. In accordance with the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region*, the area was identified as wetland because hydric soils and hydrophytic vegetation were present (USACE 2008). Wetland CR-03 was previously mapped during the 2005 Weber County to Salt Lake City Commuter Rail Project.

Wetland CR-07: Wetland CR-07 is located within a railroad ditch between the existing UTA track and I-15. The wetland receives stormwater inputs and outlets north along the swale feature. Wetland CR-07 drains directly into a stormwater catchment system at the north end of the wetland. Wetland CF-07 is a PSS wetland vegetated primarily by coyote willow. Soils within Wetland CR-07 met the hydric soil indicator Redox Dark Surface (F6). The soil profile had a gravelly sandy loam texture and 7.5YR 2.5/1 matrix with distinct redoximorphic features. No surface water, water table, or saturation was observed during the October 2022 delineation. Secondary indicators of wetland hydrology, including sediment deposits (B2) and FAC-Neutral Test (D5), were present. Wetland CR-07 was previously mapped during the 2005 Weber County to Salt Lake City Commuter Rail Project.

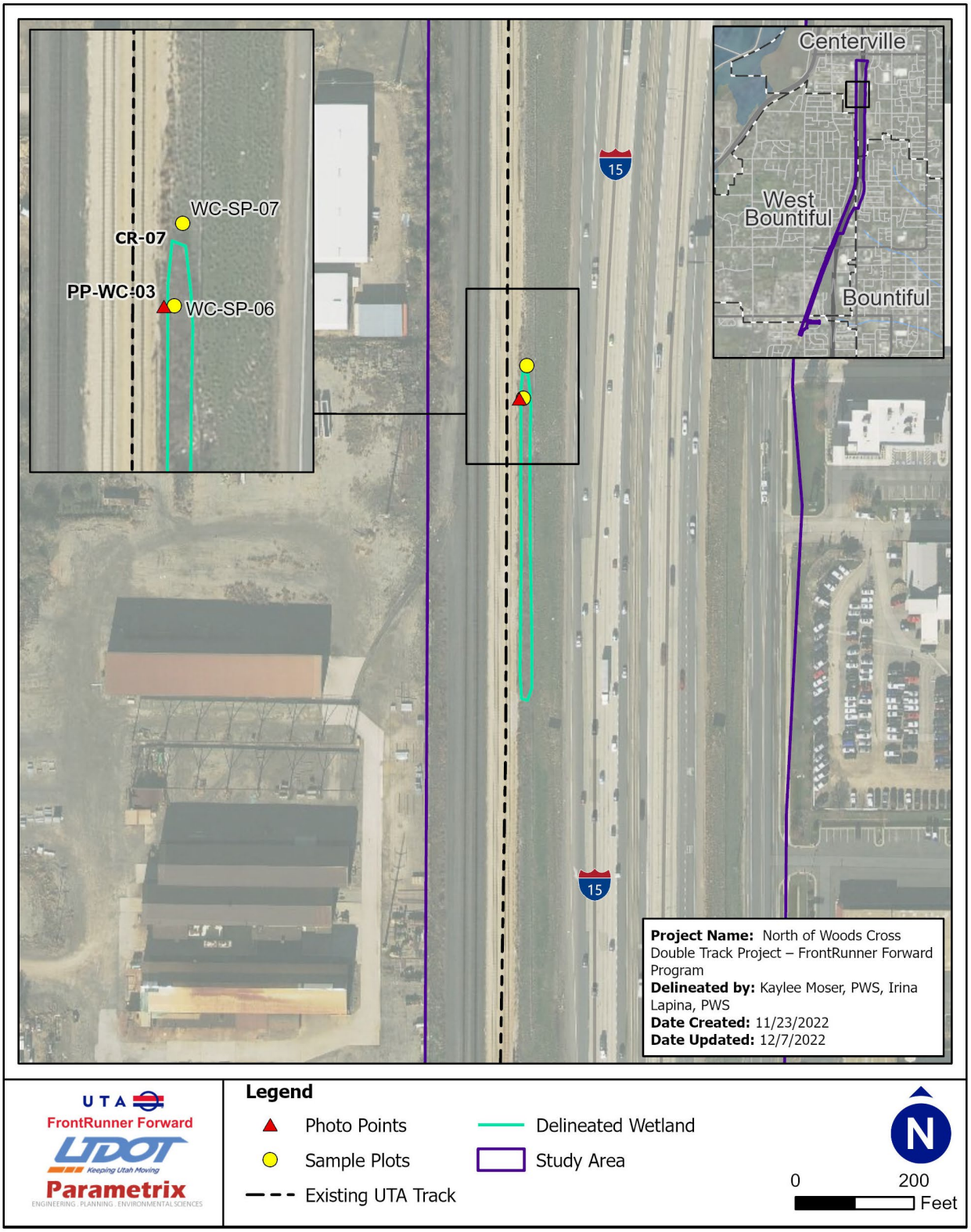

Figure 2a. Wetland Resource Delineation Maps

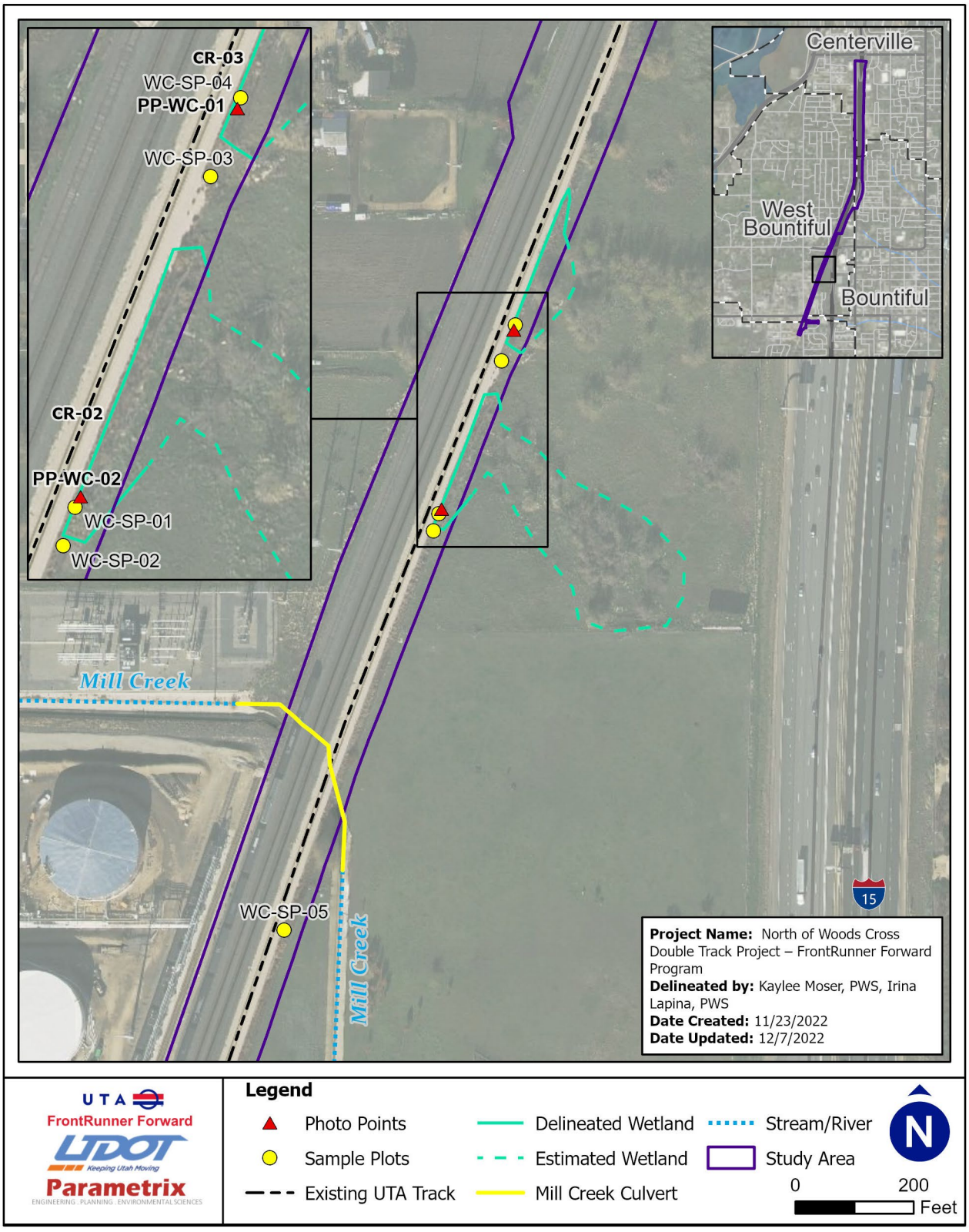

Figure 2b. Wetland Resource Delineation Maps

4.4.2.1 Plant Species List

In general, wetland plants were present within shallow depressions along the railroad fill prism. These depressions were predominantly vegetated with common reed and coyote willow. Uplands surrounding the wetlands were vegetated by and invasive Scotch thistle (*Onopordum acanthium*), cheatgrass (*Bromus tectorum*), and Mexican fireweed (*Bassia scoparia*).

A list of the wetland and upland plant species observed in the study area and their assigned wetland indicator status is provided in Table 2.

Table 2. Common Plant Species Observed in the Study Area

Wetland Plant Species			
Genus	**Species**	**Common Name**	**USACE Arid West WIS***
Phragmites	*australis*	common reed	FACW
Bassia	*scoparia*	Mexican fireweed	FAC
Salix	*exigua*	coyote willow	FACW
Upland Plant Species			
Genus	**Species**	**Common Name**	**USACE Arid West WIS***
Bassia	*scoparia*	Mexican fireweed	FAC
Tragopogon	*dubius*	yellow salsify	NI
Elymus	*trachycaulus*	slender wild rye	FACU
Kickxia	*elatine*	sharp-leaf cancerwort	UPL
Bromus	*tectorum*	cheat grass	NI
Onopordum	*acanthium*	Scotch thistle	NI

* Wetland Indicator Status (WIS):

OBL = occurs in aquatic resources > 99% of time

FACW = occurs in aquatic resources 67% to 99% of time

FAC = occurs in aquatic resources 34% to 66% of time

FACU = occurs in aquatic resources 1% to 33% of time

UPL = occurs in uplands > 99% of time

NI = indicator status not known in this region

4.4.3 Waters

The Mill Creek canal flows through the study area under the UP and UTA tracks via a box culvert. Mill Creek enters the concrete box culvert east of (and outside of) study area, flows through the study area entirely in the culvert, and daylights west of (and outside of) study area. There were no signs of bed, banks, or indicators of OHWM of Mill Creek were observed within the study area. Mill Creek drains into Farmington Bay within the Great Salt Lake. The flow appears to be relatively permanent, given there was flowing water present during the October 2022 delineation.

4.5 Jurisdictional Assessment

Mill Creek canal is a jurisdictional relatively permanent non-navigable tributary to a TNW (the Great Salt Lake). However, the reach of Mill Creek in the culvert within the study area does not have bed, bank, and OHWM, and therefore does not meet definition of TNW, impoundments, lakes, or tributaries. The portion of the Mill Creek located in the culvert meets the criteria to be recognized as an excluded waters per activities that were previously permitted and do not require further permitting under the 2008 Rapanos decision or the "Revised Definition of 'Waters of the United States'" (EPA and USACE 2022).

Wetlands CR-02 and CR-03 are located 350 feet north of the Mill Creek canal. These wetlands contribute surface water flow into Mill Creek from water moving downgradient from the swale feature adjacent to the UTA track. Therefore, it is anticipated that wetlands CR-02 and CR-03 would be jurisdictional as wetland that have a significant nexus with a traditional navigable water under the 2008 Rapanos decision, and as (a)(4) adjacent wetlands (EPA and USACE 2022).

Wetland CR-07 is a railroad ditch that excavated wholly in and drains only dry land and that does not carry a relatively permanent flow of water (b)(3) per both 2008 Rapanos decision and "Revised Definition of 'Waters of the United States'" (EPA and USACE 2022). Therefore, Wetland CR-07 is not anticipated to be jurisdictional by USACE.

5. REQUIRED DISCLAIMER

This report documents the investigation, best professional judgment, and conclusions of the investigators. It is correct and complete to the best of our knowledge. It should be considered a Preliminary Jurisdictional Determination of wetlands and other waters and used at your own risk unless it has been reviewed and approved through an approved or preliminary jurisdictional determination by USACE.

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Appendix A

Wetland Data Forms

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Frontrunner / Woods Cross | City/County: Salt Lake | Sampling Date: 10/12/2022
Applicant/Owner: Utah Transit Authority | State: Utah | Sampling Point: **WC-SP-01**
Investigator(s): Kaylee Moser (PWS), Irina Lapina (PWS) | Section, Township, Range: 2N1W24NWSE
Landform (hillslope, terrace, etc.): railroad ditch | Local relief (concave, convex, none): concave | Slope (%): <3%
Subregion (LRR): (B) Columbia/Snake River Plateau | Lat: 40.890931 | Long: -111.898350 | Datum: D NAD 1983 2011
Soil Unit (Name-ID-Hydric Rating): Draper loam, drained, 0 to 1 percent slopes - DrA - No | NWI classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No X (If no, explain in Remarks)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No ____	**Is the Sampled Area within a Wetland?**	**Yes X** **No ____**
Hydric Soil Present?	Yes X	No ____		
Wetland Hydrology Present?	Yes X	No ____		

Precipitation prior to fieldwork:
According to the Bountiful Bench, UT NOAA weather station, 0.0" of precipitation was received on the day of fieldwork and 0.16" during the two weeks prior. Precipitation was within the normal range for the three months prior to the site visit, however, the general area has been experiencing drought conditions for over 2 years.

Remarks:
WC-SP-01 is located with Wetland CR-02.

VEGETATION

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 3x1m)			
1. *none*			
2.			
3.			
4.			
	0% = Total Cover		
Sapling/Shrub Stratum (Plot size: 2x1m)			
1. *Salix exigua*	60%	Yes	FACW
2.			
3.			
4.			
5.			
	60% = Total Cover		
Herb Stratum (Plot size: 1x1m)			
1. *Onopordum acanthium*	20%	Yes	NOL
2. *Bassia scoparia*	20%	Yes	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	40% = Total Cover		
Woody Vine Stratum (Plot size: 10')			
1. *none*			
2.			
	0% = Total Cover		

% Bare Ground in Herb Stratum 50% | % Cover of Biotic Crust 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)
Total Number of Dominant Species Across All Strata: 3 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 67% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species ____	x 1 =	____
FACW species ____	x 2 =	____
FAC species ____	x 3 =	____
FACU species ____	x 4 =	____
UPL species ____	x 5 =	____
Column Totals: 0 (A)		0 (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:
X Dominance Test is >50%
____ Prevalence Index is ≤3.0[1]
____ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? **Yes X** **No ____**

Remarks:

SOIL

Sampling Point: WC-SP-01

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	[3]Texture	Remarks
0-2	7.5YR 2.5/1	100					Gr SaL	
2-16	7.5YR 2.5/1	97	7.5YR 3/4	3	C	M	Gr SaL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

[3]Texture: S = sand; Si = silt; C = clay; L = loam or loamy. Texture Modifier: co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay)

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- Vernal Pools (F9)

Indicators for Problematic Hydric Soils[4]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: none

Depth (inches): ___

Hydric Soil Present? **Yes** X **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- X Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches): ___
Water Table Present?	Yes ___	No X	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes ___	No X	Depth (inches): ___

Wetland Hydrology Present? **Yes** X **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Sample plot 01 is has hydrophytic vegetation, hydric soils, and proper geomorphic position on the landscape present. According to the Corps Arid West Regional Supplemental Manual under the "Wetlands that periodically lack indicators of wetland hydrology" section (pg. 102), if wetland hydrology indicators appear to be absent on a site that has hydrophytic vegetation and hydric soils, no evidence of hydrologic manipulation, and the region has been affected by drought, then the area should be identified as a wetland.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Frontrunner / Woods Cross | City/County: Salt Lake | Sampling Date: 10/12/2022

Applicant/Owner: Utah Transit Authority | State: Utah | Sampling Point: **WC-SP-02**

Investigator(s): Kaylee Moser (PWS), Irina Lapina (PWS) | Section, Township, Range: 2N1W24NWSE

Landform (hillslope, terrace, etc.): railroad ditch | Local relief (concave, convex, none): concave | Slope (%): <3%

Subregion (LRR): (B) Columbia/Snake River Plateau | Lat: 40.890869 | Long: -111.898376 | Datum: D NAD 1983 2011

Soil Unit (Name-ID-Hydric Rating): Draper loam, drained, 0 to 1 percent slopes - DrA - No | NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No X (If no, explain in Remarks)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No ____	**Is the Sampled Area within a Wetland?**	**Yes** ____ **No X**
Hydric Soil Present?	Yes ____	No X		
Wetland Hydrology Present?	Yes ____	No X		

Precipitation prior to fieldwork:

According to the Bountiful Bench, UT NOAA weather station, 0.0" of precipitation was received on the day of fieldwork and 0.16" during the two weeks prior. Precipitation was within the normal range for the three months prior to the site visit, however, the general area has been experiencing drought conditions for over 2 years.

Remarks:

WC-SP-02 is located upland of WC-SP-01 (Wetland CR-02), outside of willow patch.

VEGETATION

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 3x1m)			
1. *none*			
2.			
3.			
4.			
	0% = Total Cover		
Sapling/Shrub Stratum (Plot size: 2x1m)			
1. *none*			
2.			
3.			
4.			
5.			
	0% = Total Cover		
Herb Stratum (Plot size: 1x1m)			
1. *Bassia scoparia*	55%	Yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	55% = Total Cover		
Woody Vine Stratum (Plot size: 2x1m)			
1. *none*			
2.			
	0% = Total Cover		

% Bare Ground in Herb Stratum 45% | % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species	x 4 =	
UPL species	x 5 =	
Column Totals: 0 (A)		0 (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

____ Prevalence Index is ≤3.0[1]

____ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? **Yes X No** ____

Remarks:

SOIL

Sampling Point: WC-SP-02

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	[3]Texture	Remarks
0-9	7.5YR 2.5/1	100					SaL	
9-16	7.5YR 2.5/1	98	7.5YR 3/4	2	C	M	SaL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

[3]Texture: S = sand; Si = silt; C = clay; L = loam or loamy. Texture Modifier: co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay)

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- Vernal Pools (F9)

Indicators for Problematic Hydric Soils[4]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: none

Depth (inches): ___

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

Redox is too low in soil profile to meet hydric soil indicator Redox Dark Surface (F6).

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches): ___
Water Table Present?	Yes ___	No X	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes ___	No X	Depth (inches): ___

Wetland Hydrology Present? **Yes** ___ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Frontrunner / Woods Cross | City/County: Salt Lake | Sampling Date: 10/12/2022

Applicant/Owner: Utah Transit Authority | State: Utah | Sampling Point: **WC-SP-03**

Investigator(s): Kaylee Moser (PWS), Irina Lapina (PWS) | Section, Township, Range: 2N1W24NWSE

Landform (hillslope, terrace, etc.): railroad ditch | Local relief (concave, convex, none): concave | Slope (%): <3%

Subregion (LRR): (B) Columbia/Snake River Plateau | Lat: 40.891465 | Long: -111.898061 | Datum: D NAD 1983 2011

Soil Unit (Name-ID-Hydric Rating): Draper loam, drained, 0 to 1 percent slopes - DrA - No | NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No X (If no, explain in Remarks)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No ____	**Is the Sampled Area within a Wetland?**	**Yes** ____ **No X**
Hydric Soil Present?	Yes ____	No X		
Wetland Hydrology Present?	Yes ____	No X		

Precipitation prior to fieldwork:

According to the Bountiful Bench, UT NOAA weather station, 0.0" of precipitation was received on the day of fieldwork and 0.16" during the two weeks prior. Precipitation was within the normal range for the three months prior to the site visit, however, the general area has been experiencing drought conditions for over 2 years.

Remarks:

CF-SP-03 is the upland sample for Wetland CR-03.

VEGETATION

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 3x1m)			
1. *none*			
2.			
3.			
4.			
	0% = Total Cover		
Sapling/Shrub Stratum (Plot size: 2x1m)			
1. *none*			
2.			
3.			
4.			
5.			
	0% = Total Cover		
Herb Stratum (Plot size: 1x1m)			
1. *Bassia scoparia*	95%	Yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	95% = Total Cover		
Woody Vine Stratum (Plot size: 2x1m)			
1. *none*			
2.			
	5% = Total Cover		

% Bare Ground in Herb Stratum 5% | % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	____	x 1 =	____
FACW species	____	x 2 =	____
FAC species	____	x 3 =	____
FACU species	____	x 4 =	____
UPL species	____	x 5 =	____
Column Totals:	0 (A)		0 (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

____ Prevalence Index is ≤3.0[1]

____ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? **Yes X No** ____

Remarks:

SOIL

Sampling Point: WC-SP-03

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	[3]Texture	Remarks
0-16	7.5YR 2.5/1	100					SaL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

[3]Texture: S = sand; Si = silt; C = clay; L = loam or loamy. Texture Modifier: co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay)

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- Vernal Pools (F9)

Indicators for Problematic Hydric Soils[4]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: none

Depth (inches): ___

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches): ___
Water Table Present?	Yes ___	No X	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes ___	No X	Depth (inches): ___

Wetland Hydrology Present? **Yes** ___ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Frontrunner / Woods Cross | City/County: Salt Lake | Sampling Date: 10/12/2022

Applicant/Owner: Utah Transit Authority | State: Utah | Sampling Point: **WC-SP-04**

Investigator(s): Kaylee Moser (PWS), Irina Lapina (PWS) | Section, Township, Range: 2N1W24NWSE

Landform (hillslope, terrace, etc.): railroad ditch | Local relief (concave, convex, none): concave | Slope (%): <3%

Subregion (LRR): (B) Columbia/Snake River Plateau | Lat: 40.891592 | Long: -111.897997 | Datum: D NAD 1983 2011

Soil Unit (Name-ID-Hydric Rating): Draper loam, drained, 0 to 1 percent slopes - DrA - No | NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No X (If no, explain in Remarks)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No ____	**Is the Sampled Area within a Wetland?**	**Yes X No ____**
Hydric Soil Present?	Yes X	No ____		
Wetland Hydrology Present?	Yes X	No ____		

Precipitation prior to fieldwork:

According to the Bountiful Bench, UT NOAA weather station, 0.0" of precipitation was received on the day of fieldwork and 0.16" during the two weeks prior. Precipitation was within the normal range for the three months prior to the site visit, however, the general area has been experiencing drought conditions for over 2 years.

Remarks:

WC-SP-04 is located within Wetland CR-03.

VEGETATION

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 3x1m)			
1. *none*			
2.			
3.			
4.			
	0% = Total Cover		
Sapling/Shrub Stratum (Plot size: 2x1m)			
1. *none*			
2.			
3.			
4.			
5.			
	0% = Total Cover		
Herb Stratum (Plot size: 1x1m)			
1. *Phragmites australis*	100%	Yes	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	100% = Total Cover		
Woody Vine Stratum (Plot size: 2x1m)			
1. *none*			
2.			
	0% = Total Cover		

% Bare Ground in Herb Stratum 0% | % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species	x 4 =	
UPL species	x 5 =	
Column Totals: 0 (A)		0 (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

____ Prevalence Index is ≤3.0[1]

____ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? **Yes X No ____**

Remarks:

SOIL

Sampling Point: WC-SP-04

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	[3]Texture	Remarks
0-4	7.5YR 2.5/1	100					Gr SaL	
4-11	7.5YR 2.5/1	96	7.5YR 4/6	4	C	M	Gr SaL	
11-16	7.5YR 2.5/1	85	7.5YR 4/6	15	C	M	SaL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

[3]Texture: S = sand; Si = silt; C = clay; L = loam or loamy. Texture Modifier: co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay)

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- Vernal Pools (F9)

Indicators for Problematic Hydric Soils[4]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: none

Depth (inches): ___

Hydric Soil Present? **Yes** X **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- X Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches): ___
Water Table Present?	Yes ___	No X	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes ___	No X	Depth (inches): ___

Wetland Hydrology Present? **Yes** X **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Sample plot 04 is has hydrophytic vegetation, hydric soils, and proper geomorphic position on the landscape present. According to the Corps Arid West Regional Supplemental Manual under the "Wetlands that periodically lack indicators of wetland hydrology" section (pg. 102), if wetland hydrology indicators appear to be absent on a site that has hydrophytic vegetation and hydric soils, no evidence of hydrologic manipulation, and the region has been affected by drought, then the area should be identified as a wetland.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Frontrunner / Woods Cross | City/County: Salt Lake | Sampling Date: 10/12/2022

Applicant/Owner: Utah Transit Authority | State: Utah | Sampling Point: **WC-SP-05**

Investigator(s): Kaylee Moser (PWS), Irina Lapina (PWS) | Section, Township, Range: 2N1W24NWSE

Landform (hillslope, terrace, etc.): railroad ditch | Local relief (concave, convex, none): concave | Slope (%): <3%

Subregion (LRR): (B) Columbia/Snake River Plateau | Lat: 40.889473 | Long: -111.899067 | Datum: D NAD 1983 2011

Soil Unit (Name-ID-Hydric Rating): Draper loam, drained, 0 to 1 percent slopes - DrA - No | NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No X (If no, explain in Remarks)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	X	No	
Hydric Soil Present?	Yes		No	X
Wetland Hydrology Present?	Yes		No	X

Is the Sampled Area within a Wetland? Yes ____ No X

Precipitation prior to fieldwork:

According to the Bountiful Bench, UT NOAA weather station, 0.0" of precipitation was received on the day of fieldwork and 0.16" during the two weeks prior. Precipitation was within the normal range for the three months prior to the site visit, however, the general area has been experiencing drought conditions for over 2 years.

Remarks:

WC-SP-05 is located within a common reed patch with no hydric soils observed.

VEGETATION

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 3x1m)			
1. *none*			
2.			
3.			
4.			
	0% = Total Cover		
Sapling/Shrub Stratum (Plot size: 2x1m)			
1. *none*			
2.			
3.			
4.			
5.			
	0% = Total Cover		
Herb Stratum (Plot size: 1x1m)			
1. *Phragmites australis*	100%	Yes	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	100% = Total Cover		
Woody Vine Stratum (Plot size: 2x1m)			
1. *none*			
2.			
	0% = Total Cover		

% Bare Ground in Herb Stratum 0% | % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	0 (A)		0 (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

____ Prevalence Index is ≤3.0[1]

____ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes X No ____

Remarks:

SOIL

Sampling Point: WC-SP-05

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	[3]Texture	Remarks
0-11	7.5YR 2.5/1	100					Gr SaL	
11-16	7.5YR 2.5/1	99	7.5YR 3/4	1	C	M	SaL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

[3]Texture: S = sand; Si = silt; C = clay; L = loam or loamy. Texture Modifier: co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay)

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- Vernal Pools (F9)

Indicators for Problematic Hydric Soils[4]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: none

Depth (inches): ___

Hydric Soil Present? Yes ___ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches): ___
Water Table Present?	Yes ___	No X	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes ___	No X	Depth (inches): ___

Wetland Hydrology Present? Yes ___ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Frontrunner / Woods Cross | City/County: Salt Lake | Sampling Date: 10/12/2022

Applicant/Owner: Utah Transit Authority | State: Utah | Sampling Point: **WC-SP-06**

Investigator(s): Kaylee Moser (PWS), Irina Lapina (PWS) | Section, Township, Range: 2N1E7SWSW

Landform (hillslope, terrace, etc.): railroad ditch | Local relief (concave, convex, none): concave | Slope (%): <3%

Subregion (LRR): (B) Columbia/Snake River Plateau | Lat: 40.916283 | Long: -111.891828 | Datum: D NAD 1983 2011

Soil Unit (Name-ID-Hydric Rating): Timpanogos loam, 3 to 6 percent slopes - TbC - No | NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No X (If no, explain in Remarks)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	X	No	
Hydric Soil Present?	Yes	X	No	**Is the Sampled Area within a Wetland?** Yes X No ____
Wetland Hydrology Present?	Yes	X	No	

Precipitation prior to fieldwork:

According to the Bountiful Bench, UT NOAA weather station, 0.0" of precipitation was received on the day of fieldwork and 0.16" during the two weeks prior. Precipitation was within the normal range for the three months prior to the site visit, however, the general area has been experiencing drought conditions for over 2 years.

Remarks:

WC-SP-06 is located within Wetland CR-07.

VEGETATION

		Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 3x1m)				
1. *none*				
2.				
3.				
4.				
		0%	= Total Cover	
Sapling/Shrub Stratum (Plot size: 2x1m)				
1. *Salix exigua*		100%	Yes	FACW
2.				
3.				
4.				
5.				
		100%	= Total Cover	
Herb Stratum (Plot size: 1x1m)				
1. *none*				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
		0%	= Total Cover	
Woody Vine Stratum (Plot size: 2x1m)				
1. *none*				
2.				
		0%	= Total Cover	

% Bare Ground in Herb Stratum 80% | % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	0 (A)		0 (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

____ Prevalence Index is ≤3.0[1]

____ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes X No ____

Remarks:

SOIL

Sampling Point: **WC-SP-06**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	[3]Texture	Remarks
0-2	7.5YR 2.5/1	100					Gr SaL	
2-8	7.5YR 2.5/1	87	10YR 4/4	3	C	M	Gr SaL	mixed matrix
	10YR 5/3	10						
8-16	10YR 5/3	50					Gr SaL	mixed matrix
	7.5YR 2.5/1	40	10YR 4/4	10	C	M		

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

[3]Texture: S = sand; Si = silt; C = clay; L = loam or loamy. Texture Modifier: co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay)

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- Vernal Pools (F9)

Indicators for Problematic Hydric Soils[4]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: none

Depth (inches): ___

Hydric Soil Present? **Yes** X **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- X Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches): ___
Water Table Present?	Yes ___	No X	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes ___	No X	Depth (inches): ___

Wetland Hydrology Present? **Yes** X **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Water enters the wetland in the south end from a culvert conveying flows under I-15. Water flows north through the wetland and outlets into what is assumed to be a stormwater vault system.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Frontrunner / Woods Cross | City/County: Salt Lake | Sampling Date: 10/12/2022

Applicant/Owner: Utah Transit Authority | State: Utah | Sampling Point: **WC-SP-07**

Investigator(s): Kaylee Moser (PWS), Irina Lapina (PWS) | Section, Township, Range: 2N1E7SWSW

Landform (hillslope, terrace, etc.): hillslope | Local relief (concave, convex, none): none | Slope (%): <3%

Subregion (LRR): (B) Columbia/Snake River Plateau | Lat: 40.916397 | Long: -111.891813 | Datum: D NAD 1983 2011

Soil Unit (Name-ID-Hydric Rating): Timpanogos loam, 3 to 6 percent slopes - TbC - No | NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No X (If no, explain in Remarks)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No X	**Is the Sampled Area within a Wetland?**	**Yes** ____ **No** X
Hydric Soil Present?	Yes ____	No X		
Wetland Hydrology Present?	Yes ____	No X		

Precipitation prior to fieldwork:

According to the Bountiful Bench, UT NOAA weather station, 0.0" of precipitation was received on the day of fieldwork and 0.16" during the two weeks prior. Precipitation was within the normal range for the three months prior to the site visit, however, the general area has been experiencing drought conditions for over 2 years.

Remarks:

WC-SP-07 is the upland sample to Wetland CR-07. This wetland is location at the north end of Woods Cross.

VEGETATION

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 3x1m)			
1. *none*			
2.			
3.			
4.			
	0% = Total Cover		
Sapling/Shrub Stratum (Plot size: 2x1m)			
1. *none*			
2.			
3.			
4.			
5.			
	0% = Total Cover		
Herb Stratum (Plot size: 1x1m)			
1. *Elymus trachycaulus*	70%	Yes	FACU
2. *Bromus tectorum*	20%	Yes	NOL
3. *Kickxia elatine*	5%	No	UPL
4. *Tragopogon dubius*	5%	No	NOL
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	100% = Total Cover		
Woody Vine Stratum (Plot size: 2x1m)			
1. *none*			
2.			
	0% = Total Cover		

% Bare Ground in Herb Stratum 0% | % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species	x 4 =	
UPL species	x 5 =	
Column Totals: 0 (A)		0 (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

____ Dominance Test is >50%

____ Prevalence Index is ≤3.0[1]

____ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? **Yes** ____ **No** X

Remarks:

SOIL

Sampling Point: WC-SP-07

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	[3]Texture	Remarks
0-16	10YR 3/2	100					Gr SaL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

[3]Texture: S = sand; Si = silt; C = clay; L = loam or loamy. Texture Modifier: co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay)

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- Vernal Pools (F9)

Indicators for Problematic Hydric Soils[4]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: none

Depth (inches): ___

Hydric Soil Present? Yes ___ No X

Remarks:

railroad fill

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches): ___
Water Table Present?	Yes ___	No X	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes ___	No X	Depth (inches): ___

Wetland Hydrology Present? Yes ___ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Frontrunner / Woods Cross City/County: Salt Lake Sampling Date: 10/12/2022
Applicant/Owner: Utah Transit Authority State: Utah Sampling Point:
Investigator(s): Kaylee Moser (PWS), Irina Lapina (PWS) Section, Township, Range:
Landform (hillslope, terrace, etc.): 0 Local relief (concave, convex, none): Slope (%):
Subregion (LRR): (B) Columbia/Snake River Plateau Lat: Long: Datum:
Soil Unit (Name-ID-Hydric Rating): - - NWI classification:
Are climatic / hydrologic conditions on the site typical for this time of year? Yes No X (If no, explain in Remarks)
Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No
Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	No	**Is the Sampled Area within a Wetland?** Yes No
Hydric Soil Present?	Yes	No	
Wetland Hydrology Present?	Yes	No	

Precipitation prior to fieldwork:
According to the Bountiful Bench, UT NOAA weather station, 0.0" of precipitation was received on the day of fieldwork and 0.16" during the two weeks prior. Precipitation was within the normal range for the three months prior to the site visit, however, the general area has been experiencing drought conditions for over 2 years.

Remarks:

VEGETATION

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
	0% = Total Cover		
Sapling/Shrub Stratum (Plot size: 10')			
1.			
2.			
3.			
4.			
5.			
	0% = Total Cover		
Herb Stratum (Plot size: 5')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	0% = Total Cover		
Woody Vine Stratum (Plot size: 10')			
1.			
2.			
	0% = Total Cover		

% Bare Ground in Herb Stratum 100% % Cover of Biotic Crust 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)
Total Number of Dominant Species Across All Strata: 0 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	#DIV/0!	x 1 =	#DIV/0!
FACW species	#DIV/0!	x 2 =	#DIV/0!
FAC species	#DIV/0!	x 3 =	#DIV/0!
FACU species	#DIV/0!	x 4 =	#DIV/0!
UPL species	#DIV/0!	x 5 =	#DIV/0!
Column Totals:	#DIV/0! (A)		#DIV/0! (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:
Dominance Test is >50%
Prevalence Index is ≤3.0[1]
Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL

Sampling Point:

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	[3]Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

[3]Texture: S = sand; Si = silt; C = clay; L = loam or loamy. Texture Modifier: co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay)

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- Vernal Pools (F9)

Indicators for Problematic Hydric Soils[4]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ___	No ___	Depth (inches):	___
Water Table Present?	Yes ___	No ___	Depth (inches):	___
Saturation Present? (includes capillary fringe)	Yes ___	No ___	Depth (inches):	___

Wetland Hydrology Present? **Yes** ___ **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Frontrunner / Woods Cross City/County: Salt Lake Sampling Date: 10/12/2022
Applicant/Owner: Utah Transit Authority State: Utah Sampling Point:
Investigator(s): Kaylee Moser (PWS), Irina Lapina (PWS) Section, Township, Range:
Landform (hillslope, terrace, etc.): 0 Local relief (concave, convex, none): Slope (%):
Subregion (LRR): (B) Columbia/Snake River Plateau Lat: Long: Datum:
Soil Unit (Name-ID-Hydric Rating): - - NWI classification:
Are climatic / hydrologic conditions on the site typical for this time of year? Yes No X (If no, explain in Remarks)
Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No
Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	No	**Is the Sampled Area within a Wetland?** Yes No
Hydric Soil Present?	Yes	No	
Wetland Hydrology Present?	Yes	No	

Precipitation prior to fieldwork:
According to the Bountiful Bench, UT NOAA weather station, 0.0" of precipitation was received on the day of fieldwork and 0.16" during the two weeks prior. Precipitation was within the normal range for the three months prior to the site visit, however, the general area has been experiencing drought conditions for over 2 years.

Remarks:

VEGETATION

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
	0% = Total Cover		
Sapling/Shrub Stratum (Plot size: 10')			
1.			
2.			
3.			
4.			
5.			
	0% = Total Cover		
Herb Stratum (Plot size: 5')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	0% = Total Cover		
Woody Vine Stratum (Plot size: 10')			
1.			
2.			
	0% = Total Cover		

% Bare Ground in Herb Stratum 100% % Cover of Biotic Crust

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)
Total Number of Dominant Species Across All Strata: 0 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	#DIV/0!	x 1 =	#DIV/0!
FACW species	#DIV/0!	x 2 =	#DIV/0!
FAC species	#DIV/0!	x 3 =	#DIV/0!
FACU species	#DIV/0!	x 4 =	#DIV/0!
UPL species	#DIV/0!	x 5 =	#DIV/0!
Column Totals:	#DIV/0! (A)		#DIV/0! (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:
Dominance Test is >50%
Prevalence Index is ≤3.0[1]
Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL

Sampling Point:

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	[3]Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

[3]Texture: S = sand; Si = silt; C = clay; L = loam or loamy. Texture Modifier: co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay)

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- Vernal Pools (F9)

Indicators for Problematic Hydric Soils[4]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ___	No ___	Depth (inches):	___
Water Table Present?	Yes ___	No ___	Depth (inches):	___
Saturation Present? (includes capillary fringe)	Yes ___	No ___	Depth (inches):	___

Wetland Hydrology Present? **Yes** ___ **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Frontrunner / Woods Cross City/County: Salt Lake Sampling Date: 10/12/2022
Applicant/Owner: Utah Transit Authority State: Utah Sampling Point:
Investigator(s): Kaylee Moser (PWS), Irina Lapina (PWS) Section, Township, Range:
Landform (hillslope, terrace, etc.): 0 Local relief (concave, convex, none): Slope (%):
Subregion (LRR): (B) Columbia/Snake River Plateau Lat: Long: Datum:
Soil Unit (Name-ID-Hydric Rating): - - NWI classification:
Are climatic / hydrologic conditions on the site typical for this time of year? Yes No X (If no, explain in Remarks)
Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No
Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	No	**Is the Sampled Area within a Wetland?** Yes No
Hydric Soil Present?	Yes	No	
Wetland Hydrology Present?	Yes	No	

Precipitation prior to fieldwork:
According to the Bountiful Bench, UT NOAA weather station, 0.0" of precipitation was received on the day of fieldwork and 0.16" during the two weeks prior. Precipitation was within the normal range for the three months prior to the site visit, however, the general area has been experiencing drought conditions for over 2 years.

Remarks:

VEGETATION

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
	0% = Total Cover		
Sapling/Shrub Stratum (Plot size: 10')			
1.			
2.			
3.			
4.			
5.			
	0% = Total Cover		
Herb Stratum (Plot size: 5')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	0% = Total Cover		
Woody Vine Stratum (Plot size: 10')			
1.			
2.			
	0% = Total Cover		

% Bare Ground in Herb Stratum 100% % Cover of Biotic Crust

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)
Total Number of Dominant Species Across All Strata: 0 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: (A/B)

Prevalence Index worksheet:

	Total % Cover of:	Multiply by:	
OBL species	#DIV/0!	x 1 =	#DIV/0!
FACW species	#DIV/0!	x 2 =	#DIV/0!
FAC species	#DIV/0!	x 3 =	#DIV/0!
FACU species	#DIV/0!	x 4 =	#DIV/0!
UPL species	#DIV/0!	x 5 =	#DIV/0!
Column Totals:	#DIV/0! (A)		#DIV/0! (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:
Dominance Test is >50%
Prevalence Index is ≤3.0[1]
Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL

Sampling Point:

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	[3]Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

[3]Texture: S = sand; Si = silt; C = clay; L = loam or loamy. Texture Modifier: co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay)

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- Vernal Pools (F9)

Indicators for Problematic Hydric Soils[4]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ___	No ___	Depth (inches): ___
Water Table Present?	Yes ___	No ___	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes ___	No ___	Depth (inches): ___

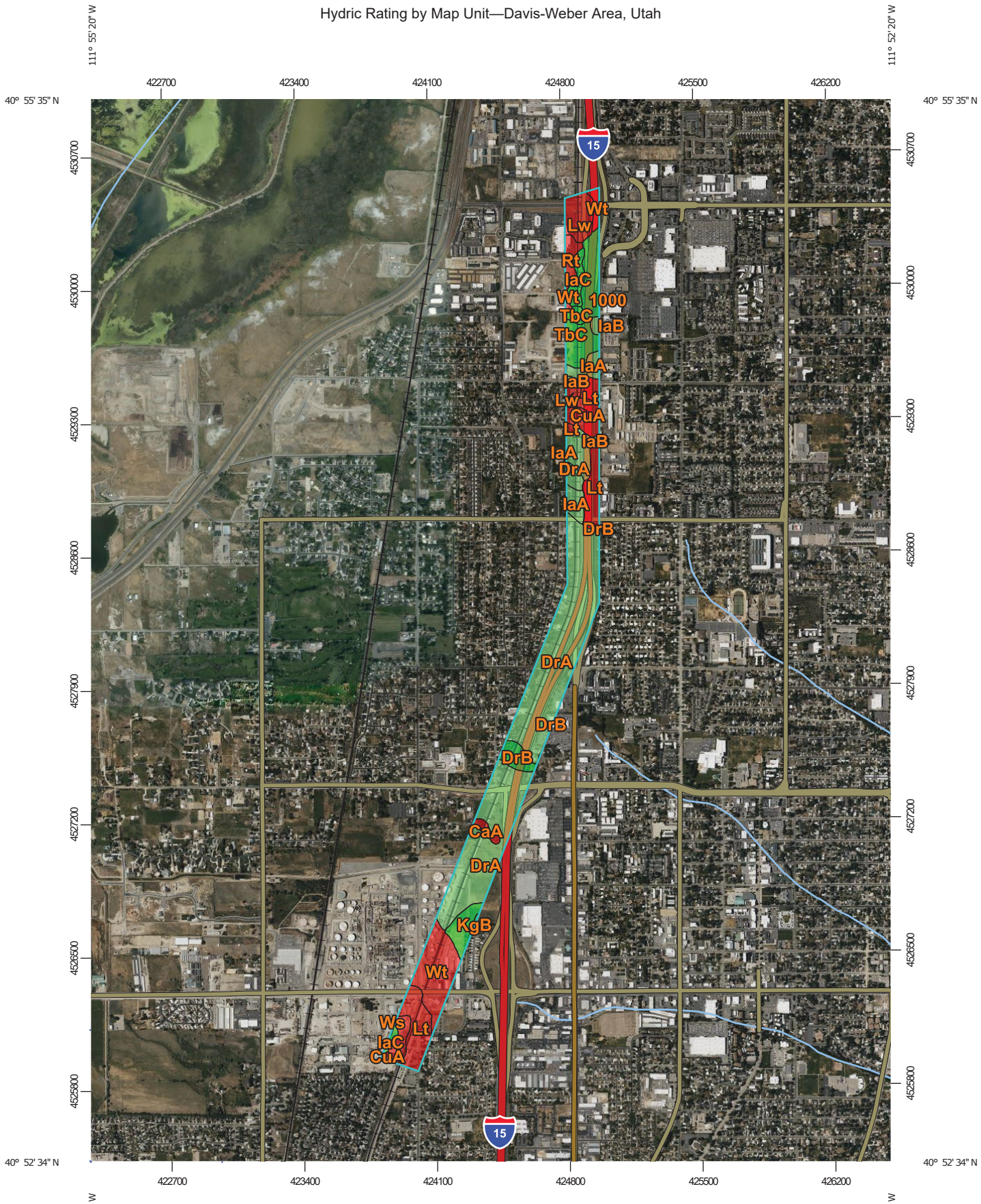
Wetland Hydrology Present? **Yes** ___ **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Appendix B

Supporting Documents



Map Scale: 1:27,200 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 400 800 1600 2400

Feet
0 1000 2000 4000 6000

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 12N WGS84

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

Soil Rating Polygons

- Hydric (100%)
- Hydric (66 to 99%)
- Hydric (33 to 65%)
- Hydric (1 to 32%)
- Not Hydric (0%)
- Not rated or not available

Soil Rating Lines

- Hydric (100%)
- Hydric (66 to 99%)
- Hydric (33 to 65%)
- Hydric (1 to 32%)
- Not Hydric (0%)
- Not rated or not available

Soil Rating Points

- Hydric (100%)
- Hydric (66 to 99%)
- Hydric (33 to 65%)
- Hydric (1 to 32%)
- Not Hydric (0%)
- Not rated or not available

Water Features

- Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background

- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Davis-Weber Area, Utah
Survey Area Data: Version 16, Aug 25, 2022

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jun 19, 2016—Jun 21, 2021

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydric Rating by Map Unit

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
1000	Parleys loam, 0 to 4 percent slopes	0	17.5	7.8%
AbB	Ackmen loam, 1 to 3 percent slopes	0	6.3	2.8%
CaA	Chance loam, 0 to 3 percent slopes	100	1.8	0.8%
CuA	Cudahy silt loam, 0 to 1 percent slopes	100	2.4	1.1%
DrA	Draper loam, drained, 0 to 1 percent slopes	5	99.9	44.7%
DrB	Draper loam, drained, 1 to 3 percent slopes	0	5.1	2.3%
IaA	Ironton silt loam, 0 to 1 percent slopes	10	12.7	5.7%
IaB	Ironton silt loam, 1 to 3 percent slopes	10	3.1	1.4%
IaC	Ironton silt loam, 3 to 6 percent slopes	0	5.4	2.4%
KgB	Kilburn gravelly sandy loam, 1 to 3 percent slopes	0	0.3	0.1%
Lt	Logan silty clay loam, 0 to 3 percent slopes	100	22.7	10.2%
Lw	Logan silty clay loam, shallow water table, 0 to 3 percent slopes	100	10.3	4.6%
Rt	Roshe Springs silt loam, drained, clayey substratum, 0 to 3 percent slopes	100	8.3	3.7%
TbC	Timpanogos loam, 3 to 6 percent slopes	0	2.2	1.0%
Ws	Woods Cross silty clay loam, 0 to 3 percent slopes	100	4.3	1.9%
Wt	Woods Cross silty clay loam, drained, 0 to 3 percent slopes	100	21.1	9.4%
Totals for Area of Interest			**223.4**	**100.0%**

Description

This rating indicates the percentage of map units that meets the criteria for hydric soils. Map units are composed of one or more map unit components or soil types, each of which is rated as hydric soil or not hydric. Map units that are made up dominantly of hydric soils may have small areas of minor nonhydric components in the higher positions on the landform, and map units that are made up dominantly of nonhydric soils may have small areas of minor hydric components in the lower positions on the landform. Each map unit is rated based on its respective components and the percentage of each component within the map unit.

The thematic map is color coded based on the composition of hydric components. The five color classes are separated as 100 percent hydric components, 66 to 99 percent hydric components, 33 to 65 percent hydric components, 1 to 32 percent hydric components, and less than one percent hydric components.

In Web Soil Survey, the Summary by Map Unit table that is displayed below the map pane contains a column named 'Rating'. In this column the percentage of each map unit that is classified as hydric is displayed.

Hydric soils are defined by the National Technical Committee for Hydric Soils (NTCHS) as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (Federal Register, 1994). Under natural conditions, these soils are either saturated or inundated long enough during the growing season to support the growth and reproduction of hydrophytic vegetation.

The NTCHS definition identifies general soil properties that are associated with wetness. In order to determine whether a specific soil is a hydric soil or nonhydric soil, however, more specific information, such as information about the depth and duration of the water table, is needed. Thus, criteria that identify those estimated soil properties unique to hydric soils have been established (Federal Register, 2002). These criteria are used to identify map unit components that normally are associated with wetlands. The criteria used are selected estimated soil properties that are described in "Soil Taxonomy" (Soil Survey Staff, 1999) and "Keys to Soil Taxonomy" (Soil Survey Staff, 2006) and in the "Soil Survey Manual" (Soil Survey Division Staff, 1993).

If soils are wet enough for a long enough period of time to be considered hydric, they should exhibit certain properties that can be easily observed in the field. These visible properties are indicators of hydric soils. The indicators used to make onsite determinations of hydric soils are specified in "Field Indicators of Hydric Soils in the United States" (Hurt and Vasilas, 2006).

References:

Federal Register. July 13, 1994. Changes in hydric soils of the United States.

Federal Register. September 18, 2002. Hydric soils of the United States.

Hurt, G.W., and L.M. Vasilas, editors. Version 6.0, 2006. Field indicators of hydric soils in the United States.

Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18.

Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service. U.S. Department of Agriculture Handbook 436.

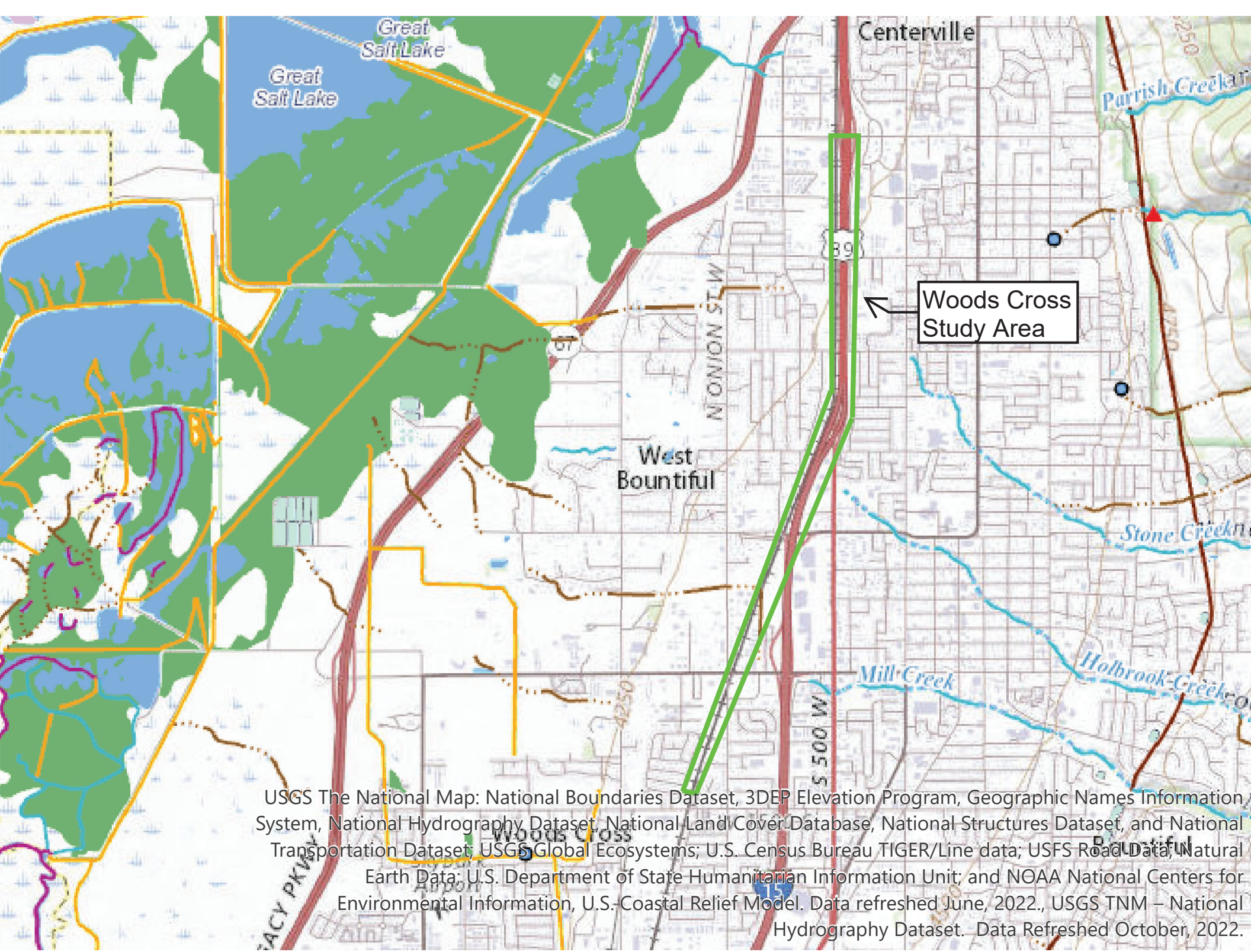
Soil Survey Staff. 2006. Keys to soil taxonomy. 10th edition. U.S. Department of Agriculture, Natural Resources Conservation Service.

Rating Options

Aggregation Method: Percent Present

Component Percent Cutoff: None Specified

Tie-break Rule: Lower

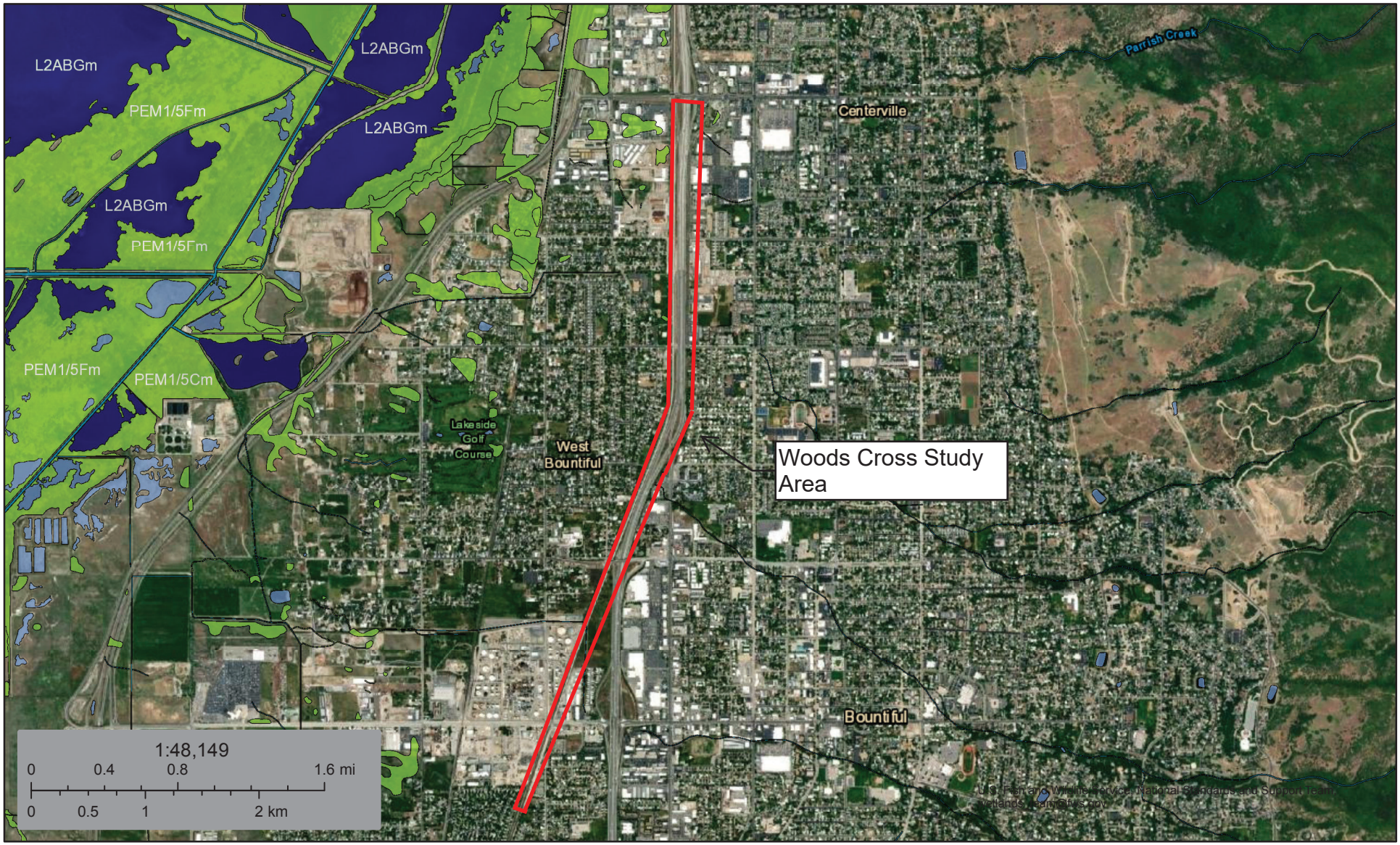


USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names Information System, National Hydrography Dataset, National Land Cover Database, National Structures Dataset, and National Transportation Dataset; USGS Global Ecosystems; U.S. Census Bureau TIGER/Line data; USFS Road Data, Natural Earth Data; U.S. Department of State Humanitarian Information Unit; and NOAA National Centers for Environmental Information, U.S. Coastal Relief Model. Data refreshed June, 2022., USGS TNM – National Hydrography Dataset. Data Refreshed October, 2022.

U.S. Fish and Wildlife Service

National Wetlands Inventory

Woods Cross Study Area



December 3, 2022

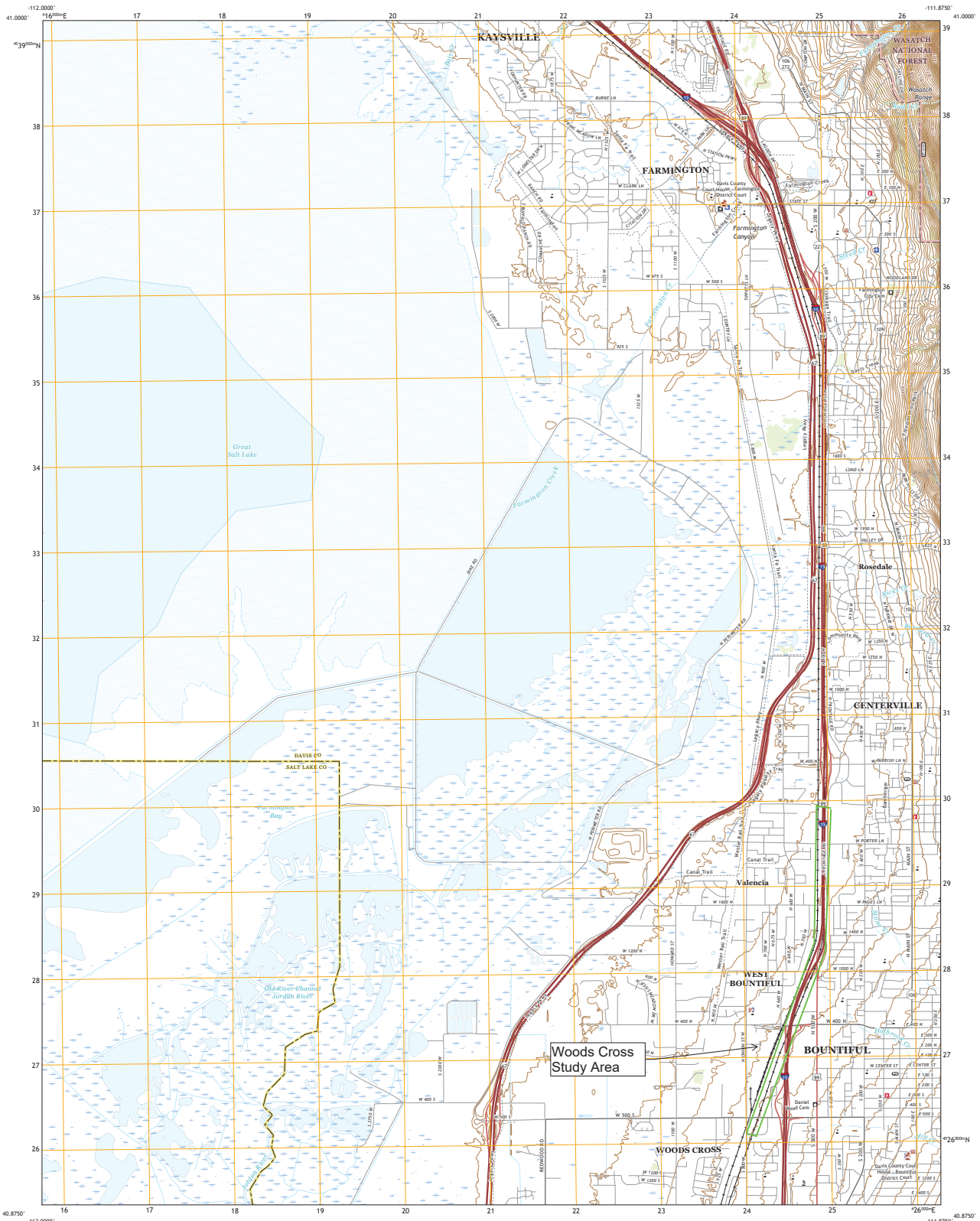
Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

U.S. DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY

The National Map US Topo

FARMINGTON QUADRANGLE
UTAH
7.5-MINUTE SERIES



Produced by the United States Geological Survey
North American Datum of 1983 (NAD83)
World Geodetic System of 1984 (WGS84). Projection and
1 000-meter grid:Universal Transverse Mercator, Zone 12T
This map is not a legal document. Boundaries may be
generalized for this map scale. Private lands within government
reservations may not be shown. Obtain permission before
entering private lands.

Imagery	NAIP,	June 2016 - October 2016
Roads	U.S. Census Bureau,	2016
Roads within US Forest Service Lands	FSTopo Data with limited Forest Service updates,	2013 - 2016
Names	GNIS,	1979 - 2019
Hydrography	National Hydrography Dataset,	1899 - 2019
Contours	National Elevation Dataset,	2002 - 2019
Boundaries	Multiple sources; see metadata file	2017 - 2018
Public Land Survey System	BLM,	2019
Wetlands	FWS National Wetlands Inventory	1981 - 2005

UTM GRID AND 2019 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

U.S. National Grid
100,000-m Square ID
VL
Grid Zone Designation
12T

SCALE 1:24 000

KILOMETERS 0 0.5 1 2
METERS 0 500 1000 2000
MILES 0 0.5 1
FEET 0 1000 2000 3000 4000 5000 6000 7000 8000 9000 10000

CONTOUR INTERVAL 20 FEET
NORTH AMERICAN VERTICAL DATUM OF 1988

This map was produced to conform with the
National Geospatial Program US Topo Product Standard, 2011.
A metadata file associated with this product is draft version 0.6.18

UTAH
QUADRANGLE LOCATION

1	2	3
4		5
6	7	8

1 Clearfield
2 Kaysville
3 Peterson
4 Saltair NE
5 Bountiful Peak
6 Baileys Lake
7 Salt Lake City North
8 Fort Douglas
ADJOINING QUADRANGLES

ROAD CLASSIFICATION
Expressway
Secondary Hwy
Ramp
Local Connector
Local Road
4WD
Interstate Route
US Route
State Route
FS Primary Route
FS Passenger Route
FS High Clearance Route

Check with local Forest Service unit
for current travel conditions and restrictions.

FARMINGTON, UT
2020

MSN 7 0 4 1 0 0 1 0 9 9 0 1 5 0
NGA REF NO. USGSX24K15027

Rainfall Documentation

Date: 10/10/2022

Weather station: Bountiful bench UT

Period of Record.: 1992-2022

County: Utah

State: UT

Growing season: 4/3-11/1 (212 days)

		Long-term rainfall records							
	Month	3 yrs. in 10 less than	Normal	3 yrs. in 10 more than	Rain fall	Condition dry, wet, normal	Condition value	Month weight value	Product of previous two columns
1st prior month*	Sept	0.75	1.45	1.75	0.93	normal	2	3	6
2nd prior month*	Aug	0.40	1.11	1.33	1.80	wet	3	2	6
3rd prior month*	July	0.28	0.73	0.88	0.16	dry	1	1	1
								Sum	**13**

Note: If sum is

6 - 9	then prior period has been drier than normal
10 - 14	then prior period has been normal
15 - 18	then prior period has been wetter than normal

Condition value:

Dry	=1
Normal	=2
Wet	=3

Conclusions: The period prior to oct 2022 has been normal.
No precip oct 1-10
Sept 23-sept 30 = 0.16 in precip

Appendix C

Photographs

PP-WC-01 within Wetland CR-03, looking east

PP-WC-02 within Wetland CR-02, looking north

PP-WC-03 within Wetland CR-07, looking south

PP-WC-04, looking south at Mill Creek canal

PP number	Wetland/Stream ID	Lat/Long
PP-WC-01	CR-03	40° 53' 29.7312"N 111° 53' 52.7892"W
PP-WC-02	CR-02	40° 53' 27.4194"N 111° 53' 54.0204"W
PP-WC-03	CR-07	40° 54' 58.6182"N 111° 53' 30.6486"W
PP-WC-04	Mill Creek Canal	40°53'23.2"N 111°53'56.4"W

Appendix D

Aquatic Resource Excel Sheet

Waters_Name	State	Cowardin_Code	HGM_Code	Meas_Type	Amount	Units	Waters_Type	Latitude	Longitude	Local_Waterway
Wetland CF-02	UTAH	PSS	DEPRESS	Area	0.84	ACRE	DELINEATE	40.91825	-111.89166	
Wetland CF-03	UTAH	PEM	DEPRESS	Area	0.17	ACRE	DELINEATE	40.89203	-111.89767	
Wetland CF-07	UTAH	PSS	DEPRESS	Area	0.12	ACRE	DELINEATE	40.89141	-111.89801	
Mill Creek Canal	UTAH	R5	RIVERINE	Linear	150	FOOT	DELINEATE	40.88988	-111.89884	