

APPENDIX A
Addendum A to the Natural and Cultural
Resources Assessment



Consultants in Natural Resources and the Environment

Addendum A to the Natural and Cultural Resources Assessment Thornton Water Project Larimer County, Colorado

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January 11, 2019

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Addendum A to the Natural and Cultural Resources Assessment Thornton Water Project Larimer County, Colorado

January 11, 2019

Purpose of the Addendum

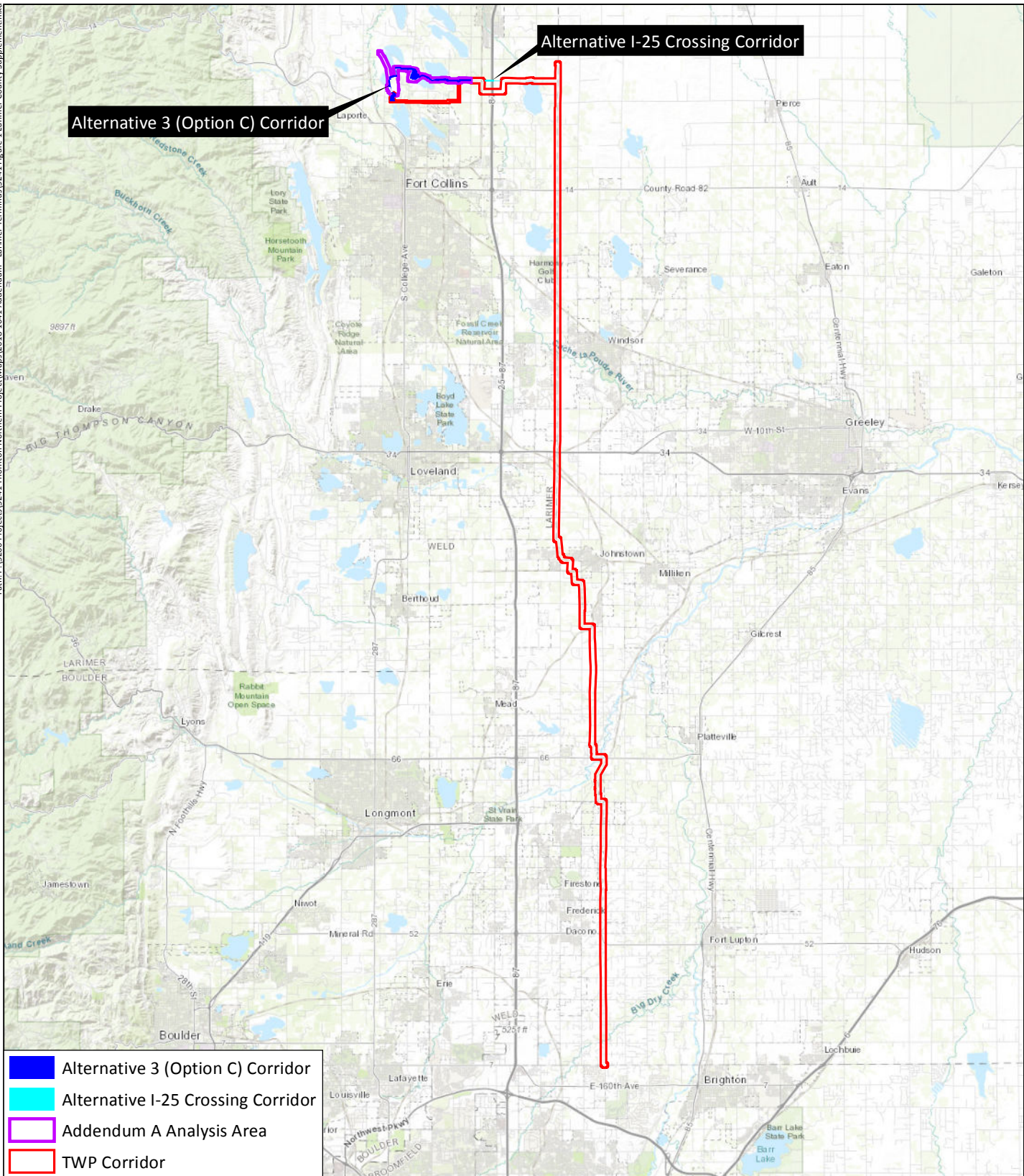
ERO Resources Corporation (ERO) prepared the “Natural and Cultural Resources Assessment” (ERO 2017) in March 2017 to assist the city of Thornton’s (Thornton) planning for the Thornton Water Project (TWP), a proposed domestic water transmission project in Larimer, Weld, and Adams Counties, Colorado. This is an addendum to that assessment and is intended to accompany the “Natural and Cultural Resources Assessment” (ERO 2017) to support the major land use permits Thornton is seeking from Larimer County and to aid in the future development of the final alignment for the water pipeline by detailing the natural and cultural resources found in the TWP corridor.

In May 2016, Thornton developed an initial proposed corridor for the TWP in the area of the Water Supply and Storage Company (WSSC) reservoirs. The location of the proposed corridor was based on the purpose of and need for the TWP, as well as information and guidance received from Larimer County Public Works and Planning staff, Fort Collins, and others. The initial proposed corridor was presented to area residents during public open houses (in the fourth quarter of 2016) and an outreach meeting with residents from the areas around WSSC Reservoir No. 4 (in the first quarter of 2017). At these meetings, residents requested that Thornton look at alternative water pipeline alignments and pump station locations. Subsequent to the meetings with area residents, Thornton met with Larimer County staff to discuss the concerns and requests of the residents, and Larimer County staff provided new guidance for the Larimer County 1041 Permit Application (Application) for the TWP. Changes to the TWP corridor were made as a result of the new guidance from Larimer County staff and the Application was submitted based on those changes. At the Larimer County Land Use Hearing on August 1, 2018, the Board of Larimer County Commissioners (Board) continued the Application hearing until December 17, 2018 to allow Larimer County and Thornton to work with the public to analyze issues and alternatives related to the TWP. As a result of the Board’s request, Larimer County staff formed a working group comprised of Larimer County interested parties to analyze potential conveyance concepts. This addendum presents an additional analysis area, as shown on Figure Addendum-A1 through Figure Addendum-A4 and described in further detail below for the working group’s Alternative 3 (Option C) Corridor alternative. The Alternative 3 (Option C) Corridor is a reasonable alternative for the TWP. The Alternative 3 (Option C) Corridor includes two alternative alignments around WSSC Reservoir No. 4 – one that would be along the reservoir shoreline and another that would be along Vista Lake Drive. In addition, an alternative I-25 crossing was identified and is analyzed in this addendum.

The “Natural and Cultural Resources Assessment” (ERO 2017) presents information on the initial proposed corridor. This addendum presents an analysis of an additional analysis area for the Alternative

3 (Option C) Corridor and summarizes resources found in the TWP corridor east of County Road 9 plus the Alternative 3 (Option C) Corridor (TWP corridor with Alternative 3 [Option C]) and an alternative I-25 crossing. The Alternative 3 (Option C) Corridor extends from WSSC Reservoir No. 4 to County Road 9 where it connects with the TWP corridor. This addendum is structured as follows:

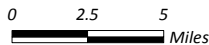
- Purpose of the Addendum
- Additional Analysis Area
 - Description and Location
 - Environmental Impact Analysis
- TWP Corridor with Alternative 3 (Option C) Summary of Resources in Larimer County
- Alternative I-25 Crossing Corridor



- Alternative 3 (Option C) Corridor
- Alternative I-25 Crossing Corridor
- Addendum A Analysis Area
- TWP Corridor

Thornton Water Project – Addendum A Analysis Area
 Sections 16-22, T8N, R69W; Sections 10, 13-15, 23, and 24, T8N, R69W; 6th PM
 UTM NAD 83: Zone 13N; 495010mE, 4500424mN
 Longitude 105.059026°W, Latitude 40.6546656°N
 USGS Wellington and Cobb Lake, CO Quadrangles
 Larimer County, Colorado

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap contributors, and the GIS User Community



**Figure Addendum-A1
 Overview Map**

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 File: 5241 Figure 1 Larimer County Supplement.mxd [dlH]
 January 10, 2019



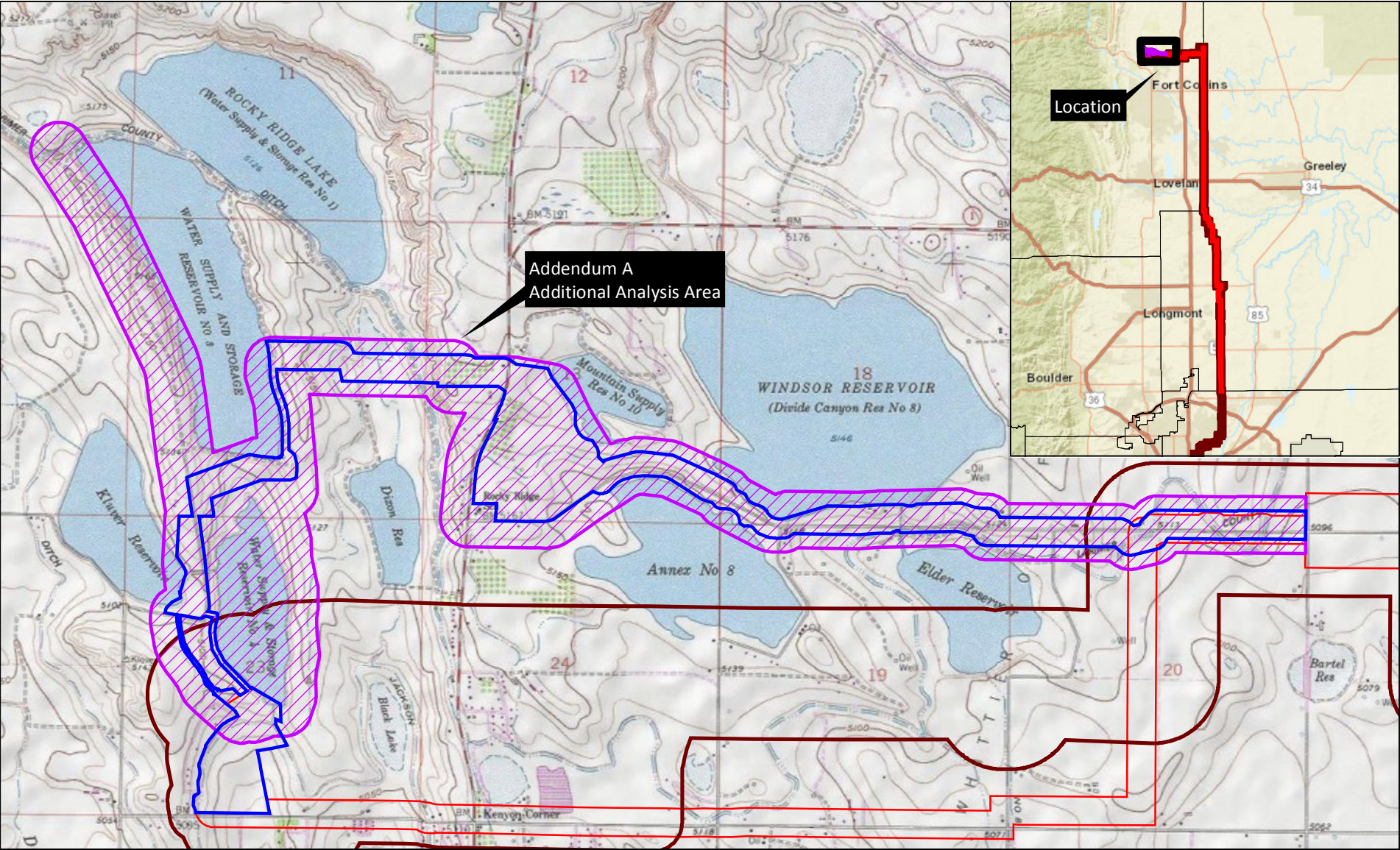
Additional Analysis Area

ERO assessed an additional area along East County Road 56 in Larimer County, Colorado (Figure Addendum-A1, “Additional Analysis Area”). The Additional Analysis Area is the Alternative 3 (Option C) Corridor plus a study buffer, which is typically 500 feet each side of the Alternative 3 (Option C) Corridor centerline. Surveys in the Additional Analysis Area were conducted on November 16, 2018 (2018 site visit). A desktop review of an alternative I-25 crossing was also conducted (Figure Addendum-A5, “Alternative I-25 Crossing Corridor”). ERO also conducted a Class I File Search and Literature Review for cultural resources for the Additional Analysis Area and the Alternative I-25 Crossing Corridor. This addendum provides information on existing site conditions, including natural and cultural resources within the Additional Analysis Area and the Alternative I-25 Crossing Corridor, and anticipated impacts from the TWP. This addendum includes an environmental impact analysis for the Additional Analysis Area and the Alternative I-25 Crossing Corridor for the following four resources: (1) potential wetlands and waters of the U.S., (2) terrestrial animals and habitat, (3) vegetation communities, and (4) areas of historic or archaeological importance.

Description and Location





The Additional Analysis Area is 1,000 feet wide and approximately 7.1 miles long in Larimer County, Colorado (Figure Addendum-A2). From the northwest corner of Water Supply and Storage Reservoir Number 3, it extends south along the west edge of Water Supply and Storage Reservoir Numbers 3 and 4, encircles Water Supply and Storage Reservoir Number 4, and then continues north along the east edge of Water Supply and Storage Reservoir Number 3. The Additional Analysis Area then extends east, crosses over County Road 15, and continues east along East County Road 56, meeting the study buffer from the “Natural and Cultural Resources Assessment” (ERO 2017). Approximately half of the Additional Analysis Area is located along East County Road 56, with residences, agricultural fields, and nonnative upland vegetation largely characterizing both sides of the roadway. The other half of the Additional Analysis Area is situated west of County Road 15 and travels within a rural residential development and along adjacent reservoirs, with nonnative and mixed upland vegetation largely characterizing both sides of the alignment (Photo 1).

Path: P:\5200 Projects\5241 Thornton Northern Project\Maps\2018_1041 Addendum - Larimer\Terminus\5241_Figure 2 Larimer County Supplement.mxd



Thornton Water Project –Addendum A Analysis Area
 Sections 19, 20, 29, and 30, T8N, R68W; Sections 24 and 25, T8N, R69W; 6th PM
 UTM NAD 83: Zone 13N; 496392mE, 4498774mN
 Longitude 105.042668°W, Latitude 40.639806°N
 USGS Wellington, CO Quadrangle
 Larimer County, Colorado

*Study Buffer from "Natural and Cultural Resources Assessment"

-  Alternative 3 (Option C) Corridor
-  Addendum A Analysis Area
-  Study Buffer*
-  TWP Corridor

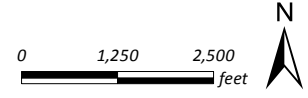


Figure Addendum-A2
 Vicinity Map

Prepared for: City of Thornton
 File: 5241 Figure 2 Larimer County Supplement.mxd [dlH]
 January 10, 2019



Environmental Impact Analysis

Potential Wetlands and Waters of the U.S.

Description

ERO assessed the Additional Analysis Area for potential isolated wetlands, jurisdictional wetlands, and other waters of the U.S. during the 2018 site visit. Before the site visit, ERO reviewed National Wetland Inventory (NWI) mapping for the Additional Analysis Area, as well as data from the U.S. Geological Survey National Hydrography Dataset (NHD). ERO also reviewed 2017 aerial photographs for potential wetlands and open water. The boundaries of wetlands and open water were determined based on the 2018 site visit, NWI mapping, NHD mapping, and aerial photographs. The determination on whether a wetland or open water area is a potential water of the U.S. was based on reviewing NHD mapping to determine if the area has a possible connection to any known waters of the U.S. ERO mapped 6 potential wetlands and 8 potential other waters of the U.S. in the Alternative 3 (Option C) Corridor (Figure Addendum-A3; Photos 2–4). ERO mapped 4 additional potential waters of the U.S. within the study buffer. About 56.19 acres of potential wetlands and 146.18 acres of potential other waters of the U.S. were mapped within the entire Additional Analysis Area (Table Addendum-A1).

Table Addendum-A1 provides a summary of the potential wetlands and waters of the U.S. mapped during the 2018 site visit, general descriptions, proximity to traditionally navigable waters (TNWs), locations, and acreages within the Additional Analysis Area. Information on proximity is important in determining the jurisdictional status of a water or wetland. The U.S. Army Corps of Engineers (Corps) considers TNWs and tributaries to TNWs that are relatively permanent waters (RPWs) jurisdictional, as well as wetlands that connect to TNWs or are adjacent to RPWs. Waters and wetlands that lack a surface hydrologic connection to a TNW or RPW are typically considered isolated and nonjurisdictional.

Table Addendum-A1. Water features in the Alternative 3 (Option C) Corridor and study buffer in Larimer County.

Wetland ID / Drainage Name	Proximity to TNW, RPW, Isolated, or Proximity to a Non-RPW	Site Description	Latitude	Longitude	Acreage in Alternative 3 (Option C) Corridor	Acreage in Study Buffer
Larimer County Canal	A canal that connects to Black Hollow Reservoir and the Pierce Lateral. The Pierce Lateral terminates at a private irrigation reservoir east of Pierce; the Black Hollow Reservoir releases to the Larimer County Canal, which connects to the Collins Lateral, which connects to the Lone Tree Lateral, which terminates on farms.	20-30-foot-wide canal	40.65788553	-105.0583372	3.38	4.40
Unnamed Ditch 2	A ditch that connects to the Larimer and Weld Canal, which connects to Eaton Ditch, which flows to Owl Creek, which flows to Lone Tree Creek, which flows to the South Platte River (TNW).	3-foot-wide ditch	40.6563931	-105.0686307	1.00	0.89
Wetland 81 (W81)	A potential emergent wetland that is adjacent to Unnamed Ditch 2. Unnamed Ditch 2 connects to the Larimer and Weld Canal, which connects to Eaton Ditch, which flows to Owl Creek, which flows to Lone Tree Creek, which flows to the South Platte River (TNW).	Wetland adjacent to Unnamed Ditch 2	40.65531639	-105.0669786	15.12	5.68
Unnamed Ditch 13	An isolated roadside ditch with some wetland vegetation.	3-foot-wide ditch	40.65629899	-105.0623523	0.34	0.00
Wetland 78 (W78)	A potential forested/scrub-shrub wetland that abuts Kluver Reservoir. Kluver Reservoir connects to Water Supply and Storage Reservoir No. 4, which connects to Jackson Ditch, which connects to Long Pond Reservoir (RPW), which connects to Lindenmeier Lake (RPW), which connects to Dry Creek (RPW), which connects to the Poudre River (TNW).	Wetland abutting Kluver Reservoir	40.65117145	-105.0914314	2.00	1.59
Kluver Reservoir	A reservoir that connects to an unnamed stream that flows to Water Supply and Storage Reservoir No. 4, which connects to Jackson Ditch, which connects to Long Pond Reservoir (RPW), which connects to Lindenmeier Lake (RPW), which connects to Dry Creek (RPW), which connects to the Poudre River (TNW).	Open water reservoir	40.65143189	-105.0918887	0.14	7.01

Addendum A to the Natural and Cultural Resources Assessment
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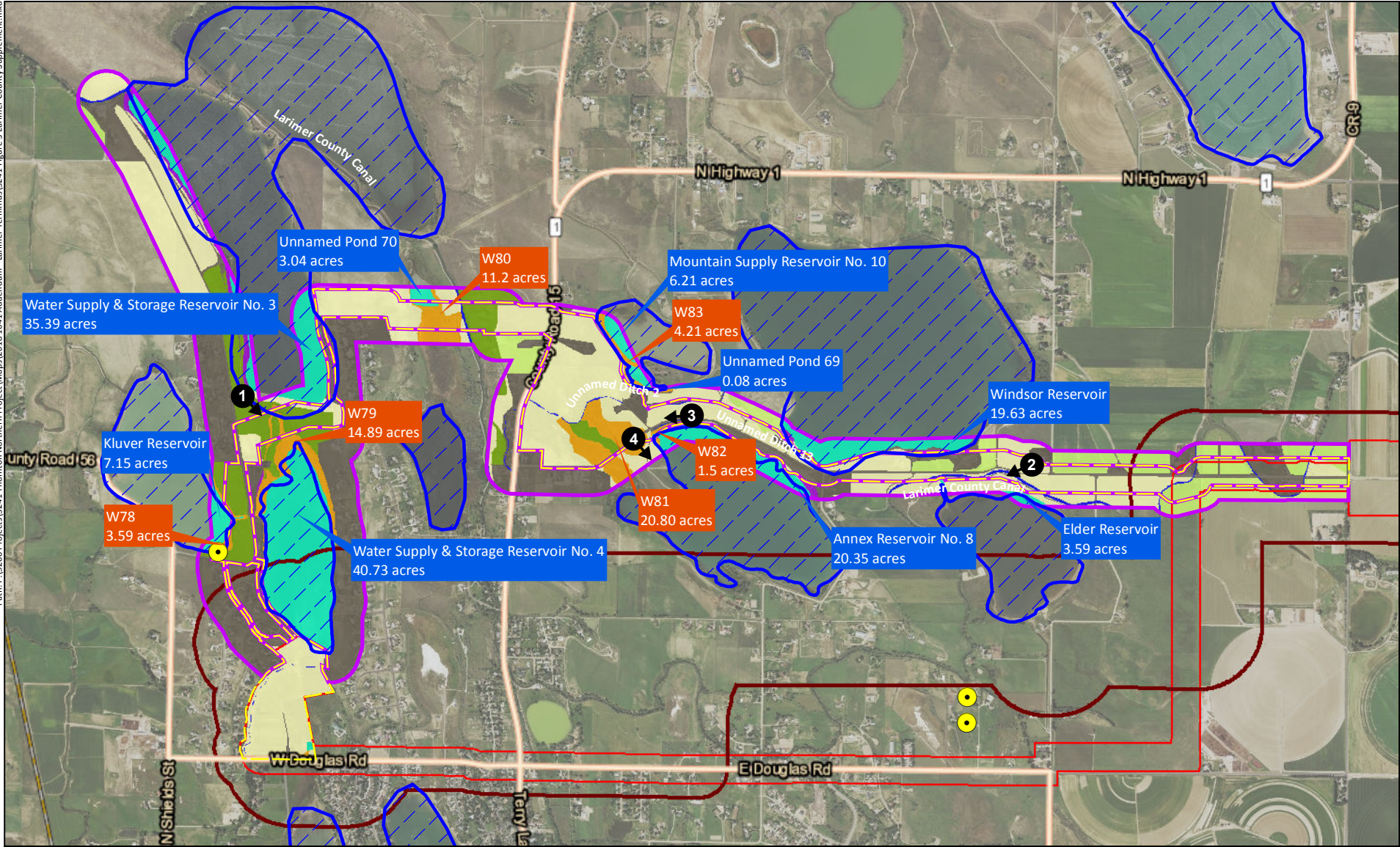
Wetland ID / Drainage Name	Proximity to TNW, RPW, Isolated, or Proximity to a Non-RPW	Site Description	Latitude	Longitude	Acreage in Alternative 3 (Option C) Corridor	Acreage in Study Buffer
Wetland 79 (W79)	A potential emergent and forested/scrub-shrub wetland that abuts Water Supply and Storage Reservoir No. 4, which connects to Jackson Ditch, which connects to Long Pond Reservoir (RPW), which connects to Lindenmeier Lake (RPW), which connects to Dry Creek (RPW), which connects to the Poudre River (TNW).	Wetland abutting Water Supply and Storage Reservoir No. 4	40.6538686	-105.0872921	1.35	13.54
Water Supply and Storage Reservoir No. 4	A reservoir that connects to the Jackson Ditch, which connects to Long Pond Reservoir (RPW), which connects to Lindenmeier Lake (RPW), which connects to Dry Creek (RPW), which connects to the Poudre River (TNW).	Open water reservoir	40.65181775	-105.0868087	0.36	40.73
Wetland 80 (W80)	A potential emergent and forested/scrub-shrub wetland that abuts Unnamed Pond 70, which connects to an unnamed intermittent stream that connects to Dixon Reservoir. Dixon Reservoir connects to Jackson Ditch, which connects to Long Pond Reservoir (RPW), which connects to Lindenmeier Lake (RPW), which connects to Dry Creek (RPW), which connects to the Poudre River (TNW).	Wetland abutting Unnamed Pond 70	40.66104061	-105.0777816	6.39	4.81
Unnamed Pond 70	A pond that connects to an unnamed intermittent stream that connects to Dixon Reservoir. Dixon Reservoir connects to Jackson Ditch, which connects to Long Pond Reservoir (RPW), which connects to Lindenmeier Lake (RPW), which connects to Dry Creek (RPW), which connects to the Poudre River (TNW).	Open water pond	40.66241283	-105.0787632	0.66	2.38
Wetland 82 (W82)	A potential forested/scrub-shrub wetland that abuts Annex Reservoir No. 8, which connects to the Larimer and Weld Canal, which connects to Eaton Ditch, which flows to Owl Creek, which flows to Lone Tree Creek, which flows to the South Platte River (TNW).	Wetland abutting Annex Reservoir No. 8	40.65579849	-105.0632028	1.02	0.48

Addendum A to the Natural and Cultural Resources Assessment
 Thornton Water Project
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Wetland ID / Drainage Name	Proximity to TNW, RPW, Isolated, or Proximity to a Non-RPW	Site Description	Latitude	Longitude	Acreage in Alternative 3 (Option C) Corridor	Acreage in Study Buffer
Annex Reservoir No. 8	A reservoir that connects to Windsor Reservoir No. 8 via a pipeline. Windsor Reservoir No. 8 connects to an unnamed stream that flows through a pipeline to the Elder Reservoir. The Elder Reservoir connects to an unnamed ditch that flows to the Larimer and Weld Canal, which connects to Eaton Ditch, which flows to Owl Creek, which connects to Lone Tree Creek, which flows to the South Platte River (TNW).	Open water reservoir	40.6548511	-105.0590886	0.25	20.10
Wetland 83 (W83)	A potential emergent and forested/scrub-shrub wetland that abuts Unnamed Pond 69 and Mountain Supply Reservoir No. 10. Mountain Supply Reservoir No. 10 connects to an unnamed ditch that flows to the Larimer County Canal, which connects to Black Hollow Reservoir and the Pierce Lateral. The Pierce Lateral terminates at a private irrigation reservoir east of Pierce; the Black Hollow Reservoir releases to the Larimer County Canal, which connects to the Collins Lateral, which connects to the Lone Tree Lateral, which terminates on farms.	Wetland abutting Unnamed Pond 69 and Mountain Supply Reservoir No. 10	40.65934906	-105.0657396	0.04	4.17
Mountain Supply Reservoir No. 10	A reservoir that connects to an unnamed ditch that flows to the Larimer County Canal, which connects to Black Hollow Reservoir and the Pierce Lateral. The Pierce Lateral terminates at a private irrigation reservoir east of Pierce; the Black Hollow Reservoir releases to the Larimer County Canal, which connects to the Collins Lateral, which connects to the Lone Tree Lateral, which terminates on farms.	Open water reservoir	40.65981524	-105.0657934	0.00	6.21

Addendum A to the Natural and Cultural Resources Assessment
 Thornton Water Project
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Wetland ID / Drainage Name	Proximity to TNW, RPW, Isolated, or Proximity to a Non-RPW	Site Description	Latitude	Longitude	Acreage in Alternative 3 (Option C) Corridor	Acreage in Study Buffer
Unnamed Pond 69	A pond that connects to Mountain Supply Reservoir No. 10, which connects to an unnamed ditch that flows to the Larimer County Canal. The Larimer County Canal connects to Black Hollow Reservoir and the Pierce Lateral. The Pierce Lateral terminates at a private irrigation reservoir east of Pierce; the Black Hollow Reservoir releases to the Larimer County Canal, which connects to the Collins Lateral, which connects to the Lone Tree Lateral, which terminates on farms.	Open water pond	40.65790158	-105.06334	0.00	0.08
Water Supply and Storage Reservoir No. 3	A reservoir that connects to an unnamed ditch that flows to Water Supply and Storage Reservoir No. 4, which connects to Jackson Ditch, which connects to Long Pond Reservoir (RPW), which connects to Lindenmeier Lake (RPW), which connects to Dry Creek (RPW), which connects to the Poudre River (TNW).	Open water reservoir	40.6622579	-105.0889601	0.41	34.97
Windsor Reservoir No. 8	A reservoir that connects to an unnamed stream that flows through a pipeline to the Elder Reservoir. The Elder Reservoir connects to an unnamed ditch that flows to the Larimer and Weld Canal, which connects to Eaton Ditch, which flows to Owl Creek, which connects to Lone Tree Creek, which flows to the South Platte River (TNW).	Open water reservoir	40.65514839	-105.0504752	0.00	19.63
Elder Reservoir	A reservoir that connects to an unnamed ditch that flows to the Larimer and Weld Canal, which connects to Eaton Ditch, which flows to Owl Creek, which connects to Lone Tree Creek, which flows to the South Platte River (TNW).	Open water reservoir	40.65263133	-105.0410844	0.00	3.59



Thornton Water Project – Addendum A Analysis Area

- | | | | |
|-----------------------------------|------------|---------------------|-------------------------------|
| Addendum A Analysis Area | Ditch | Mixed Upland | Inactive Nest |
| Alternative 3 (Option C) Corridor | Open Water | Agricultural | Bald Eagle Winter Forage Area |
| Study Buffer* | Wetland | Nonnative Upland | Photo Point |
| TWP Corridor | Riparian | Developed/Disturbed | |

*Study Buffer from "Natural and Cultural Resources Assessment"

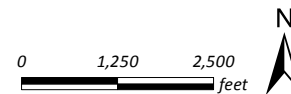


Figure Addendum-A3
Vegetation Communities
and Wildlife

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File: 5241 Figure 3 Larimer County Supplement.mxd [dlH]
January 10, 2019



Ditches

Two ditches and one canal are located within the Alternative 3 (Option C) Corridor and study buffer (Table Addendum-A1; Figure Addendum-A3): the Larimer County Canal (Photo 2), Unnamed Ditch 2, and Unnamed Ditch 13 (Photos 3 and 4). The Larimer County Canal is 20-30 feet wide and Unnamed Ditches 2 and 13 are approximately 3 feet wide in the Alternative 3 (Option C) Corridor. Potential wetland fringes occur along the Larimer County Canal; wetland vegetation in this area consists primarily of sandbar willow (*Salix exigua*). Potential wetlands also occur within Unnamed Ditch 13; wetland vegetation within this ditch consists primarily of cattails (*Typha* sp.). The Corps considers ditches or canals that convey water from a water of the U.S. to a water of the U.S., or that intercept a water of the U.S., jurisdictional. The potential connection of the ditches to any known waters of the U.S. is discussed in Table Addendum-A1.

Wetlands

ERO mapped six potential wetlands within the Alternative 3 (Option C) Corridor and study buffer: Wetland 78 (W78), Wetland 79 (W79), Wetland 80 (W80), Wetland 81 (W81), Wetland 82 (W82), and Wetland 83 (W83) (Figure Addendum-A3). All wetlands were shown on the NWI mapping. W78 abuts the Kluver Reservoir and consists primarily of cattails. W79 abuts Water Supply and Storage Reservoir Number 4 and consists primarily of sandbar willow and cattails. W80 abuts Unnamed Pond 70. Vegetation could not be identified within this wetland since ERO did not have access to the area. W81 is adjacent to Unnamed Ditch 2 and consists primarily of cattails. W82 abuts Annex Reservoir Number 8 and consists primarily of cattails, sandbar willow, and cottonwood (*Populus* sp.) trees. W83 abuts Mountain Supply Reservoir Number 10 and Unnamed Pond 69. Vegetation could not be identified within this wetland since ERO did not have access to the area.

Ponds and Reservoirs

Five ponds or reservoirs occur within the Alternative 3 (Option C) Corridor, and four additional ponds or reservoirs occur within the study buffer. Wetland fringes occur along several of the ponds and reservoirs, as described above. The Corps typically does not consider artificial lakes or ponds created by excavating or diking dry land to collect and retain water, and that are used exclusively for purposes such as stock watering, irrigation, settling basins, or rice growing, jurisdictional. However, several of the unnamed ponds and named reservoirs are part of an intermittent drainage system, some of which have downstream connections to other waters of the U.S. The potential connection of the ponds and reservoirs to any known waters of the U.S. is discussed in Table Addendum-A1.

Impacts

The Alternative 3 (Option C) Corridor crosses two ditches, one canal, six potential wetlands, and five open water features. As described in the "Natural and Cultural Resources Assessment" (ERO 2017), construction of the TWP has been designed to minimize impacts on wetlands and waters by avoiding the discharge of dredged or fill material into jurisdictional waters and wetlands. Impacts on these open water and wetland resources, as well as mitigation measures and Best Management Practices, would be the same as those described in the "Natural and Cultural Resources Assessment" (ERO 2017).

Terrestrial Animals and Habitat

Information on terrestrial animals was obtained from various sources including Colorado Parks and Wildlife (CPW), the Colorado Natural Diversity Information System (CNDIS), the Colorado Natural Heritage Program (CNHP), the U.S. Fish and Wildlife Service (Service), published literature, and field surveys. ERO visited the Alternative 3 (Option C) Corridor, where accessible, to assess potential wildlife habitat during the 2018 site visit. The following sections discuss species likely to occur in the Additional Analysis Area and the potential effects of the TWP on those species.

Federal Threatened, Endangered, and Candidate Animal Species

The Service lists several federally threatened, endangered, and candidate species protected under the Endangered Species Act (ESA) with potential habitat in Larimer County, or with the potential to be affected by projects in Larimer County. These species were identified and described in the “Natural and Cultural Resources Assessment” (ERO 2017). Based on ERO’s assessment of the Additional Analysis Area, there is no suitable habitat for the majority of federally threatened, endangered, and candidate species in Larimer County in the Additional Analysis Area. The wetlands in the Alternative 3 (Option C) Corridor and study buffer are potential habitat for Preble’s meadow jumping mouse, as described below.

Preble’s Meadow Jumping Mouse

Species Background

Preble’s meadow jumping mouse (*Zapus hudsonius preblei*; Preble’s) was listed as a threatened species on May 13, 1998, under the ESA (*Federal Register* [FR] Vol. 63, No. 232:66777-66784, December 3, 1998). Under existing regulations, either a habitat assessment or a full presence/absence survey for Preble’s is required for any habitat-disturbing activity within areas determined to be potential Preble’s habitat (generally stream and riparian habitats along the Colorado Front Range and in southeastern Wyoming). Typically, Preble’s occurs below 7,600 feet in elevation, generally in lowlands with medium to high moisture along permanent or intermittent streams and canals (Meaney et al. 1997). Preble’s occurs in low undergrowth consisting of grasses and forbs, in open wet meadows, in riparian corridors near forests, or where tall shrubs and low trees provide adequate cover (Service 1999; Meaney et al. 1997). Preble’s typically inhabits areas characterized by well-developed plains riparian vegetation with relatively undisturbed grassland and a water source nearby (Service 2014).

Potential Habitat

ERO reviewed the Additional Analysis Area for potential Preble’s habitat. None of the drainages that occur in the Alternative 3 (Option C) Corridor have been identified by the Service as areas essential to the recovery of Preble’s (75 FR 78429). All of the potential wetlands and riparian habitat found in the Alternative 3 (Option C) Corridor would be considered potential Preble’s habitat; however, these areas are not suitable habitat or are unlikely to support a population of Preble’s because they (1) are largely dominated by cattails, (2) are isolated from known Preble’s populations, or (3) do not contain adequate shrub cover to be considered suitable habitat. The nearest known Preble’s population is along the

Cache la Poudre River, approximately 4.1 miles southwest of the Alternative 3 (Option C) Corridor (Colorado Division of Wildlife [CDOW] 1998).

Impacts

No impacts on Preble's or its habitat are anticipated to occur from the TWP. Although wetland and riparian habitat along the reservoirs and ditches in the Alternative 3 (Option C) Corridor provides potentially suitable Preble's habitat, it is unlikely Preble's are present in the project area because of the reasons discussed above. In addition, most of these areas would likely be avoided during the final alignment or by using trenchless construction methods. A site assessment would be completed to confirm that habitat for Preble's is not present. A habitat assessment would be submitted to the Service when the final alignment has been determined to confirm the TWP would have no effect on Preble's or its habitat.

State Animal Species of Concern

ERO assessed the Additional Analysis Area for potential habitat for Colorado threatened and endangered species, species of special concern, and species that have been described as rare, vulnerable, or imperiled in the state by the CNHP. These species are listed and described in greater detail in the "Natural and Cultural Resources Assessment" (ERO 2017). Only state-listed species with suitable habitat or potentially suitable habitat within the Additional Analysis Area are discussed below.

Black-Necked Stilt

The black-necked stilt (*Himantopus mexicanus*) is ranked vulnerable in the state of Colorado by the CNHP (CNHP 2016) and is federally protected under the Migratory Bird Treaty Act (MBTA). In the United States, black-necked stilts are commonly found in shallow ponds, flooded lowlands, or shallow lagoons. Sewage ponds, flooded pastures, and other human-maintained wetlands are particularly suitable habitat for these birds as these environments have sparse vegetation. Black-necked stilts nest on the ground. They tend to build on surfaces above water, such as small islands or clumps of vegetation. Because black-necked stilts are wetland birds, they are vulnerable to polluted runoff, including pesticides and selenium, and are sometimes monitored as indicators of contaminated irrigation water (Cornell Lab of Ornithology 2015). Suitable habitat exists for the black-necked stilt in the Additional Analysis Area. Although ERO did not observe this species in the Additional Analysis Area during the 2018 site visit, black-necked stilts may nest or forage in the Additional Analysis Area. Temporary disturbance and displacement could occur during construction activities; however, the proposed TWP would not adversely affect the black-necked stilt over the long term.

Ferruginous Hawk

Ferruginous hawks (*Buteo regalis*) are known to breed in scattered locations in eastern Larimer County (Colorado Breeding Bird Atlas [COBBA] II 2016). Preferred habitat for this species consists of expansive grasslands and shrublands (Preston 1998). ERO observed three inactive raptor nests within and near the Alternative 3 (Option C) Corridor during the 2018 site visit. Since the nests were inactive, ERO could not determine if they were nests of ferruginous hawks; however, no breeding ferruginous hawks were recorded near the Additional Analysis Area during the most recent breeding bird atlas (COBBA II 2016). Ferruginous hawks may occasionally forage in the Alternative 3 (Option C) Corridor during migration and

winter. Temporary disturbance and displacement could occur during construction activities; however, the proposed TWP would not adversely affect the ferruginous hawk over the long term. If an active ferruginous hawk nest is found before or during construction, Thornton would comply with CPW seasonal restrictions (February 1 through July 15) within recommended buffers (½ mile) around active nest sites during construction to minimize impacts (CDOW 2008).

Common Garter Snake

The common garter snake (*Thamnophis sirtalis*) occurs only within the South Platte River drainage below 6,000 feet in northeastern Colorado (Hammerson 1999) and is listed as a state species of concern (CPW 2016). This snake is restricted to aquatic and riparian habitats within floodplains and inhabits marshes, ponds, irrigation ditches, and stream edges in Colorado. No common garter snakes were seen during the 2018 site visit. However, the Additional Analysis Area occurs within the species' overall range (CNDIS 2016) (Figure Addendum-A3). The reservoirs and ponds in the Alternative 3 (Option C) Corridor provide potential habitat for this species, and this species would be expected to occur in suitable habitat. Impacts from the TWP construction activities on wetlands, open water, or floodplains to the South Platte River tributaries could adversely affect the common garter snake and temporarily disturb suitable habitat. The trenchless construction methods proposed to eliminate impacts on wetlands and waters would avoid and minimize long-term adverse impacts on the common garter snake and its habitat; therefore, activities in the Alternative 3 (Option C) Corridor would not adversely affect the overall population of the common garter snake.

Northern Leopard Frog

The northern leopard frog (*Rana pipiens*) is a state species of concern (CPW 2016) that prefers the banks and shallow portions of marshes, wet meadows, ponds, lakes, and streams, particularly where rooted aquatic vegetation is present (Hammerson 1999). Frogs prefer permanent water bodies and are a wide-ranging species known to elevations of up to 11,000 feet. Northern leopard frogs can range up to 3 miles and feed on insects, spiders, and worms. Northern leopard frog tadpoles are herbivorous scavengers (U.S. Forest Service [USFS] 1997). Worldwide and locally in Colorado, amphibian populations have declined for reasons not well known. No northern leopard frogs were observed during the 2018 site visit; however, suitable habitat exists along the Alternative 3 (Option C) Corridor. Construction of the TWP in the Alternative 3 (Option C) Corridor could adversely affect the northern leopard frog and temporarily disturb suitable habitat. Trenchless construction methods proposed to eliminate impacts on wetlands and waters would avoid and minimize long-term adverse impacts on the northern leopard frog; therefore, the TWP would not adversely affect the overall population of the northern leopard frog.

Long-Billed Curlew

The long-billed curlew (*Numenius americanus*) is a state species of concern that inhabits native grassland areas in Colorado (CPW 2016). Although some evidence indicates this species may be dependent on water to some degree, it will nest in dry areas far from large water bodies. The species is known to breed in scattered areas in northeastern Colorado but is more common in the southeastern portion of the state (Nelson 1998). Historically the long-billed curlew ranged from Illinois to California and south to Texas (Kingery 1998). The Alternative 3 (Option C) Corridor contains potential habitat for

the long-billed curlew. The first Colorado Breeding Bird Atlas identified breeding pairs of curlews scattered throughout grasslands in Larimer County (Kingery 1998). However, the long-billed curlew has not been recorded in the Additional Analysis Area, and the Colorado Breeding Bird Atlas indicates a decrease in distribution in northern Colorado (COBBA II 2016). The proposed TWP would not likely adversely affect the long-billed curlew.

Raptors and Other Migratory Birds

Raptors and other migratory birds, including their nests and eggs, are protected under the MBTA. The CPW raptor nest database (CPW 2015) shows one red-tailed hawk nest, one osprey nest, one great horned owl nest, and one unknown hawk nest located in or near the Additional Analysis Area; however, the locations of these nests could not be verified due to limited land access. Three inactive raptor nests were observed during the 2018 site visit (Figure Addendum-A3). Additional suitable nesting habitat is also present in the Alternative 3 (Option C) Corridor and study buffer. Ground-nesting and other birds could nest in the grasslands and trees in and near the Alternative 3 (Option C) Corridor.

The breeding season for most birds in Colorado is between March and August, except for a few species that start in February, such as great-horned owls. CPW has published recommended buffer zones and seasonal restrictions for raptors in Colorado to minimize the effects of disturbance (CDOW 2008). The recommended buffers are $\frac{1}{3}$ mile for red-tailed hawks and $\frac{1}{4}$ to $\frac{1}{2}$ mile for other raptors. CPW has recommended buffers for nesting raptors as well, depending on the species (generally $\frac{1}{3}$ or $\frac{1}{4}$ mile; CDOW 2008). Additional detail regarding the MBTA and CPW's recommended buffers is discussed in the "Natural and Cultural Resources Assessment" (ERO 2017).

Physical disturbance, displacement, and clearing of upland and wetland habitats could affect raptors and other migratory birds during construction. However, these impacts would be temporary, and many habitats would recover quickly after construction. If feasible, based on property owner operations, preferences, and requirements, Thornton plans to clear vegetation within construction areas before the nesting season to minimize impacts on nesting birds. Thornton would review the CPW raptor nest data and perform nest surveys for raptors before the nesting season to identify potential active raptor nests before construction. Thornton would coordinate with CPW regarding any potential conflicts between scheduled construction and potential raptor nests and develop measures acceptable to CPW to minimize impacts on nesting raptors.

Other Game and Nongame Species

The Additional Analysis Area may provide habitat for other animals including coyote (*Canis latrans*), red fox (*Vulpes vulpes*), and raccoon (*Procyon lotor*). Smaller animals such as cottontail rabbit (*Sylvilagus* spp.), deer mouse (*Peromyscus maniculatus*), prairie vole (*Microtus pennsylvanicus*), plains pocket gopher (*Geomys bursarius*), and ground squirrel (*Ictidomys tridecemlineatus* and *Xerospermophilus spilosoma*) may also use the habitat in the Additional Analysis Area (Armstrong et al. 2011). None of these species were observed during the 2018 site visit. The TWP could displace individuals during

construction, but it would not have a significant long-term negative impact on these animals because these species are common and widespread throughout Larimer County.

Vegetation Communities

Based on the 2018 site visit and Google Earth imagery, ERO has identified all six of the vegetation communities from the “Natural and Cultural Resources Assessment” (ERO 2017) as occurring within the Additional Analysis Area: mixed upland, nonnative upland, wetlands, agricultural lands, riparian, and developed/disturbed areas. These communities are shown and described in the “Natural and Cultural Resources Assessment” (ERO 2017). Table Addendum-A2 lists the total acreages of each community in the Additional Analysis Area and in the Alternative 3 (Option C) Corridor. The total acres for the TWP corridor with Alternative 3 (Option C) in Larimer County are listed in Table Addendum-A7.

Table Addendum-A2. Total acreages of vegetation communities in the Alternative 3 (Option C) Corridor and study buffer in Larimer County.

Vegetation Community	Total Acres in Alternative 3 (Option C) Corridor	Total Acres in Study Buffer
Mixed Upland	38.94	43.96
Nonnative Upland	216.84/216.25*	131.39/131.26*
Riparian	0.00	9.87
Wetlands	26.58	30.28
Agricultural Lands	34.80	59.51
Developed/Disturbed Areas	73.60/76.55*	238.43/235.04*
Total	390.76/393.12*	513.44/509.92*

*#/# = Acres in Vista Lake Drive Route/Acres in WSSC Reservoir No. 4 Shoreline Route

Typically, a 50-foot permanent easement for the water pipeline and an additional 40-foot temporary easement for construction will be purchased from property owners except where the Alternative 3 (Option C) Corridor will be constructed in road ROW. If property owners object to granting an easement for the Alternative 3 (Option C) Corridor parallel to County Road 56, the water pipeline is proposed to be located in the Larimer County ROW where feasible and as approved by Larimer County. The majority of the impacts on vegetation would be temporary. All temporarily disturbed areas would be returned to preconstruction grades and seeded with native vegetation, or as reasonably specified by the property owner, once construction is complete. Because most of the impacts on vegetation would be temporary, there would be no long-term adverse effects on vegetation.

Areas of Historic or Archaeological Importance

ERO conducted a file search and literature review for the Additional Analysis Area as shown on Figure Addendum-A1 with the Colorado Office of Archaeology and Historic Preservation (OAHP).

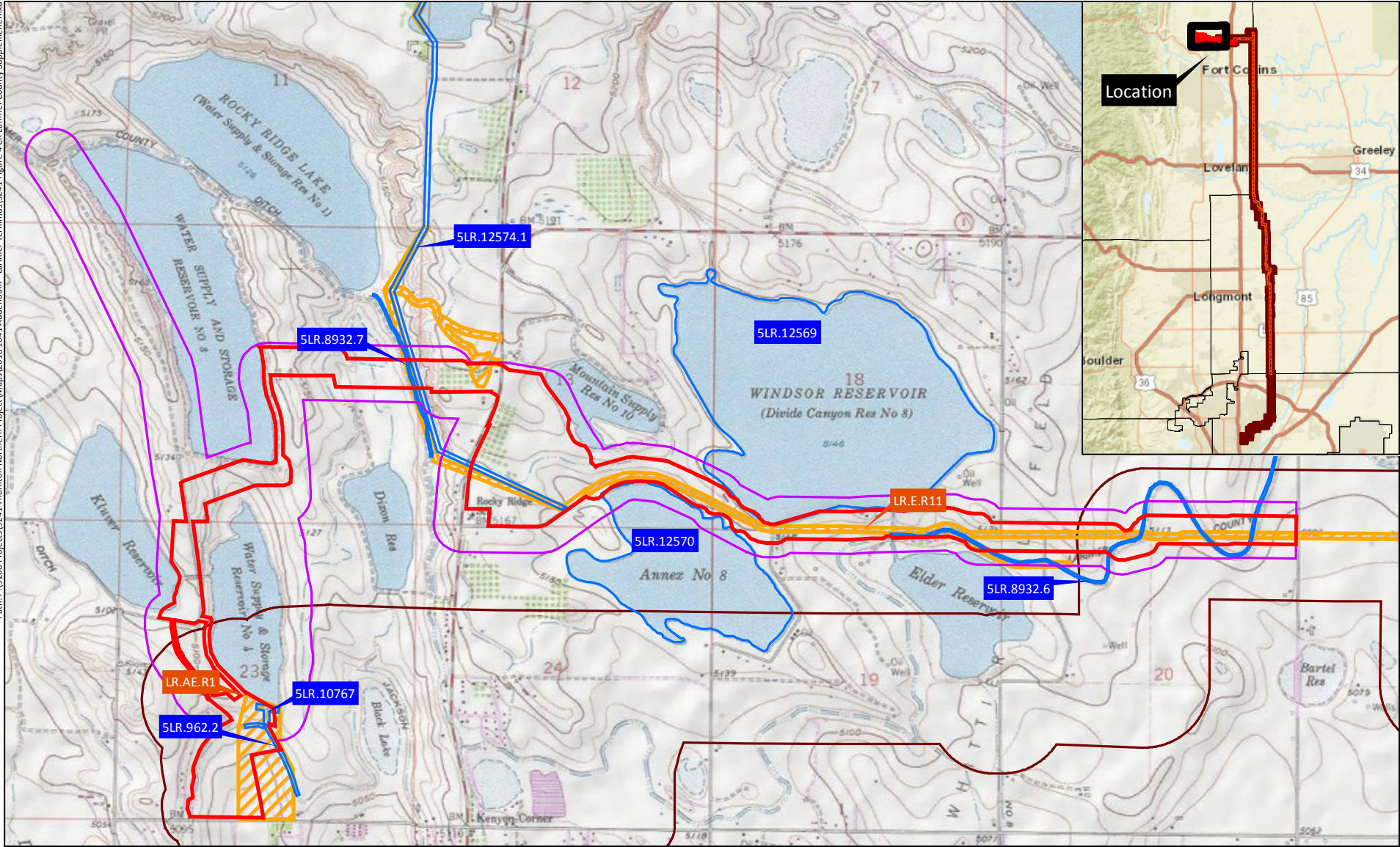
The OAHP provided ERO with the file search results for the Alternative 3 (Option C) Corridor and study buffer on November 20, 2018 (File Search No. 21553). The OAHP records indicate that three previously conducted intensive cultural resource surveys have occurred in the Alternative 3 (Option C) Corridor and that the previously conducted surveys overlap about 10 percent of the Alternative 3 (Option C) Corridor (Figure Addendum-A4). Archaeological contractors conducted the previous surveys in association with the Dry Creek Drainage Improvement Project (LR.AE.R1, 2004), the Bureau of Land Management (BLM)

Royal Gorge Field Office’s sale of Unit 305 (LR.LM.NR6, 2004), and the Tri-State Richard Lake to Waverly Transmission Line construction (LA.E.R11, 2011). The OAHP does not have GIS information for the 2004 BLM survey; therefore, this survey is not depicted in Figure Addendum-A4.

The OAHP identified eight previously documented cultural resources in the Alternative 3 (Option C) Corridor and study buffer (Table Addendum-A3, Figure Addendum-A4). All of the previously documented resources are related to historical settlement and development of the area and are predominantly related to water storage and conveyance, including a historical archaeological site (5LR10767). Resources identified as *needs data, supporting eligibility of entire resource, and eligible* for listing in the National or State Register of Historic Places (NRHP/SRHP) should be avoided by project construction. The Colorado State Historic Preservation Officer (SHPO) and federal agencies only consider evaluations that are 10 years old or younger, and may require additional research and new evaluations of any resource that has not been revisited within the last 10 years.

Table Addendum-A3. Previously documented cultural resources within 0.25 mile of the Alternative 3 (Option C) Corridor and study buffer.

Resource Number	Resource Name/Resource Type	NRHP/SRHP Eligibility (Date)	In Alternative 3 (Option C) Corridor / Study Buffer?
5LR962	Dry Creek Ditch	Not eligible (1983)	Both
5LR962.2	Dry Creek Ditch ~ Jackson Ditch (segment)	Needs data (2004)	Alternative 3 (Option C) Corridor
5LR8932.6	Larimer County Ditch	Supports eligibility of entire linear resource (2010)	Both
5LR8932.7	Larimer County Ditch	Eligible (2010)	Both
5LR10767	Historic archaeological resource	Needs data (2004)	Both
5LR12569	Windsor Reservoir ~ Divide Canyon Reservoir No. 8	Eligible (2010)	Both
5LR12570	Annex No. 8 Reservoir	Eligible (2010)	Study buffer; borders Alternative 3 (Option C) Corridor
5LR12574.1	Richard Lake to Waverly Transmission Line	Does not support eligibility of entire linear resource (2010)	Both



Thornton Water Project – Addendum A Analysis Area
 Sections 19, 20, 29, and 30, T8N, R68W; Sections 24 and 25, T8N, R69W; 6th PM
 UTM NAD 83: Zone 13N; 496392mE, 4498774mN
 Longitude 105.042668°W, Latitude 40.639806°N
 USGS Wellington, CO Quadrangle
 Larimer County, Colorado

*Study Buffer from "Natural and Cultural Resources Assessment"

- Addendum A Analysis Area
- Alternative 3 (Option C) Corridor
- Previously Recorded Site
- Previous Cultural Survey
- Study Buffer*

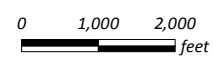


Figure Addendum-A4
 Cultural Surveys and Resources

Prepared for: City of Thornton
 File: 5241 Figure 4 CR Larimer County Supplement.mxd (dlh)
 January 10, 2019



In addition to the OAHP file search, ERO reviewed existing literature, historical maps, aerial photographs, and public records to determine whether there is potential for archaeological deposits in the Alternative 3 (Option C) Corridor and study buffer (Larimer County Assessor 2018; Nationwide Environmental Title Research, LLC 2018). The literature review identified multiple historical complexes, reservoirs, and buildings within and adjacent to the project area; these resources are listed in Table Addendum-A4 from east to west. The assessor records and historic and modern aerial photographs indicate the land surrounding the Alternative 3 (Option C) Corridor has been in continual use for agriculture throughout the historic period. Based on the OAHP file review results and the extent of ongoing cultivation and development throughout the area, there is low potential for intact prehistoric deposits in the Alternative 3 (Option C) Corridor.

Table Addendum-A4. Literature review results.

Resource Name or Type	Location	Approximate Construction	In Alternative 3 (Option C) Corridor / Study Buffer?
Agricultural complex	4721 N. County Road 11	1959 to 1963	Both
WRCC Inc. agricultural complex	1524 E. County Road 56	Pre-1908	Study buffer
Society of Saint Pius X Fort Collins potential historic building	290 E. County Road 56	Potentially pre-1963	Study buffer
Mark D. Rinne agricultural complex	4629 N. Highway 1	Pre-1928	Study buffer
Mark W. Johnson and Doreen G. Johnson historical residence	4835 N. Highway 1	1962	Study buffer
Mathew E. Dent historical residence (remodeled 1992)	5029 N. Highway 1	1925	Study buffer
Water Supply and Storage Reservoir Number 4	Section 23, T8N R69W, 6th PM	Pre-1908	Study buffer; borders Alternative 3 (Option C) Corridor
Water Supply and Storage Reservoir Number 3	Section 14, T8N R69W, 6th PM	Pre-1908	Study buffer; borders Alternative 3 (Option C) Corridor

The cultural resource file and literature review demonstrates the Alternative 3 (Option C) Corridor intersects several historical cultural resources. However, current designs indicate the TWP has little or no potential to result in any adverse effects on the historical buildings within the TWP corridor. If feasible, the water pipeline would be routed around or bored under all linear cultural resources to eliminate impacts on those resources. Consultation with the SHPO on project effects is necessary only when a federal action is required or state funds are involved. Because no federal action or state funding is anticipated, Thornton does not anticipate consulting with the SHPO on the TWP’s potential impacts on cultural resources.

TWP Corridor with Alternative 3 (Option C) Summary of Resources in Larimer County

The “Natural and Cultural Resources Assessment” (ERO 2017) presents information on the initial proposed corridor. This section combines information from the initial and more recent analyses to

summarize resources found in the TWP corridor with Alternative 3 (Option C) in Larimer County as shown in Figure Addendum-A1.

Potential Wetlands and Waters of the U.S.

ERO mapped 18 potential wetlands (99.57 acres) and 45 potential other waters of the U.S. (234.63 acres) in the TWP corridor in Larimer County. Table Addendum-A5 provides a summary of these water features mapped during the 2016, 2017, and 2018 site visits, including general descriptions, proximity to TNWs, locations, and acreages within the TWP corridor in Larimer County.

Table Addendum-A5. Summary of water features in the TWP corridor with Alternative 3 (Option C) in Larimer County.

Wetland ID / Drainage Name	Proximity to TNW, RPW, Isolated, or Proximity to a Non-RPW	Site Description	Latitude	Longitude	Figure Number(s)	Acreage in Larimer County
Larimer County Canal	A canal that connects to Black Hollow Reservoir and the Pierce Lateral; the Pierce Lateral terminates at a private irrigation reservoir east of Pierce; the Black Hollow Reservoir releases to the Larimer County Canal which connects to the Collins Lateral which connects to the Lone Tree Lateral which terminates on farms.	20-30-foot-wide canal	40.65788553	-105.0583372	2018 Addendum 3; 2017 Addendum-3, 4.4*, 4.6*, 4.10*, 4.11*	3.84
Unnamed Ditch 2	A ditch that connects to the Larimer and Weld Canal, which connects to Eaton Ditch, which flows to Owl Creek, which flows to Lone Tree Creek, which flows to the South Platte River (TNW).	3-foot-wide ditch	40.6563931	-105.0686307	2018 Addendum-A3	1.00
Unnamed Ditch 13	An isolated roadside ditch with some wetland vegetation.	3-foot-wide ditch	40.65629899	-105.0623523	2018 Addendum-A3	0.34
Wetland 78 (W78)	A potential forested/scrub-shrub wetland that abuts Kluver Reservoir. Kluver Reservoir connects to the Water Supply and Storage Reservoir No. 4, which connects to Jackson Ditch, which connects to Long Pond Reservoir (RPW), which connects to Lindenmeier Lake (RPW), which connects to Dry Creek (RPW), which connects to the Poudre River (TNW).	Wetland abutting Kluver Reservoir	40.65117145	-105.0914314	2018 Addendum-A3	2.00

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Wetland ID / Drainage Name	Proximity to TNW, RPW, Isolated, or Proximity to a Non-RPW	Site Description	Latitude	Longitude	Figure Number(s)	Acreage in Larimer County
Wetland 79 (W79)	A potential emergent and forested/scrub-shrub wetland that abuts Water Supply and Storage Reservoir No. 4. Water Supply and Storage Reservoir No. 4 connects to Jackson Ditch, which connects to Long Pond Reservoir (RPW), which connects to Lindenmeier Lake (RPW), which connects to Dry Creek (RPW), which connects to the Poudre River (TNW).	Wetland abutting Water Supply and Storage Reservoir No. 4	40.6538686	-105.0872921	2018 Addendum-A3	1.35
Wetland 80 (W80)	A potential emergent and forested/scrub-shrub wetland that abuts Unnamed Pond 70. Unnamed Pond 70 connects to an unnamed intermittent stream that connects to Dixon Reservoir. Dixon Reservoir connects to Jackson Ditch, which connects to Long Pond Reservoir (RPW), which connects to Lindenmeier Lake (RPW), which connects to Dry Creek (RPW), which connects to the Poudre River (TNW).	Wetland abutting Unnamed Pond 70	40.66104061	-105.0777816	2018 Addendum-A3	6.39
Wetland 81 (W81)	A potential emergent wetland that is adjacent to Unnamed Ditch 2. Unnamed Ditch 2 connects to the Larimer and Weld Canal, which connects to Eaton Ditch, which flows to Owl Creek, which flows to Lone Tree Creek, which flows to the South Platte River (TNW).	Wetland adjacent to Unnamed Ditch 2	40.65531639	-105.0669786	2018 Addendum-A3	15.12

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Wetland ID / Drainage Name	Proximity to TNW, RPW, Isolated, or Proximity to a Non-RPW	Site Description	Latitude	Longitude	Figure Number(s)	Acreage in Larimer County
Wetland 82 (W82)	A potential forested/scrub-shrub wetland that abuts Annex Reservoir No. 8. Annex Reservoir No. 8 connects to the Larimer and Weld Canal, which connects to Eaton Ditch, which flows to Owl Creek, which flows to Lone Tree Creek, which flows to the South Platte River (TNW).	Wetland abutting Annex Reservoir No. 8	40.65579849	-105.0632028	2018 Addendum-A3	1.02
Wetland 83 (W83)	A potential emergent and forested/scrub-shrub wetland that abuts Unnamed Pond 69 and Mountain Supply Reservoir No. 10. Mountain Supply Reservoir No. 10 connects to an unnamed ditch that flows to the Larimer County Canal, which connects to Black Hollow Reservoir and the Pierce Lateral. The Pierce Lateral terminates at a private irrigation reservoir east of Pierce; the Black Hollow Reservoir releases to the Larimer County Canal, which connects to the Collins Lateral, which connects to the Lone Tree Lateral, which terminates on farms.	Wetland abutting Unnamed Pond 69 and Mountain Supply Reservoir No. 10	40.65934906	-105.0657396	2018 Addendum-A3	0.04

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Wetland ID / Drainage Name	Proximity to TNW, RPW, Isolated, or Proximity to a Non-RPW	Site Description	Latitude	Longitude	Figure Number(s)	Acreage in Larimer County
Kliver Reservoir	A reservoir that connects to an unnamed stream that flows to Water Supply and Storage Reservoir No. 4, which connects to Jackson Ditch, which connects to Long Pond Reservoir (RPW), which connects to Lindenmeier Lake (RPW), which connects to Dry Creek (RPW), which connects to the Poudre River (TNW).	Open water reservoir	40.65143189	-105.0918887	2018 Addendum-A3	0.14
Water Supply and Storage Reservoir No. 4	A reservoir that connects to the Jackson Ditch, which connects to Long Pond Reservoir (RPW), which connects to Lindenmeier Lake (RPW), which connects to Dry Creek (RPW), which connects to the Poudre River (TNW).	Open water reservoir	40.65181775	-105.0868087	2018 Addendum-A3	0.36
Water Supply and Storage Reservoir No. 3	A reservoir that connects to an unnamed ditch that flows to Water Supply and Storage Reservoir No. 4, which connects to Jackson Ditch, which connects to Long Pond Reservoir (RPW), which connects to Lindenmeier Lake (RPW), which connects to Dry Creek (RPW), which connects to the Poudre River (TNW).	Open water reservoir	40.6622579	-105.0889601	2018 Addendum-A3	0.41

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Wetland ID / Drainage Name	Proximity to TNW, RPW, Isolated, or Proximity to a Non-RPW	Site Description	Latitude	Longitude	Figure Number(s)	Acreage in Larimer County
Unnamed Pond 70	A pond that connects to an unnamed intermittent stream that connects to Dixon Reservoir. Dixon Reservoir connects to Jackson Ditch, which connects to Long Pond Reservoir (RPW), which connects to Lindenmeier Lake (RPW), which connects to Dry Creek (RPW), which connects to the Poudre River (TNW).	Open water pond	40.66241283	-105.0787632	2018 Addendum-A3	0.66
Mountain Supply Reservoir No. 10	A reservoir that connects to an unnamed ditch that flows to the Larimer County Canal, which connects to Black Hollow Reservoir and the Pierce Lateral; the Pierce Lateral terminates at a private irrigation reservoir east of Pierce; the Black Hollow Reservoir releases to the Larimer County Canal which connects to the Collins Lateral which connects to the Lone Tree Lateral which terminates on farms.	Open water reservoir	40.65981524	-105.0657934	2018 Addendum-A3	0.00
Unnamed Pond 69	A pond that connects to Mountain Supply Reservoir No. 10, which connects to an unnamed ditch that flows to the Larimer County Canal. The Larimer County Canal connects to Black Hollow Reservoir and the Pierce Lateral. The Pierce Lateral terminates at a private irrigation reservoir east of Pierce; the Black Hollow Reservoir releases to the Larimer County Canal, which connects to the Collins Lateral which connects to the Lone Tree Lateral, which terminates on farms.	Open water pond	40.65790158	-105.06334	2018 Addendum-A3	0.00

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Wetland ID / Drainage Name	Proximity to TNW, RPW, Isolated, or Proximity to a Non-RPW	Site Description	Latitude	Longitude	Figure Number(s)	Acreage in Larimer County
Annex Reservoir No. 8	A reservoir that connects to Windsor Reservoir No. 8 via a pipeline. Windsor Reservoir No. 8 connects to an unnamed stream that flows through a pipeline to the Elder Reservoir. The Elder Reservoir connects to an unnamed ditch that flows to the Larimer and Weld Canal, which connects to Eaton Ditch, which flows to Owl Creek. Owl Creek connects to Lone Tree Creek, which flows to the South Platte River (TNW).	Open water reservoir	40.6548511	-105.0590886	2018 Addendum-A3	0.25
Windsor Reservoir No. 8	A reservoir that connects to an unnamed stream that flows through a pipeline to the Elder Reservoir. The Elder Reservoir connects to an unnamed ditch that flows to the Larimer and Weld Canal, which connects to Eaton Ditch, which flows to Owl Creek, which connects to Lone Tree Creek, which flows to the South Platte River (TNW).	Open water reservoir	40.65514839	-105.0504752	2018 Addendum-A3	0.00
Elder Reservoir	A reservoir that connects to an unnamed ditch that flows to the Larimer and Weld Canal, which connects to Eaton Ditch, which flows to Owl Creek, which connects to Lone Tree Creek, which flows to the South Platte River (TNW).	Open water reservoir	40.65263133	-105.0410844	2018 Addendum-A3	0.00
Unnamed Ditch 12	A ditch that receives water from the Larimer County Canal and connects to an isolated pond.	4- to 6-foot-wide ditch	40.6391667	-105.0525000	2017 Addendum-3	0.10
Wetland 77 (W77)	A potential emergent wetland that appears to be a swale that may carry stormwater flows but does not appear to connect to any known waters of the U.S. and may be considered isolated and nonjurisdictional.	2-foot-wide wetland swale	40.63896004	-105.0429606	2017 Addendum-3	0.58

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Wetland ID / Drainage Name	Proximity to TNW, RPW, Isolated, or Proximity to a Non-RPW	Site Description	Latitude	Longitude	Figure Number(s)	Acreage in Larimer County
No. 8 Outlet Ditch	A ditch that connects to the Larimer and Weld Canal, which connects to Eaton Ditch, which flows to Owl Creek, which flows to Lone Tree Creek, which flows to the South Platte River (TNW).	30-foot-wide ditch	40.63962223	-105.0384548	2017 Addendum-3	0.26
Dry Creek Ditch	A ditch that connects to Jackson Ditch, which connects to Long Pond Reservoir (RPW), which connects to Lindenmeier Lake (RPW), which connects to Dry Creek (RPW), which connects to the Cache la Poudre River (TNW) (Poudre River).	3- to 5-foot-wide ditch	40.64296441	-105.0832451	4.1*	1.09
Wetland 1 (W1)	A wetland with a possible connection to Terry Lake (TNW), which connects to the Larimer and Weld Canal, which connects to the Eaton Ditch, which flows to Owl Creek, which flows to Lone Tree Creek, which flows to the South Platte River (TNW).	Wetland abutting Unnamed Pond 1	40.64000429	-105.0862722	4.1*	1.79
Unnamed Pond 1	An isolated pond with a possible connection to W1, which has an eventual connection to the South Platte River (TNW).	Retention pond abutting W1	40.64050032	-105.0859676	4.1*	0.37
Water Supply and Storage Reservoir No. 4	A reservoir that connects to Jackson Ditch, which connects to Long Pond Reservoir (RPW), which connects to Lindenmeier Lake (RPW), which connects to Dry Creek (RPW), which connects to the Poudre River (TNW).	Open water reservoir	40.64686818	-105.0854282	4.1*	0.36
Jackson Ditch	A ditch that connects to Long Pond Reservoir (RPW), which connects to Lindenmeier Lake (RPW), which connects to Dry Creek (RPW), which connects to the Poudre River (TNW).	3- to 5-foot-wide ditch	40.64327361	-105.0764691	4.1*	0.03

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Wetland ID / Drainage Name	Proximity to TNW, RPW, Isolated, or Proximity to a Non-RPW	Site Description	Latitude	Longitude	Figure Number(s)	Acreage in Larimer County
Unnamed Ditch 1	A ditch that takes water from the Larimer County Canal and connects to the Long Pond Reservoir and Richard Lake Reservoir No. 6. Richard Lake Reservoir No. 6 connects to Long Pond Reservoir, which connects to Lindenmeier Lake, which connects to Dry Creek, which connects to the Poudre River (TNW).	2-foot-wide ditch	40.64167021	-105.072374	4.1*, 4.2*	0.08
Box Elder Creek	A creek (RPW) that connects to the Poudre River (TNW).	4- to 6-foot-wide OHWM	40.65336009	-104.9822874	4.6*	0.11
Cobb Lake	A lake that connects to the Larimer County Canal, which connects to Black Hollow Reservoir and the Pierce Lateral. The Pierce Lateral terminates at a private irrigation reservoir east of Pierce; the Black Hollow Reservoir releases to the Larimer County Canal, which connects to the Collins Lateral, which connects to the Lone Tree Lateral, which terminates on farms.	Open water lake	40.65241868	-104.9671271	4.6*, 4.7*	34.39
Wetland 3 (W3)	A wetland abutting Unnamed Pond 4, which has a possible connection to the Larimer County Canal, which connects to Black Hollow Reservoir and the Pierce Lateral. The Pierce Lateral terminates at a private irrigation reservoir east of Pierce; the Black Hollow Reservoir releases to the Larimer County Canal, which connects to the Collins Lateral, which connects to the Lone Tree Lateral, which terminates on farms.	Cattail wetland abutting Unnamed Pond 4	40.65504438	-104.9689002	4.6*, 4.7*	7.92

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Wetland ID / Drainage Name	Proximity to TNW, RPW, Isolated, or Proximity to a Non-RPW	Site Description	Latitude	Longitude	Figure Number(s)	Acreage in Larimer County
Unnamed Pond 4	A pond with a possible connection to the Larimer County Canal, which connects to Black Hollow Reservoir and the Pierce Lateral. The Pierce Lateral terminates at a private irrigation reservoir east of Pierce; the Black Hollow Reservoir releases to the Larimer County Canal, which connects to the Collins Lateral, which connects to the Lone Tree Lateral, which terminates on farms.	Open water pond	40.6553215	-104.970315	4.6*, 4.7*	0.83
Wetland 4 (W4)	A wetland abutting Cobb Lake, which connects to the Larimer County Canal, which connects to Black Hollow Reservoir and the Pierce Lateral. The Pierce Lateral terminates at a private irrigation reservoir east of Pierce; the Black Hollow Reservoir releases to the Larimer County Canal, which connects to the Collins Lateral, which connects to the Lone Tree Lateral, which terminates on farms.	Cattail wetland abutting Cobb Lake	40.65240243	-104.96162	4.7*	2.91
Windsor Ditch	A ditch that connects to Cobb Lake, which connects to the Larimer County Canal, which connects to Black Hollow Reservoir and the Pierce Lateral. The Pierce Lateral terminates at a private irrigation reservoir east of Pierce; the Black Hollow Reservoir releases to the Larimer County Canal, which connects to the Collins Lateral, which connects to the Lone Tree Lateral, which terminates on farms.	5-foot-wide ditch	40.65330162	-104.9535585	4.7*, 4.8*	0.17
Cowan Ditch Lateral	A ditch that connects to the Cactus Hill Lateral, which appears to dissipate in the uplands north of State Highway 14 and County Road 17.	5-foot-wide ditch	40.65329289	-104.9515966	4.7*, 4.8*	0.20

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Wetland ID / Drainage Name	Proximity to TNW, RPW, Isolated, or Proximity to a Non-RPW	Site Description	Latitude	Longitude	Figure Number(s)	Acreage in Larimer County
Cactus Hill Lateral	A ditch that appears to dissipate in the uplands north of State Highway 14 and County Road 17.	3- to 5-foot-wide ditch	40.63445941	-104.9427987	4.9*	0.08
Hinkley Lake	A lake shown as connecting to Cobb Lake, which connects to the Larimer County Canal, which connects to Black Hollow Reservoir and the Pierce Lateral. The Pierce Lateral terminates at a private irrigation reservoir east of Pierce; the Black Hollow Reservoir releases to the Larimer County Canal, which connects to the Collins Lateral, which connects to the Lone Tree Lateral, which terminates on farms.	Open water lake	40.63107907	-104.9458386	4.9*, 4.10*	6.78
Unnamed Ditch 3	A ditch that appears to dissipate into uplands (no hydrologic connection to a water of the U.S.).	3- to 5-foot-wide ditch	40.61569175	-104.9433691	4.10*	0.05
Wetland 6 (W6)	A wetland that is isolated with no outlet to waters of the U.S.	3-foot-wide wetland	40.58596315	-104.946184	4.12*	0.78
Wetland 8 (W8)	A wetland swale that connects to the Larimer and Weld Canal, which has an eventual connection to the South Platte River (TNW).	Wetland swale	40.57459087	-104.9451479	4.12*, 4.13*	8.66
Larimer and Weld Canal	A canal that connects to the Eaton Ditch, which flows to Owl Creek, which flows to Lone Tree Creek, which flows to the South Platte River (TNW).	10-foot-wide canal	40.56729125	-104.9447265	4.13*	1.14
Wetland 9 (W9)	A wetland with a possible connection to Timnath Reservoir (see Timnath Reservoir).	Cattail wetland drainage to Timnath Reservoir	40.56749424	-104.9456041	4.13*	9.54
Unnamed Pond 6	An isolated pond with no outlet to waters of the U.S.	Artificially constructed pond with open water	40.55281574	-104.9450029	4.14*	6.06

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Wetland ID / Drainage Name	Proximity to TNW, RPW, Isolated, or Proximity to a Non-RPW	Site Description	Latitude	Longitude	Figure Number(s)	Acreage in Larimer County
Wetland 12 (W12)	A wetland abutting Timnath Reservoir (see Timnath Reservoir).	Wetland abutting Timnath Reservoir	40.54773594	-104.944917	4.14*	5.50
Timnath Reservoir	A reservoir that connects to the Timnath Reservoir Outlet, which connects to the Greeley No. 2 Canal, which flows to the North Side Lateral, which terminates in an irrigated field; the Greeley No. 2 Canal supplies water to several private irrigation reservoirs that do not outlet to waters of the U.S., including Neff Lake and Lindies Lake. Downstream from the TWP corridor, a portion of the flow of the Greeley No. 2 Canal is diverted to Lone Tree Creek (RPW), which flows to the South Platte River (TNW).	Open water reservoir	40.5477765	-104.9456219	4.14*	7.51
Unnamed Ditch 4	A ditch terminating in uplands north of East County Road 40 with no outlet to waters of the U.S.	2-foot-wide dry ditch	40.53986532	-104.9430024	4.14*	0.07
Lake Canal	A canal that connects to the Greeley No. 2 Canal (see Greeley No. 2 Canal).	10- to 15-foot-wide dry canal	40.51872728	-104.9428854	4.15*	0.06
Unnamed Pond 9	An isolated pond with no outlet to waters of the U.S.	Open water pond	40.50939051	-104.9458833	4.16*	3.26
Greeley No. 2 Canal	A canal that flows to the North Side Lateral, which terminates in an irrigated field; the Greeley No. 2 Canal supplies water to several private irrigation reservoirs that do not outlet to waters of the U.S., including Neff Lake and Lindies Lake. Downstream from the TWP corridor, a portion of the flow of the Greeley No. 2 Canal is diverted to Lone Tree Creek (RPW), which flows to the South Platte River (TNW).	12-foot-wide canal	40.49561776	-104.9456069	4.16*, 4.17*	1.20
Wetland 13 (W13)	A wetland drainage that connects to an unnamed pond, which is isolated.	Cattail wetland	40.48676005	-104.9433562	4.17*	2.86

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Wetland ID / Drainage Name	Proximity to TNW, RPW, Isolated, or Proximity to a Non-RPW	Site Description	Latitude	Longitude	Figure Number(s)	Acreage in Larimer County
Unnamed Pond 10	An isolated pond with no outlet to waters of the U.S.	Artificially constructed pond with open water	40.48144765	-104.9456763	4.17*	13.58
Unnamed Pond 12	An isolated gravel pond with no outlet to waters of the U.S.	Artificially constructed pond with open water	40.4780103	-104.9456378	4.17*	6.00
Cache la Poudre River	A river (TNW) that flows to the South Platte River (TNW).	20- to 25-foot-wide river	40.47277292	-104.9428786	4.18*	2.23
Wetland 75 (W75)	A wetland abutting the Poudre River.	2- to 20-foot-wide wetland abutting river	40.47277292	-104.9428786	4.18*	0.79
Unnamed Pond 14	An isolated pond with no outlet to waters of the U.S.	Artificially constructed pond with open water	40.47237077	-104.9447621	4.18*	0.91
Unnamed Pond 15	An isolated pond with no outlet to waters of the U.S.	Artificially constructed pond with open water	40.4716633	-104.9449358	4.18*	0.63
Loveland and Greeley Canal	A canal that possibly flows into Ashcroft Draw (RPW), which flows to the South Platte River (TNW).	10-foot-wide canal	40.40830819	-104.9432516	4.21*	0.31
Farmers Ditch	A ditch that diverts water from the Big Thompson River (TNW) and connects to Koenig Reservoir with no outlet to any known waters of the U.S.	4-foot-wide ditch	40.40256299	-104.9436297	4.28*	0.07
Wetland 17 (W17)	A wetland drainage with a possible connection to the Hill and Brush Ditch (see Hill and Brush Ditch).	Cattail wetland	40.38829402	-104.9462448	4.22*	1.84
Hill and Brush Ditch	A ditch that flows southeast and receives and returns flows to the Big Thompson River (TNW).	4-foot-wide ditch	40.38455375	-104.9436394	4.22*	0.06
Big Thompson River	A river (TNW) that flows to the South Platte River (TNW).	18- to 22-foot-wide river	40.38330674	-104.946367	4.22*, 4.23*	1.06
Wetland 76 (W76)	A wetland abutting the Big Thompson River.	2- to 20-foot-wide wetland abutting river	40.38330674	-104.946367	4.22*, 4.23*	0.23

Wetland ID / Drainage Name	Proximity to TNW, RPW, Isolated, or Proximity to a Non-RPW	Site Description	Latitude	Longitude	Figure Number(s)	Acreage in Larimer County
Hillsboro Ditch	A ditch that terminates in agricultural uplands south of Milliken.	6-foot-wide ditch	40.37194611	-104.9440036	4.23*, 4.26*–4.28*	0.24
Unnamed Ditch 5	An unnamed ditch that connects to the Big Thompson River (TNW).	3-foot-wide ditch	40.38331	-104.944183	4.23*	0.05

*Figure from “Natural and Cultural Resources Assessment” (ERO 2017).

Terrestrial Animals and Habitat – Raptors

Table Addendum-A6 shows the raptor nests in or near the TWP corridor with Alternative 3 (Option C) in Larimer County that were observed during 2016–2018 site visits or identified using a CPW raptor nest database (CPW 2015). Three active raptor nests and one potential raptor nest were observed in or near the TWP corridor in Larimer County during the 2016 site visits. In addition, a CPW raptor nest database (CPW 2015) shows several red-tailed hawk nests located in or near the TWP corridor, as well as a great horned owl (*Bubo virginianus*) nest near the TWP corridor with Alternative 3 (Option C) in Larimer County (Table Addendum-A6).

Table Addendum-A5. Raptor nest locations in or near the TWP corridor with Alternative 3 (Option C) in Larimer County.

Raptor Nest Type	Source	Latitude	Longitude	Figure Number
Buteo spp.	CPW 2015	—	—	—
Great horned owl	CPW 2015	—	—	—
Osprey	CPW 2015	—	—	—
Red-tailed hawk*	CPW 2015	—	—	—
Raptor nest	ERO (2018 site visit)	40.64997075	-105.0918659	2018 Addendum-A3
Raptor nest*	ERO (2018 site visit)	40.64290462	-105.0439448	2018 Addendum-A3
Raptor nest*	ERO (2018 site visit)	40.64164023	-105.0439626	2018 Addendum-A3
Red-tailed hawk	CPW 2015	—	—	—
Red-tailed hawk	CPW 2015	—	—	—
Great horned owl*	CPW 2015	—	—	—
Buteo spp.*	CPW 2015	—	—	—
Red-tailed hawk	ERO (2016 site visits)	40.654694	-105.022129	5.4**
Red-tailed hawk*	CPW 2015	—	—	—
Red-tailed hawk	ERO (2016 site visits)	40.653940	-104.954510	5.7**, 5.8**
Red-tailed hawk*	CPW 2015	—	—	—
Red-tailed hawk*	ERO (2016 site visits)	40.608223	-104.947907	5.11**
Raptor nest	ERO (2016 site visits)	40.587628	-104.945341	5.12**
Red-tailed hawk*	CPW 2015	—	—	—
Red-tailed hawk	CPW 2015	—	—	—

Raptor Nest Type	Source	Latitude	Longitude	Figure Number
Red-tailed hawk*	CPW 2015	—	—	—
Raptor nest*	CPW 2015	—	—	—

Note: Locations of potential nests identified through the CPW raptor nest database are not included in this report per a nondisclosure agreement with CPW to keep nest location information confidential.

*Nest occurs outside of the TWP corridor and Alternative 3 (Option C) Corridor.

**Figure from “Natural and Cultural Resources Assessment” (ERO 2017).

Vegetation Communities

Based on the 2016, 2017, and 2018 site visits and Google Earth imagery, ERO has identified six broad vegetation communities in the TWP corridor in Larimer County: mixed upland, nonnative upland, riparian, wetlands, agricultural lands, and developed/disturbed areas. These communities are described in the “Natural and Cultural Resources Assessment” (ERO 2017) and are shown in Figures 4.1–4.55 of that report, Figure Addendum-3 (2017), and Figure Addendum-A3 (2018). Table Addendum-A7 lists the total acreages of each community in the TWP corridor with Alternative 3 (Option C) in Larimer County.

Table Addendum-A6. Total acreages of vegetation communities in the TWP corridor with Alternative 3 (Option C) in Larimer County.

Vegetation Community	Total Acres in TWP Corridor with Alternative 3 (Option C)
Mixed Upland	92.92
Nonnative Upland	796.83/796.24*
Riparian	7.42
Wetlands	68.18
Agricultural Lands	1165.66
Developed/Disturbed Areas	798.59/801.53*
Total	2929.60/2931.95*

*#/# = Acres in Vista Lake Drive Route/Acres in WSSC Reservoir No. 4 Shoreline Route

Areas of Historic or Archaeological Importance

As previously stated, ERO conducted a file search and literature review of the entire proposed TWP corridor with the OAHP. The file search identified 21 previously documented cultural resources in the TWP corridor in Larimer County, which are shown in Table Addendum-A8 and Figures 8.14–8.23 of the “Natural and Cultural Resources Assessment” (ERO 2017). All of the previously recorded resources are historical (i.e., no prehistoric archaeological sites have been previously documented in the TWP corridor with Alternative 3 [Option C] in Larimer County). The majority of resources are irrigation ditch and railroad segments significant because of their association with the early settlement and development of agriculture on the Front Range.

Table Addendum-A7. Previously identified cultural resources in the TWP corridor with Alternative 3 (Option C) in Larimer County.

Resource Number	Resource Name/Type	NRHP Eligibility
5LR503*	Loveland-Greeley Canal	Officially eligible
5LR503.2*	Loveland-Greeley Canal, Greeley and Loveland Ditch Canal and the Chubbuck Ditch (segment)	Officially eligible
5LR850	Great Western Railroad	Officially needs data

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Resource Number	Resource Name/Type	NRHP Eligibility
5LR850.3*	Great Western Railroad (segment, Loveland to Officer Junction to Hardman to Johnstown)	No assessment given on form
5LR850.4	Great Western Railroad (segment, Windsor to Officer Junction)	No assessment given on form
5LR863*	Larimer-Weld Canal, Eaton Ditch, Eaton Canal	Officially eligible
5LR876*	Loveland Revilo Homestead	Field not eligible
5LR962	Dry Creek Ditch	Field not eligible
5LR962.2	Dry Creek Ditch, Jackson Ditch (segment)	Officially needs data
5LR995	Lake Canal	Officially not eligible
5LR1731.14	Colorado and Southern Railway	Supports eligibility of entire linear resource
5LR8932.5	Larimer County Canal (segment)	Officially eligible
5LR8932.6	Larimer County Canal	Supports eligibility of entire linear resource
5LR8932.7	Larimer County Ditch	Officially eligible
5LR9385	Airport-Kodak Transmission Line	Field not eligible
5LR9458	Cheyenne to Richard Lake Transmission Line	Officially not eligible
5LR9458.1	Cheyenne to Richard Lake Transmission Line (segment)	Officially not eligible
5LR10691	Gregory House, Schureman Residence, Yancy Farm	Officially eligible for the State Register
5LR10767	Historical archaeology	Officially needs data
5LR11360	Boekel Farm	No assessment given on form
5LR11790	Officer Junction	Officially not eligible
5LR12574.1*	Richard Lake to Waverly Transmission Line	Does not support eligibility of entire linear resource
5LR102569	Windsor Reservoir ~ Divide Canyon Reservoir No. 8	Officially eligible
5LR45874.1	Richard Lake to Waverly Transmission Line	Does not support eligibility of enter resource
5LR13212	Uhrich Farmyard (rural historic landscape)	Officially eligible

*These resources are not shown on Figures 8.1–8.23 of the “Natural and Cultural Resources Assessment” (ERO 2017) because GIS information was not available for these resources.

Table Addendum-A9 lists cultural resources in the TWP corridor with Alternative 3 (Option C) in Larimer County that have not been previously documented or evaluated. As previously stated, these are properties in the TWP corridor with Alternative 3 (Option C) in Larimer County that may contain cultural resources 45 years old or older (i.e., constructed before 1973). The majority of these resources are historical rural or agricultural properties and irrigation-related landscape features.

Table Addendum-A8. Cultural resources in the TWP corridor with Alternative 3 (Option C) in Larimer County that have not been previously documented or evaluated.

Property Type/Name	Address/Location	Built
Agricultural Complex	4721 N County Road 11	1959 to 1963
WRCC Inc Agricultural Complex	1524 E County Road 56	Pre 1908
Society of Saint Pius X Fort Collins potential historic building	290 E County Road 56	Potentially pre 1963
Mark D Rinne Agricultural Complex	4629 N Highway 1	Pre 1928
Mark W Johnson and Doreen G Johnson historical residence	4835 N Highway 1	1962

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Property Type/Name	Address/Location	Built
Mathew E Dent historical residence (remodeled 1992)	5029 N Highway 1	1925
Water Supply and Storage co Reservoir Number 4	Section 23, T8N R69W, 6th PM	Pre 1908
Water Supply and Storage co Reservoir Number 3	Section 14, T8N R69W, 6th PM	Pre 1908
Keeton residence	1000 E. Douglas Road, Fort Collins, CO 80524	1961
Larimer County Canal	SE Section 24 T8N-R69W; SW Section 19 and S ½ Section 17 T8N-R68W	1881–1882
Jewett residence	1200 E. Douglas Road, Fort Collins, CO 80524	1905
Blinderman-Collins residence	1225 E. Douglas Road, Fort Collins, CO 80524	1915/1945
Jan residence	1401 E. Douglas Road, Fort Collins, CO 80524	1963
Kontz residence	1421 E. Douglas Road, Fort Collins, CO 80524	1958
Rural residence	1950 E. Douglas Road, Fort Collins, CO 80524	Ca. 1950s
Potential historical archaeology	1949 E. Douglas Road, Fort Collins, CO 80524	Ca. 1900
Buckner residence	3701 N. County Road 11, Fort Collins, CO 80524	1900–1960
No. 8 Outlet Ditch	SW Section 20 T8N-R68W	Ca. 1900
Hillsboro Ditch laterals	Section 36 T5N-R68W; north of CR 50 and County Line Road intersection; Johnstown, CO 80534	Ca. 1900
Hillsboro Ditch (5LR8927)	NW ¼ Section 25, T5N-R68W; south of intersection of CR 1 and CR 54, Johnstown, CO 80534	1861
Agricultural property	1339 S. CR 1, Johnstown, CO 80534	1901
Hill and Brush Ditch	Section 24, T5N-R68W; north of CR 1 and CR 54 intersection; Johnstown, CO 80534	1866
Union Pacific Railroad – Dent Branch (5LR1815)	Section 13, T5N-R68W; north of CR 1 and CR 56 intersection; Johnstown, CO 80534	1910
Farmers Ditch	Section 13, T5N-R68W; north of CR 1 and CR 56 intersection; Johnstown, CO 80534	1864
Agricultural property	1209 N. CR 1, Johnstown, CO 80534	1966
Greeley No. 2 Canal	Section 13, T6-NR68W; south of intersection of CR 13 and CR 40; Windsor, CO 80550	1870
Agricultural property	6805 S. CR 1, Windsor 80550	1915
Agricultural property	6195 S. CR 1, Fort Collins, CO 80524	1945
Greeley Salt Lake & Pacific Railroad/Colorado & Southern Railroad (5WL1043)	Section 12, T6N-R68W; south of County Line Rd. and E. CR 36 intersection; Fort Collins, CO 80524 Sections 12 and 13, T7N-R68W; intersection of County Line Rd and Hwy 14; Fort Collins, CO 80524	1880
Agricultural property	5701 S. CR 1, Windsor, CO 80528	1900
Agricultural property	7020 E. CR 40, Windsor, CO 80528	1934
Agricultural property	3309 S. County Line Rd., Windsor, CO 80550	Ca. 1950
Larimer and Weld Canal (5WL844)	W ½ Sections 13 and 24, T7N-R68W; intersection of County Line Rd. and E. Prospect Rd.; Windsor, CO 80550	1879
Agricultural property	6932 E. CR 48, Fort Collins, CO 80524	1915
Agricultural property / dairy	1137 N. CR 1, Fort Collins, CO 80524	Ca. 1920s–1950s
Cactus Hill Lateral	E ½ Section 25, T8N-R68W; southwest of County Line Rd. and E. CR 54 intersection, Fort Collins, CO 80524	1900
Cowen Lateral	Sections 13 and 24, T8N-68W; west of County Line Rd. and E. CR 56 intersection; Fort Collins, CO 80524	Ca. 1900
Windsor Ditch (5LR8934)	Sections 13 and 24, T8N-68W; west of County Line Rd. and E. CR 56 intersection; Fort Collins, CO 80524	1873

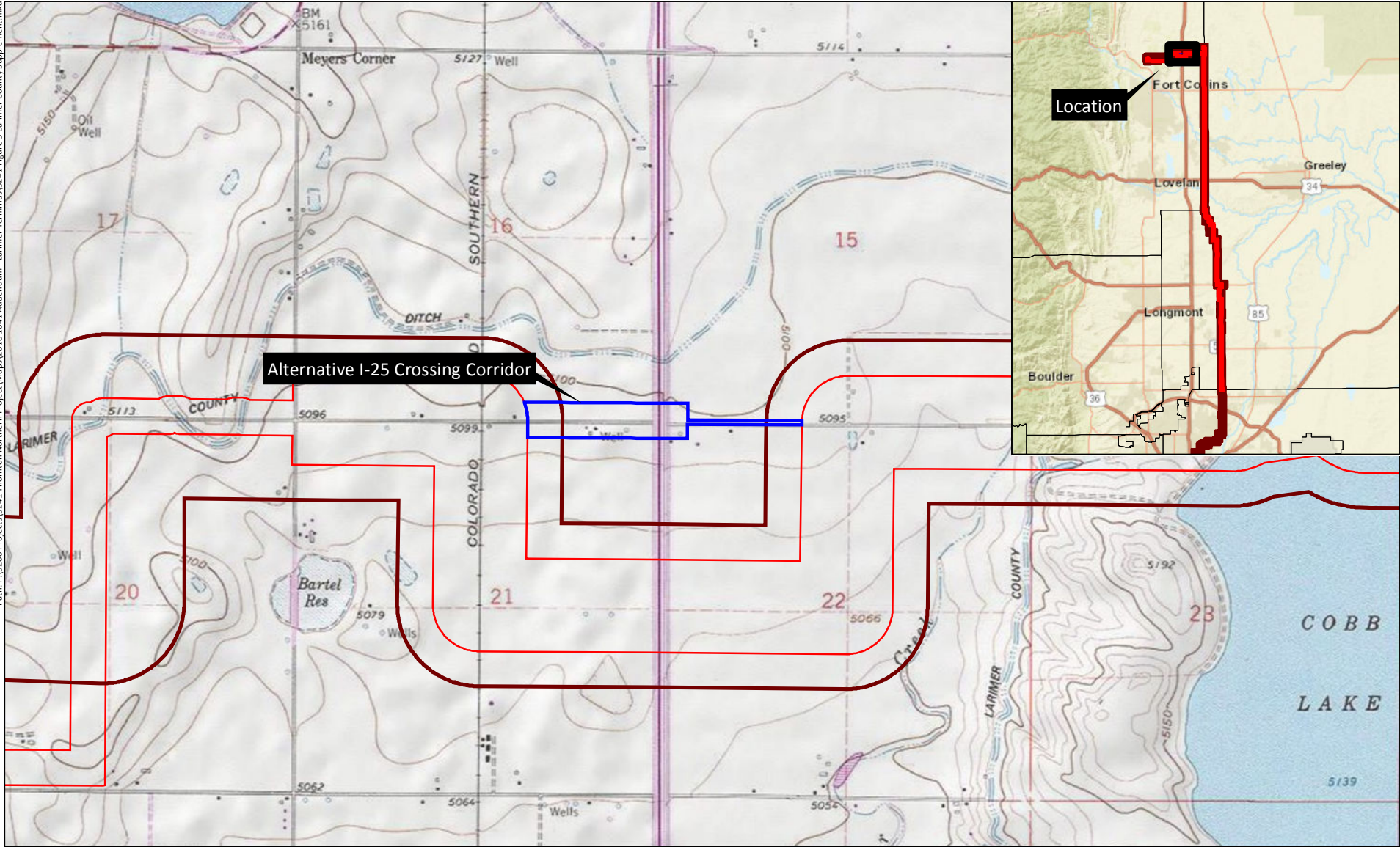
Property Type/Name	Address/Location	Built
Agricultural property	5116 E. CR 56, Fort Collins, CO 80524	1905
Larimer County Canal (5LR8932)	Sections 14, 15, 19, 22, 23, and 24, T8N-R68W; west of E. CR 56 and I-25 intersection; Fort Collins, CO 80524	1881–1882
Agricultural property	3420 E. CR 56, Fort Collins, CO 80524	1910
Bartels Reservoir	W ½ Section 21, T8N, R68W; southeast of E. CR 56 and Giddings Rd. intersection; Fort Collins, CO 80524	1953
Agricultural property	4400 N. CR 9, Fort Collins, CO 80524	1925
Jackson Ditch (5LR962)	E ½ Section 23, T8N-R69W; NW of N Hwy 1 and E. CR 54 intersection; Fort Collins, CO 80524	1961
Agricultural property	400 W. Douglas Rd., Fort Collins, CO 80524	1958
Rural residence	116 E. Douglas Rd., Fort Collins, CO 80524	1955
Rural residence	120 E. Douglas Rd., Fort Collins, CO 80524	1954
Outbuildings	~114 E. Douglas Ave., Fort Collins, CO 80524	1948
Rural residence	3704 N. Highway 1, Fort Collins, CO 80524	1930
Rural residence	3716 N. Highway 1, Fort Collins, CO 80524	Ca. 1950s
Agricultural property	400 E. Douglas Rd., Fort Collins, CO 80524	1959

Alternative I-25 Crossing Corridor

The Alternative I-25 Crossing Corridor is located east of the Additional Analysis Area and is presented as an alternative pipeline route that links the segment of pipeline east of I-25 with the segment of pipeline west of I-25. This alternative crossing corridor overlaps with the previously reviewed study buffer on the east and west ends of the corridor. Based on a desktop review, the Alternative I-25 Crossing Corridor does not appear to contain any potential wetlands or waters of the U.S. The vegetation communities include 16.92 acres of agricultural land, 0.02 acres of nonnative upland, and 11.46 acres of developed/disturbed areas (Figure Addendum A-6). Since there does not appear to be any wetlands or riparian habitat in the proposed crossing corridor, suitable habitat for Preble’s is unlikely. Ferruginous hawks, a state animal species of concern, may forage in the crossing corridor. Additionally, the Alternative I-25 Crossing Corridor is located within the overall range for the common garter snake. However, there does not appear to be suitable habitat for any other state animal species of concern. Additionally, no new raptor nests were identified in the Alternative I-25 Crossing Corridor or within 1/2-mile of the area on the CPW raptor nest database. The Alternative I-25 crossing corridor may provide habitat for other animals including coyote (*Canis latrans*), red fox (*Vulpes vulpes*), and raccoon (*Procyon lotor*). Smaller animals such as cottontail rabbit (*Sylvilagus* spp.), deer mouse (*Peromyscus maniculatus*), prairie vole (*Microtus pennsylvanicus*), plains pocket gopher (*Geomys bursarius*), and ground squirrel (*Ictidomys tridecemlineatus* and *Xerospermophilus spilosoma*) may also use the habitat in the crossing corridor (Armstrong et al. 2011).




The cultural resource file and literature review identified the Colorado State University Agricultural Research, Development and Education Center (5LR11400) as a cultural resource in both the Alternative I-25 Crossing Corridor and TWP study buffer; CDOT determined the resource as officially not eligible for listing in the NRHP in 2007. No other cultural resources are known in the Alternative I-25 Crossing Corridor.

Path: P:\5200 Projects\5241 Thornton Northern Project\Maps\2018 1041 Addendum - Larimer Terminus\5241 Figure 5 Larimer County Supplement.mxd



Thornton Water Project – Addendum A Analysis Area
 Sections 15, 16, 21, and 22, T8N, R68W; 6th PM
 UTM NAD 83: Zone 13N; 499759mE, 4500295mN
 Longitude 105.002853°W, Latitude 40.653517°N
 USGS Wellington and Cobb Lake, CO Quadrangles
 Larimer County, Colorado

*Study Buffer from "Natural and Cultural Resources Assessment"

-  Alternative I-25 Crossing Corridor
-  Study Buffer*
-  TWP Corridor

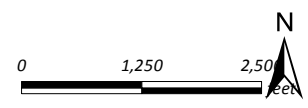
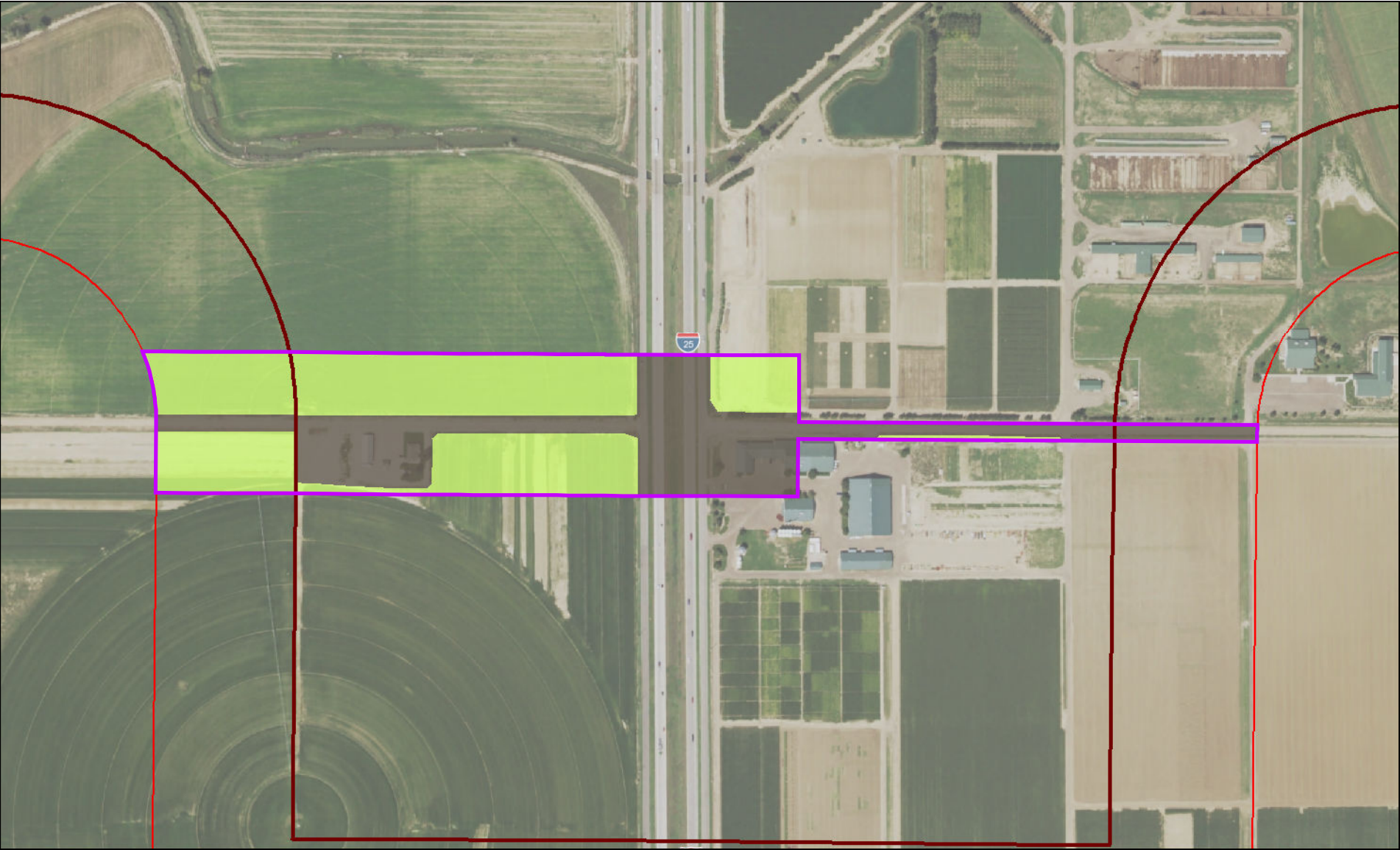








Figure Addendum-A5
 Vicinity Map

Prepared for: City of Thornton
 File: 5241 Figure 5 Larimer County Supplement.mxd [dlH]
 January 10, 2019





Thornton Water Project – Alternative I-25 Crossing Corridor

 Study Buffer*	 Agricultural
 TWP Corridor	 Nonnative Upland
 Alternative I-25 Crossing Corridor	 Developed/Disturbed

*Study Buffer from "Natural and Cultural Resources Assessment"

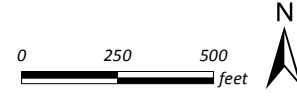
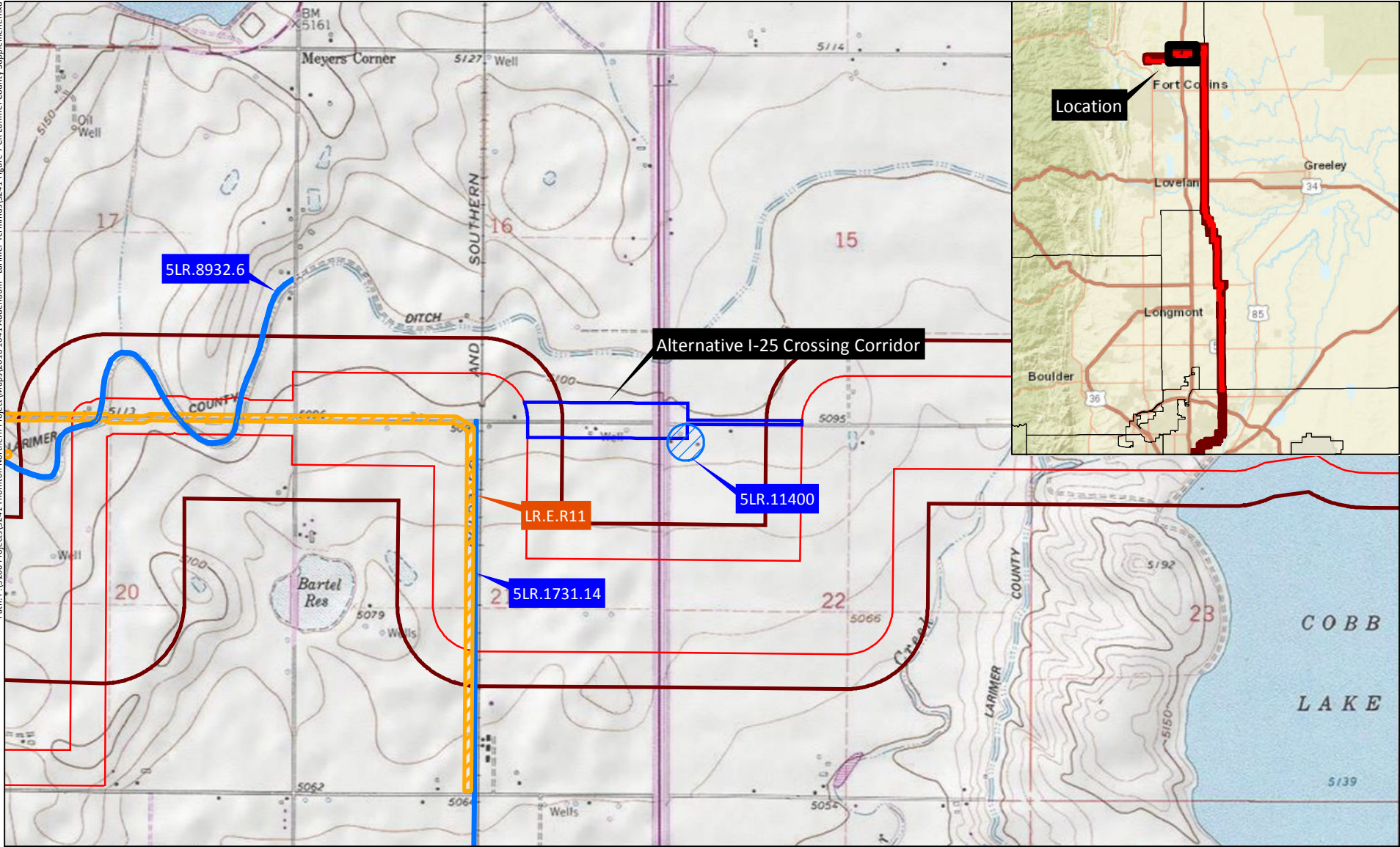


Figure Addendum-A6
Vegetation Communities
and Wildlife






Prepared for: City of Thornton
File: 5241 Figure 6 Larimer County Supplement.mxd [dlH]
January 10, 2019





Thornton Water Project – Addendum A Analysis Area
 Sections 15, 16, 21, and 22, T8N, R68W; 6th PM
 UTM NAD 83: Zone 13N; 499759mE, 4500295mN
 Longitude 105.002853°W, Latitude 40.653517°N
 USGS Wellington and Cobb Lake, CO Quadrangles
 Larimer County, Colorado

*Study Buffer from "Natural and Cultural Resources Assessment"

-  Previously Recorded Site
-  Previous Cultural Survey
-  Alternative I-25 Crossing Corridor
-  Study Buffer*
-  TWP Corridor

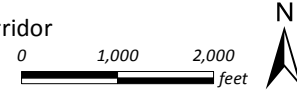


Figure Addendum-A7
Vicinity Map

Prepared for: City of Thornton
 File: 5241 Figure 7 CR Larimer County Supplement.mxd (dlh)
 January 10, 2019



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Appendix A Photo Log

NATURAL RESOURCES ASSESSMENT ADDENDUM
THORNTON WATER PROJECT
LARIMER COUNTY, COLORADO
NOVEMBER 16, 2018



Photo 1 - Overview of mixed upland vegetation east of Travis Road. View is to the southeast.



Photo 2 - Larimer County Canal running through the southern portion of the TWP additional analysis area, along the southern edge of East County Road 56. View is to the southwest.

NATURAL RESOURCES ASSESSMENT ADDENDUM
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Photo 3 - Unnamed Ditch 13 with cattails, adjacent to Annex Reservoir Number 8. View is to the southwest.



Photo 4 - Potential wetlands along the southern edge of East County Road 56. View is to the southeast.